

Typical Performance Curves

1.0 TYPICAL PERFORMANCE CURVES

Note 1: The following performance graphs are for the devices that are documented in the MCP48FEBXX data sheet (DS-20005429). This document allows the MCP48FEBXX data sheet's functional description to be in PDF format with a file size smaller than the 10 MB limit of many email file servers.

The graphs and tables provided following this note are a statistical summary based on a limited number of samples and are provided for informational purposes only. The performance characteristics listed herein are not tested or guaranteed. In some graphs or tables, the data presented may be outside the specified operating range (e.g., outside specified power supply range) and therefore outside the warranted range.

2: For quick indexing of Characterization Graphs, expand the PDF bookmarks. Graphs related to all devices (I_{DD} , I_{PD} , V_{IH} , V_{IL} , V_{OH} , V_{OL} , V_{IHH} , and V_{OUT} drive) are before the device V_{OUT} linearity graphs (Total Unadjusted Error, INL, and DNL).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

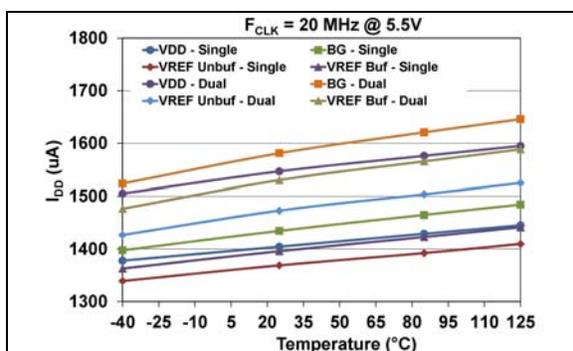


FIGURE 1-1: Average Device Supply Active Current (I_{DDA}) (at 5.5V and $F_{SCK} = 20\text{ MHz}$) vs. Temperature and DAC Reference Voltage Mode.

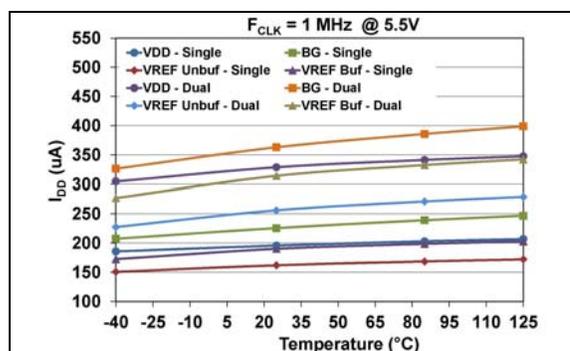


FIGURE 1-3: Average Device Supply Active Current (I_{DDA}) (at 5.5V and $F_{SCK} = 1\text{ MHz}$) vs. Temperature and DAC Reference Voltage Mode.

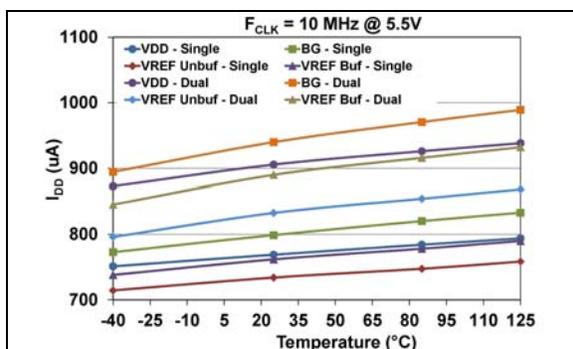


FIGURE 1-2: Average Device Supply Active Current (I_{DDA}) (at 5.5V and $F_{SCK} = 10\text{ MHz}$) vs. Temperature and DAC Reference Voltage Mode.

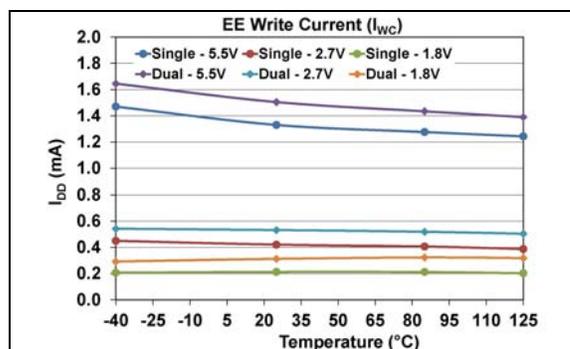


FIGURE 1-4: Average Device EEPROM Write Cycle Current (I_{WC}) vs. Temperature and Voltage. (MCP48FEBXX only).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

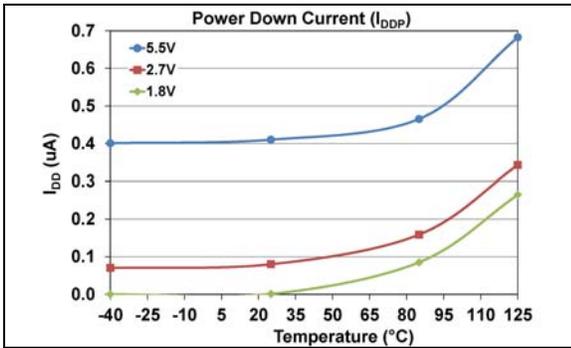


FIGURE 1-5: Average Power-Down Current (I_{DDP}) vs. Temperature and Voltage.

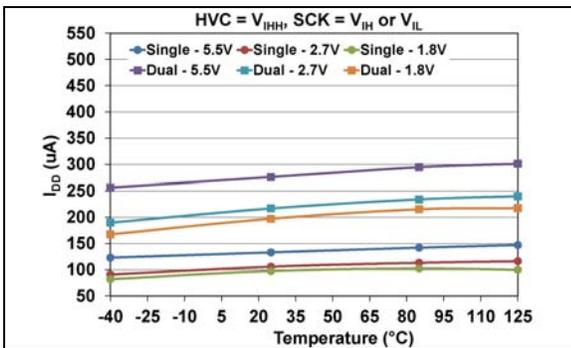


FIGURE 1-6: Average Device Current with High Voltage Command Pin ($HVC = V_{IHH}$, $SCK = V_{IH}$ or V_{IL}) vs. Temperature and Voltage, $SCK = V_{IH}$ or V_{IL} .

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

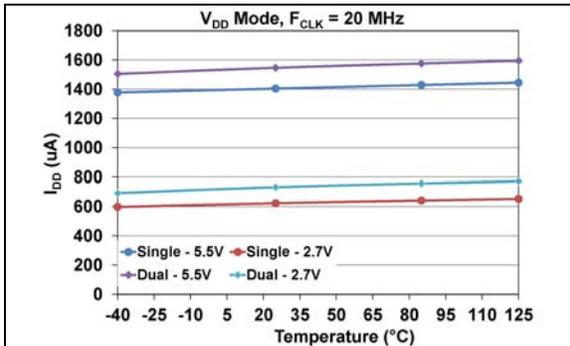


FIGURE 1-7: Average Device Supply Current - Active Interface (I_{DDA}) ($F_{SCK} = 20\text{ MHz}$) vs. Voltage and Temperature, $VRxB:VRxA = '00'$ (V_{DD} mode).

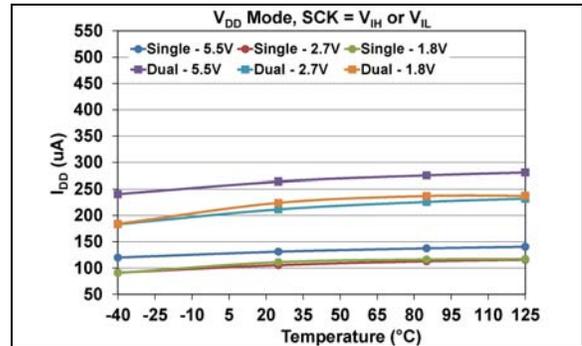


FIGURE 1-10: Average Device Supply Current - Inactive Interface (I_{DD}) ($SCK = V_{IH}$ or V_{IL}) vs. Voltage and Temperature, $VRxB:VRxA = '00'$ (V_{DD} mode).

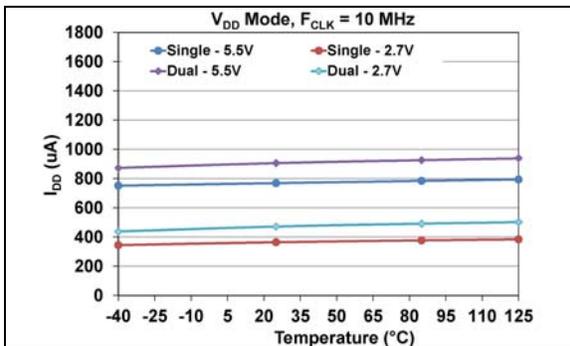


FIGURE 1-8: Average Device Supply Current - Active Interface (I_{DDA}) ($F_{SCK} = 10\text{ MHz}$) vs. Voltage and Temperature, $VRxB:VRxA = '00'$ (V_{DD} mode).

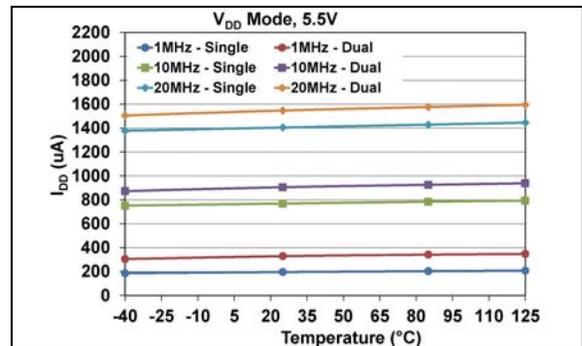


FIGURE 1-11: Average Device Supply Current vs. F_{SCK} Frequency, Voltage and Temperature, $VRxB:VRxA = '00'$ (V_{DD} mode).

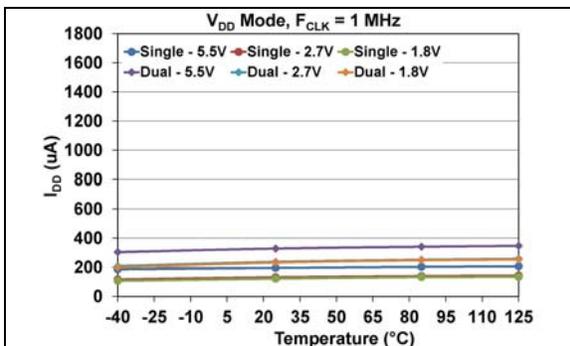


FIGURE 1-9: Average Device Supply Current - Active Interface (I_{DDA}) ($F_{SCK} = 1\text{ MHz}$) vs. Voltage and Temperature, $VRxB:VRxA = '00'$ (V_{DD} mode).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

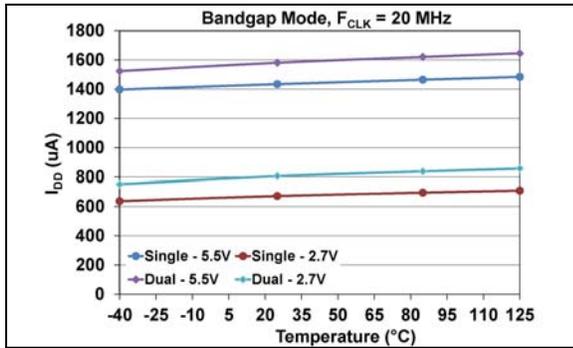


FIGURE 1-12: Average Device Supply Current - Active Interface (I_{DDA}) ($F_{SCK} = 20\text{ MHz}$) vs. Voltage and Temperature, $VRxB:VRxA = '01'$ (Bandgap mode).

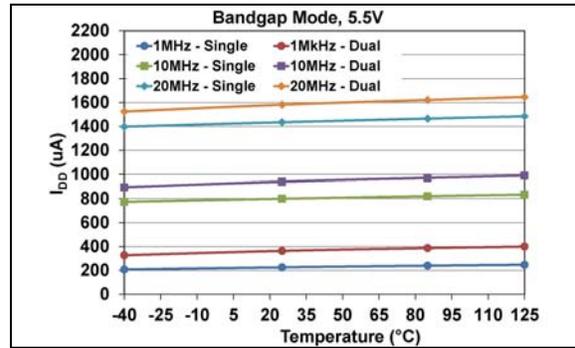


FIGURE 1-15: Average Device Supply Current vs. F_{SCK} Frequency, Voltage and Temperature, $VRxB:VRxA = '01'$, (Bandgap mode).

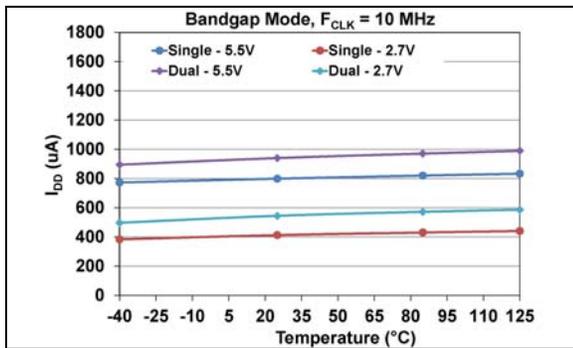


FIGURE 1-13: Average Device Supply Current - Active Interface (I_{DDA}) ($F_{SCK} = 10\text{ MHz}$) vs. Voltage and Temperature, $VRxB:VRxA = '01'$ (Bandgap mode).

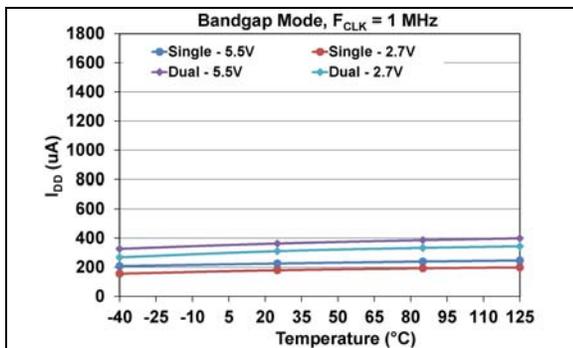


FIGURE 1-14: Average Device Supply Current - Active Interface (I_{DDA}) ($F_{SCK} = 1\text{ MHz}$) vs. Voltage and Temperature, $VRxB:VRxA = '01'$ (Bandgap mode).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

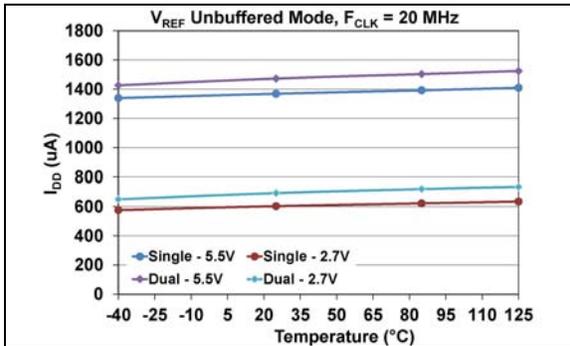


FIGURE 1-16: Average Device Supply Current - Active Interface (I_{DDA}) ($F_{SCK} = 20\text{ MHz}$) vs. Voltage and Temperature, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered mode).

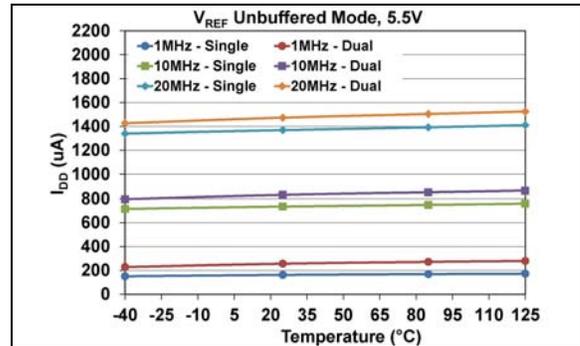


FIGURE 1-19: Average Device Supply Current vs. F_{SCK} Frequency, Voltage and Temperature, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered mode).

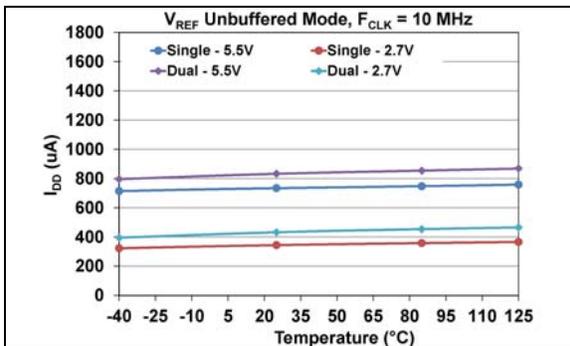


FIGURE 1-17: Average Device Supply Current - Active Interface (I_{DDA}) ($F_{SCK} = 10\text{ MHz}$) vs. Voltage and Temperature, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered mode).

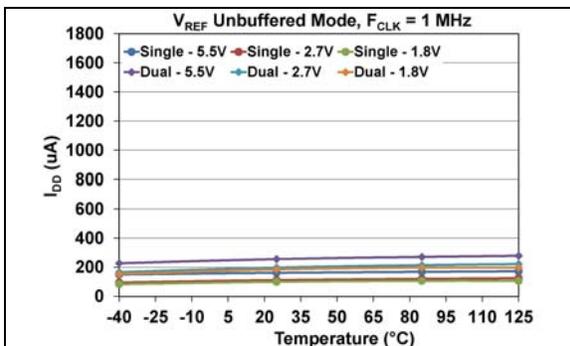


FIGURE 1-18: Average Device Supply Current - Active Interface (I_{DDA}) ($F_{SCK} = 1\text{ MHz}$) vs. Voltage and Temperature, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered mode).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

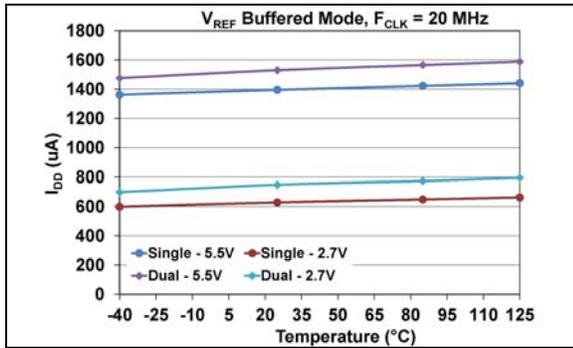


FIGURE 1-20: Average Device Supply Current - Active Interface (I_{DDA}) ($F_{SCK} = 20\text{ MHz}$) vs. Voltage and Temperature, $VRxB:VRxA = '11'$ (V_{REF} Buffered mode).

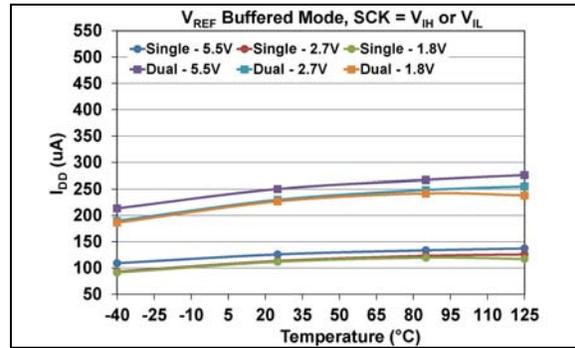


FIGURE 1-23: Average Device Supply Current - Inactive Interface (I_{DD}) ($SCK = V_{IH}$ or V_{IL}) vs. Voltage and Temperature, $VRxB:VRxA = '11'$ (V_{REF} Buffered mode).

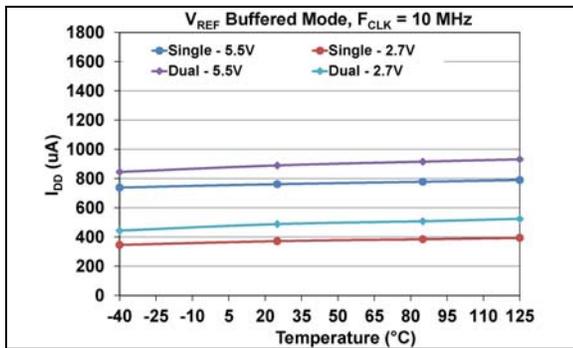


FIGURE 1-21: Average Device Supply Current - Active Interface (I_{DDA}) ($F_{SCK} = 10\text{ MHz}$) vs. Voltage and Temperature, $VRxB:VRxA = '11'$ (V_{REF} Buffered mode).

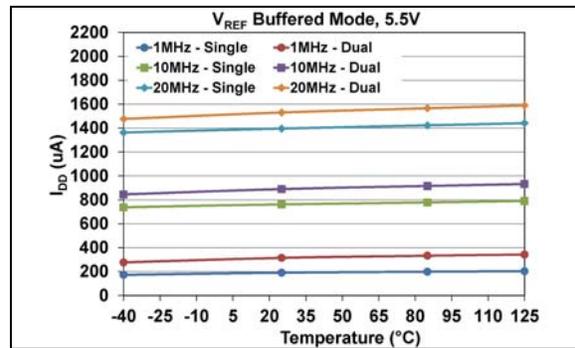


FIGURE 1-24: Average Device Supply Current vs. F_{SCK} Frequency, Voltage and Temperature, $VRxB:VRxA = '11'$ (V_{REF} Buffered mode).

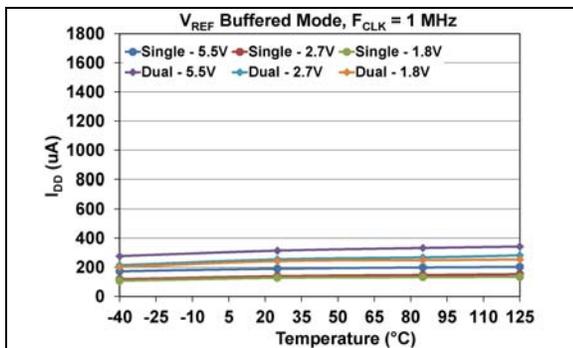


FIGURE 1-22: Average Device Supply Current - Active Interface (I_{DDA}) ($F_{SCK} = 1\text{ MHz}$) vs. Voltage and Temperature, $VRxB:VRxA = '11'$ (V_{REF} Buffered mode).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

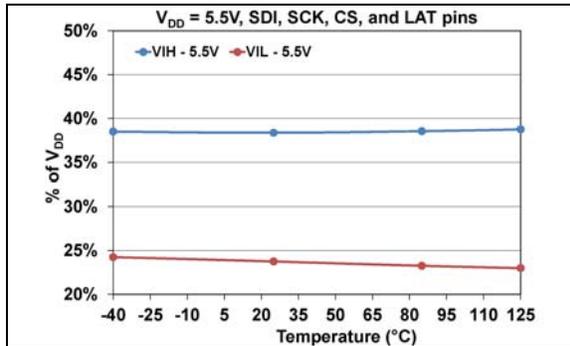


FIGURE 1-25: Average V_{IH} and V_{IL} (SDI, SCK, $\overline{\text{CS}}$, and $\overline{\text{LAT}}$ pins) ($V_{DD} = 5.5\text{V}$) vs. Temperature.

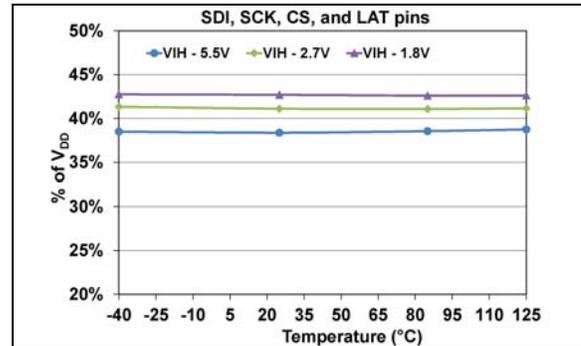


FIGURE 1-28: Average V_{IH} (SDI, SCK, $\overline{\text{CS}}$, and $\overline{\text{LAT}}$ pins) vs. Voltage and Temperature.

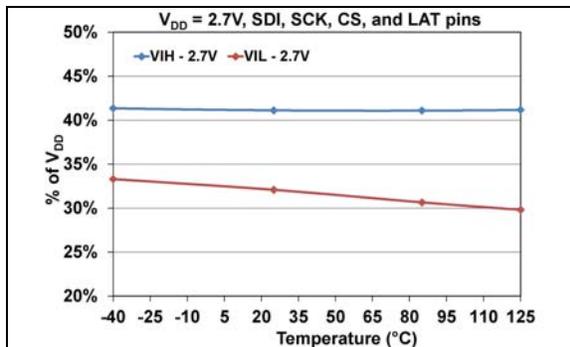


FIGURE 1-26: Average V_{IH} and V_{IL} (SDI, SCK, $\overline{\text{CS}}$, and $\overline{\text{LAT}}$ pins) ($V_{DD} = 2.7\text{V}$) vs. Temperature.

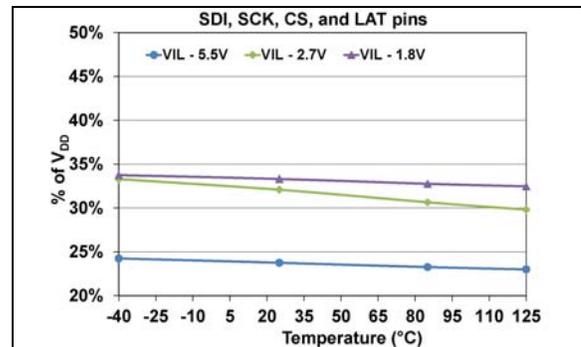


FIGURE 1-29: Average V_{IL} (SDI, SCK, $\overline{\text{CS}}$, and $\overline{\text{LAT}}$ pins) vs. Voltage and Temperature.

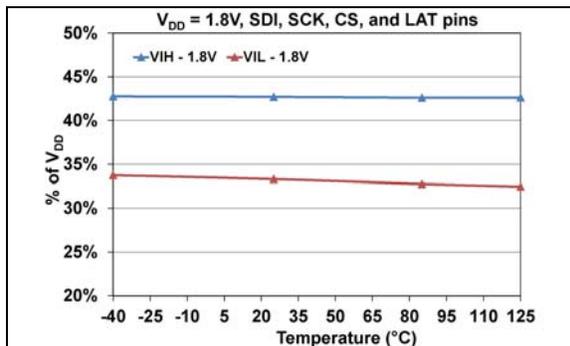


FIGURE 1-27: Average V_{IH} and V_{IL} (SDI, SCK, $\overline{\text{CS}}$, and $\overline{\text{LAT}}$ pins) ($V_{DD} = 1.8\text{V}$) vs. Temperature.

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

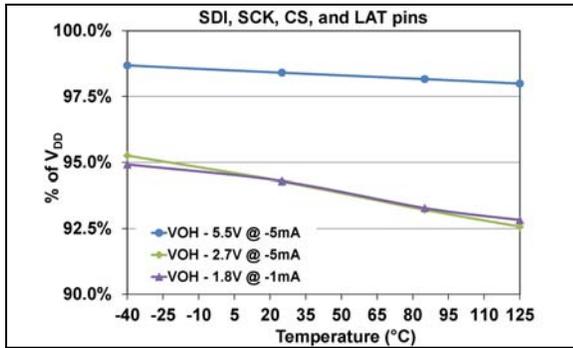


FIGURE 1-30: Average V_{OH} (SDO pin) vs. Voltage and Temperature.

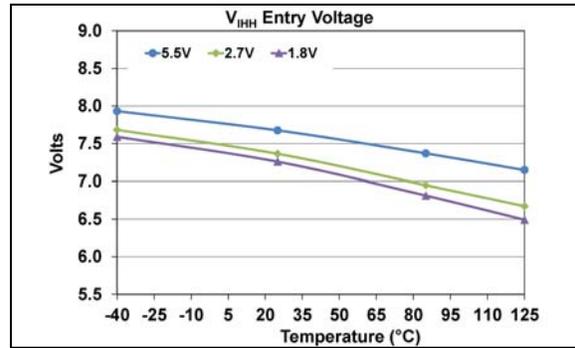


FIGURE 1-32: Average HVC pin High Voltage Entry Voltage ($V_{IHENTRY}$) vs. V_{DD} Voltage and Temperature.

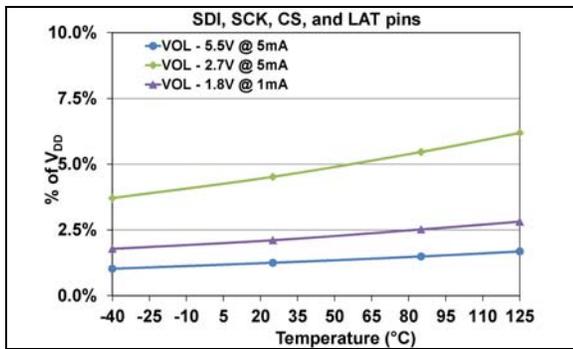


FIGURE 1-31: Average V_{OL} (SDO pin) vs. Voltage and Temperature.

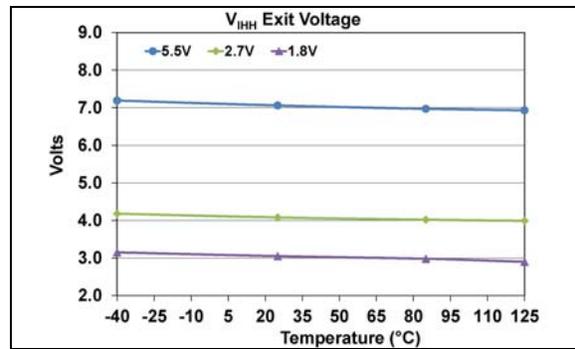


FIGURE 1-33: Average HVC pin High Voltage Exit Voltage (V_{IHEXIT}) vs. V_{DD} Voltage and Temperature.

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

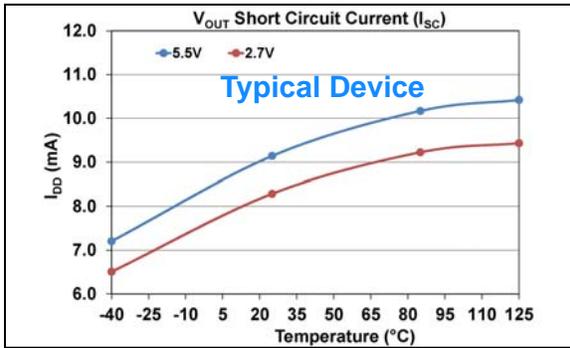


FIGURE 1-34: V_{OUT} Short-Circuit Current (I_{SC}) vs. Voltage and Temperature.

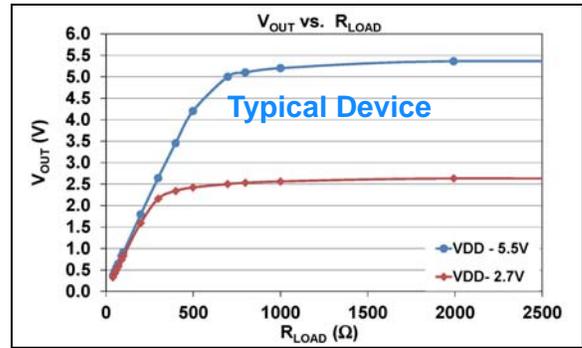


FIGURE 1-37: V_{OUT} vs. R_{LOAD} and Voltage (at $+25^\circ\text{C}$) ($R_{LOAD} 0\Omega - 2500\Omega$).

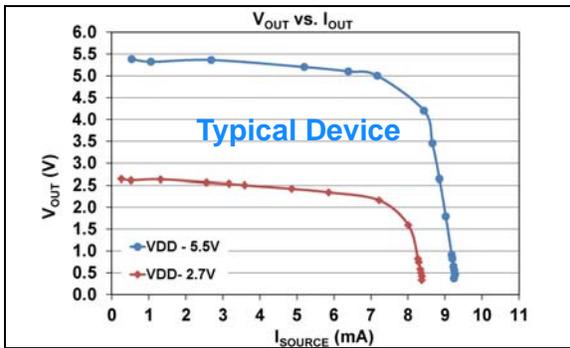


FIGURE 1-35: V_{OUT} vs. I_{OUT} and Voltage (at $+25^\circ\text{C}$).

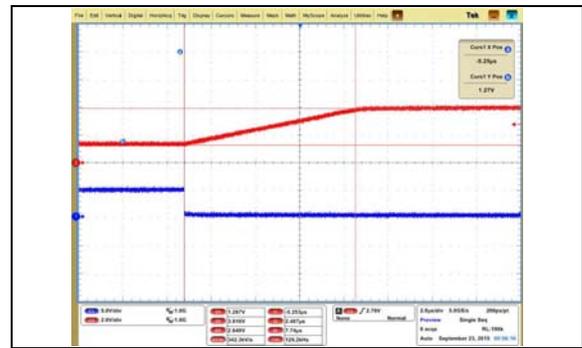


FIGURE 1-38: Half-Scale Settling Time – 400h to C00h (MCP48FXB2X).

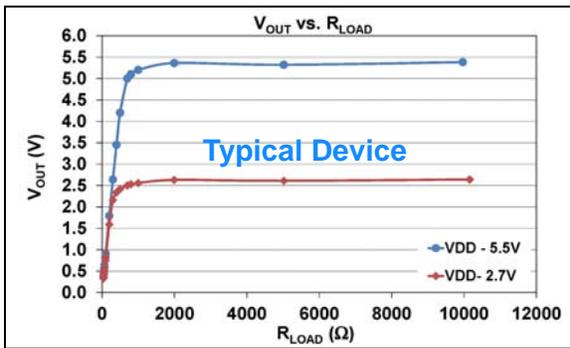


FIGURE 1-36: V_{OUT} vs. R_{LOAD} and Voltage (at $+25^\circ\text{C}$).

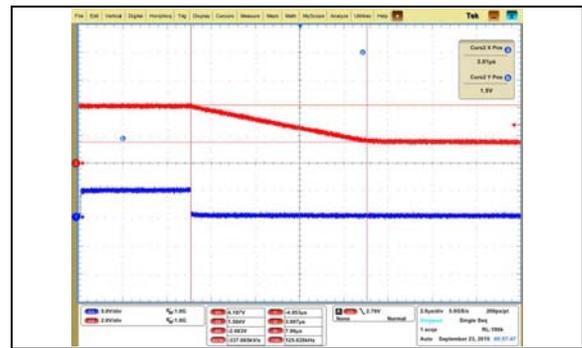


FIGURE 1-39: Half-Scale Settling Time – C00h to 400h (MCP48FXB2X).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '00'$ (V_{DD} Mode), $Gx = '0'$ (1x)

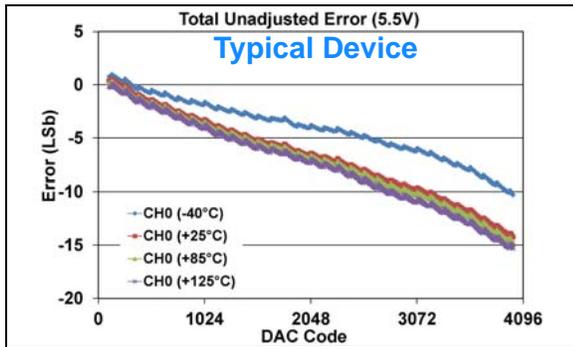


FIGURE 1-40: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB21**)
(12-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

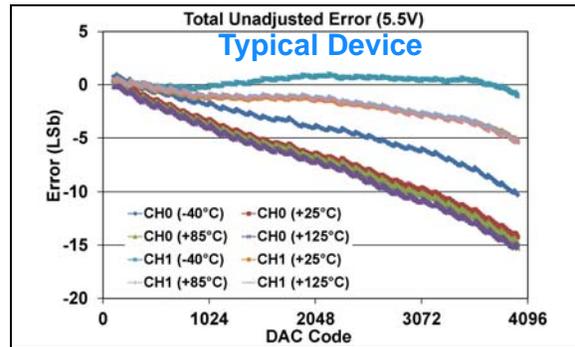


FIGURE 1-43: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB22**)
(12-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

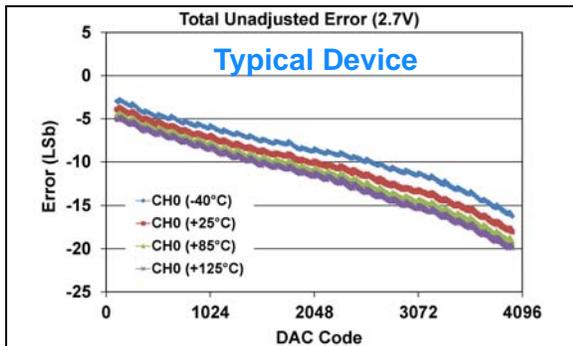


FIGURE 1-41: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB21**)
(12-bit: $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

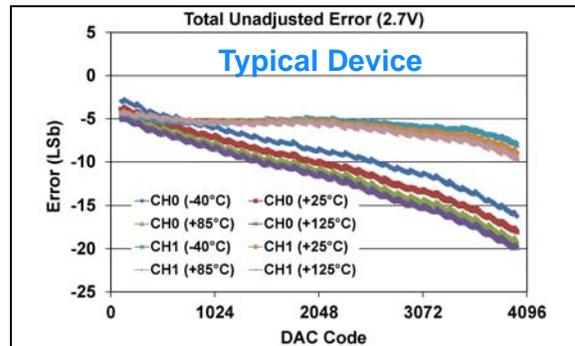


FIGURE 1-44: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB22**)
(12-bit: $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

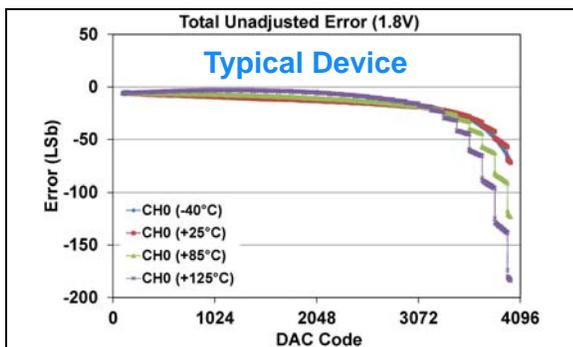


FIGURE 1-42: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB21**)
(12-bit: $V_{DD} = 1.8\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)),
(see [Appendix B.1](#) for additional information).

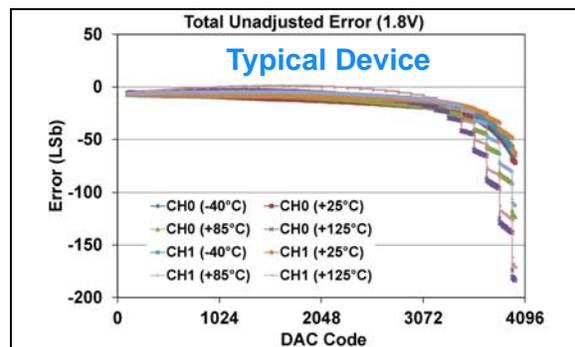


FIGURE 1-45: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB22**)
(12-bit: $V_{DD} = 1.8\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)),
(see [Appendix B.1](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '00'$ (V_{DD} Mode), $Gx = '0'$ (1x)

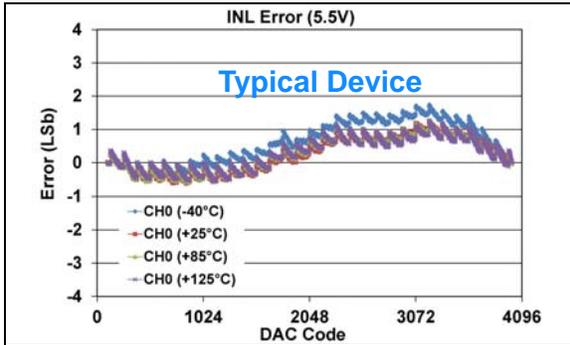


FIGURE 1-46: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (**12-bit:** $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

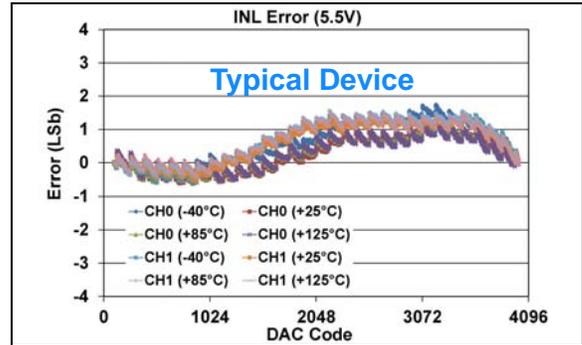


FIGURE 1-49: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (**12-bit:** $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

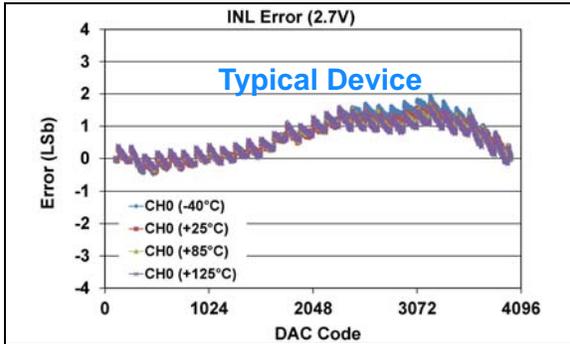


FIGURE 1-47: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (**12-bit:** $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

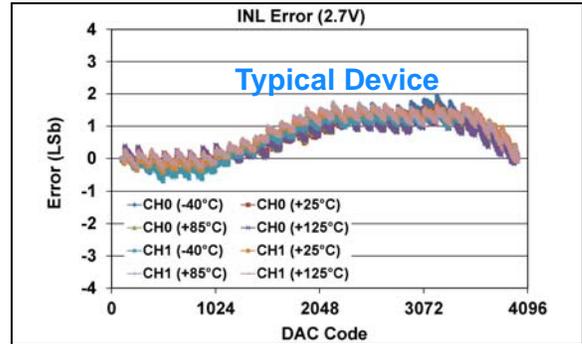


FIGURE 1-50: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (**12-bit:** $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

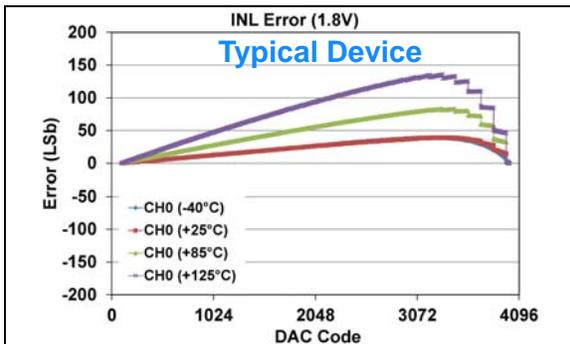


FIGURE 1-48: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (**12-bit:** $V_{DD} = 1.8\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)), (see [Appendix B.1](#) for additional information).

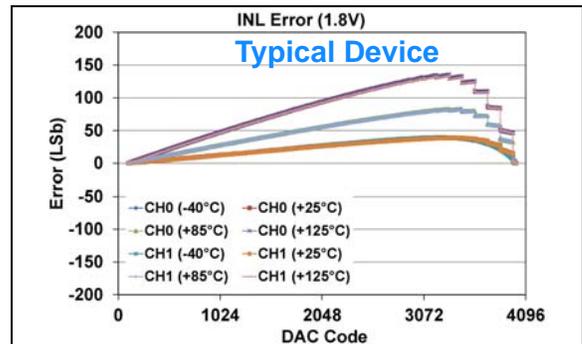


FIGURE 1-51: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (**12-bit:** $V_{DD} = 1.8\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)), (see [Appendix B.1](#) for additional information).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '00'$ (V_{DD} Mode), $Gx = '0'$ (1x)

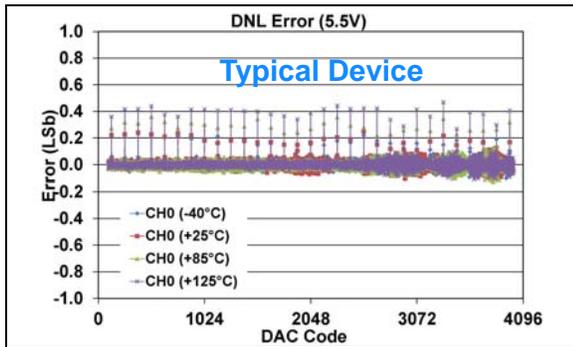


FIGURE 1-52: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - **MCP48FXB21**) (12-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

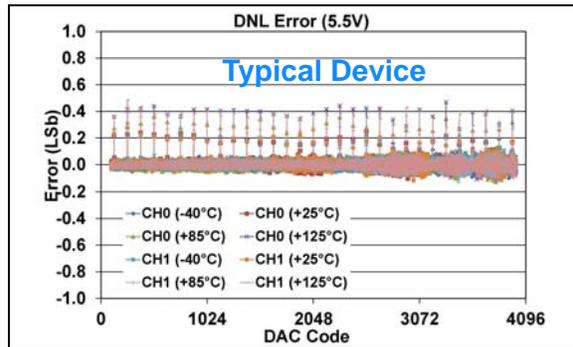


FIGURE 1-55: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - **MCP48FXB22**) (12-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

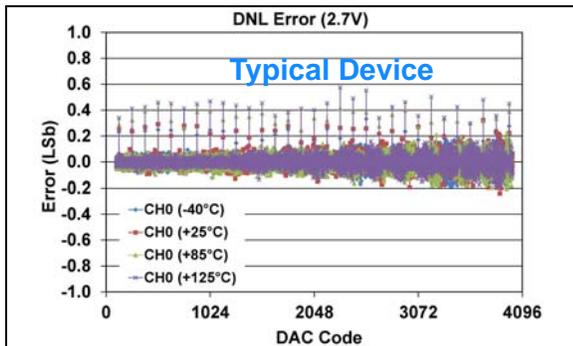


FIGURE 1-53: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - **MCP48FXB21**) (12-bit: $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

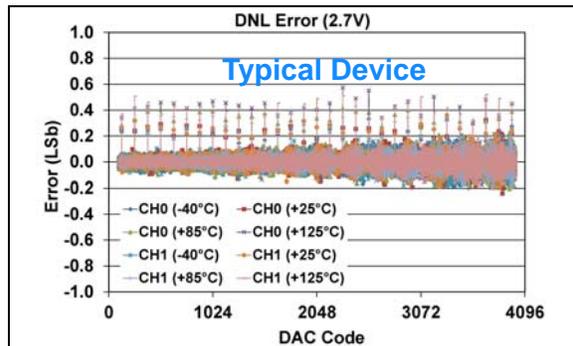


FIGURE 1-56: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - **MCP48FXB22**) (12-bit: $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

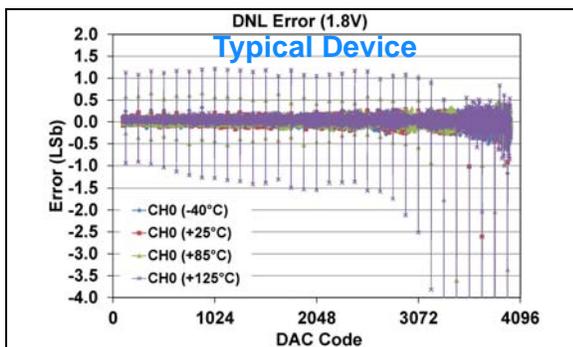


FIGURE 1-54: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - **MCP48FXB21**) (12-bit: $V_{DD} = 1.8\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)), (see [Appendix B.1](#) for additional information).

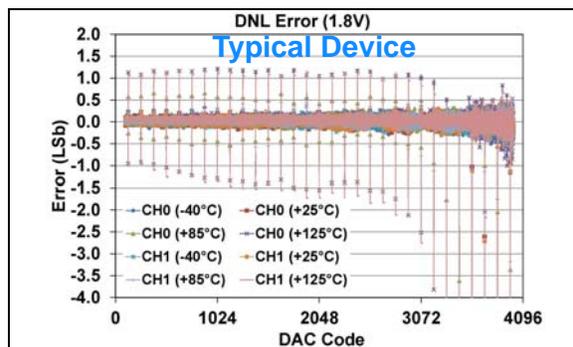


FIGURE 1-57: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - **MCP48FXB22**) (12-bit: $V_{DD} = 1.8\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)), (see [Appendix B.1](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '01'$ (Bandgap Mode)

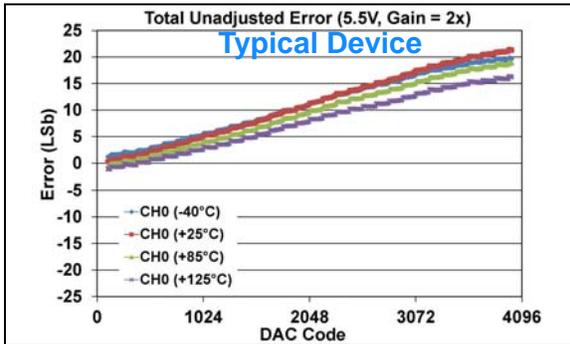


FIGURE 1-58: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB21)
(12-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $Gx = '1'$ (2x)).

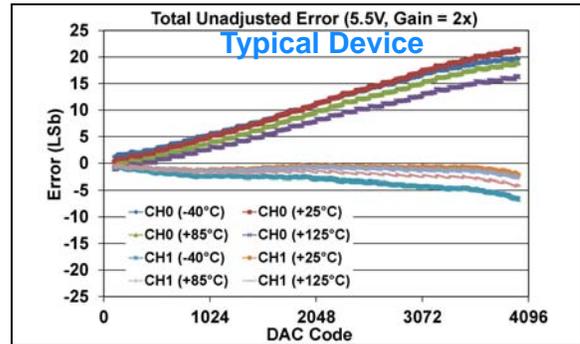


FIGURE 1-61: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB22)
(12-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $Gx = '1'$ (2x)).

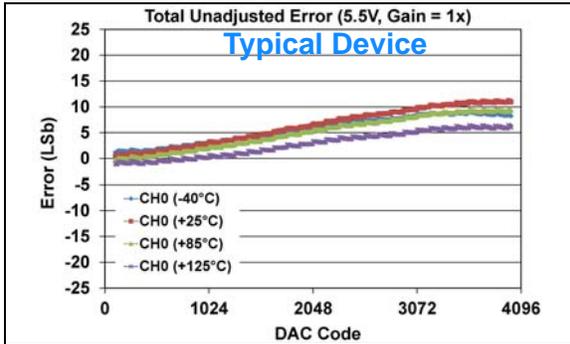


FIGURE 1-59: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB21)
(12-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $Gx = '0'$ (1x)).

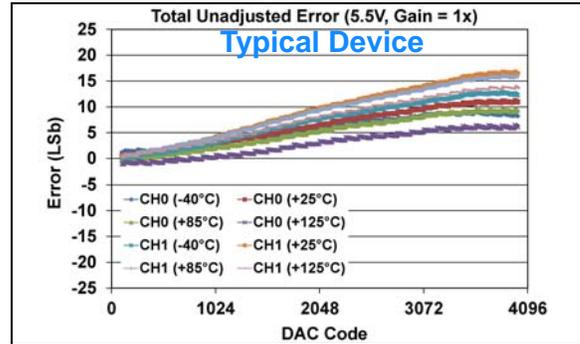


FIGURE 1-62: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB22)
(12-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $Gx = '0'$ (1x)).

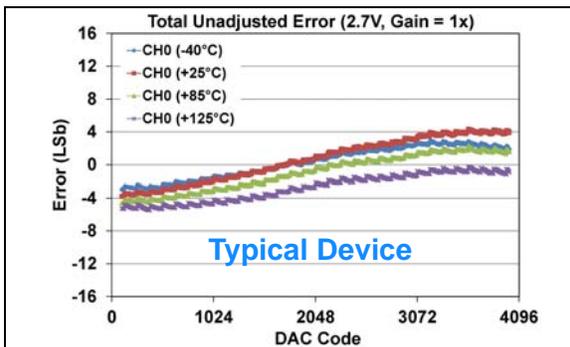


FIGURE 1-60: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB21)
(12-bit: $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $Gx = '0'$ (1x)).

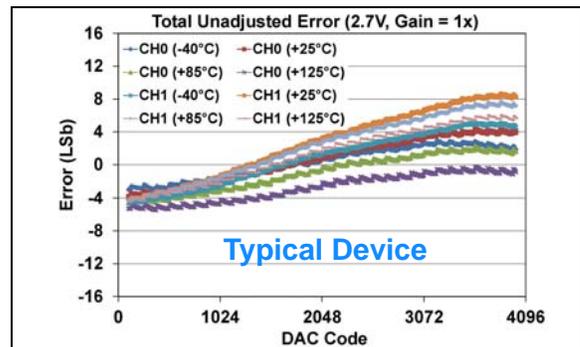


FIGURE 1-63: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB22)
(12-bit: $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $Gx = '0'$ (1x)).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '01'$ (Bandgap Mode)

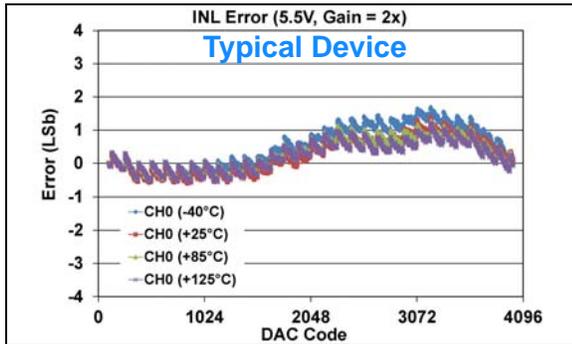


FIGURE 1-64: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - **MCP48FXB21**)
(12-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $Gx = '1'$ (2x)).

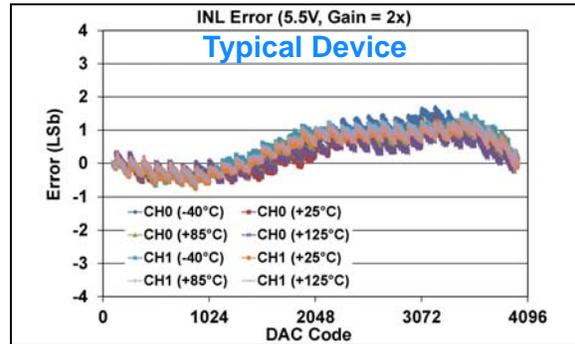


FIGURE 1-67: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - **MCP48FXB22**)
(12-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $Gx = '1'$ (2x)).

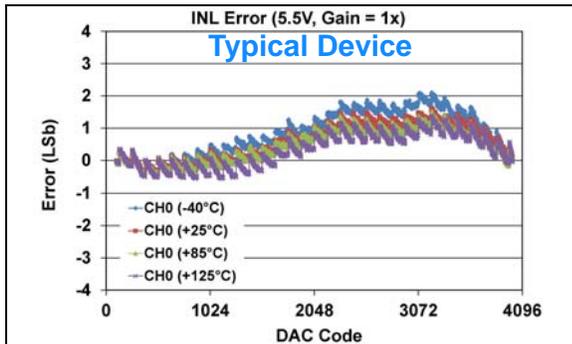


FIGURE 1-65: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - **MCP48FXB21**)
(12-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $Gx = '0'$ (1x)).

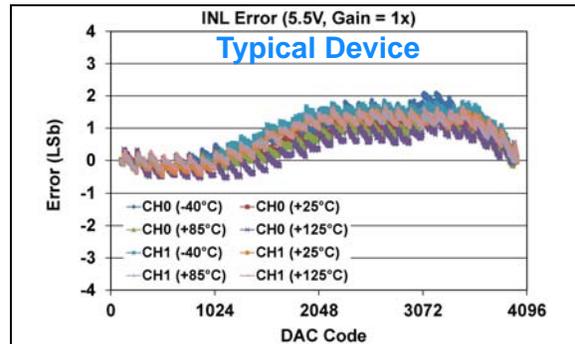


FIGURE 1-68: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - **MCP48FXB22**)
(12-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $Gx = '0'$ (1x)).

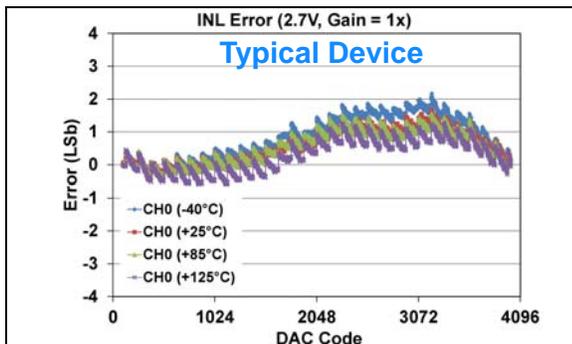


FIGURE 1-66: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - **MCP48FXB21**)
(12-bit: $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $Gx = '0'$ (1x)).

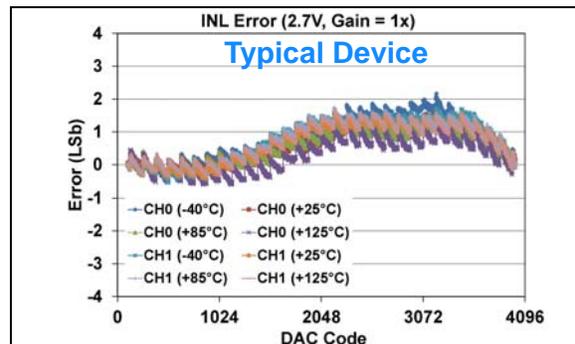


FIGURE 1-69: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - **MCP48FXB22**)
(12-bit: $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $Gx = '0'$ (1x)).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '01'$ (Bandgap Mode)

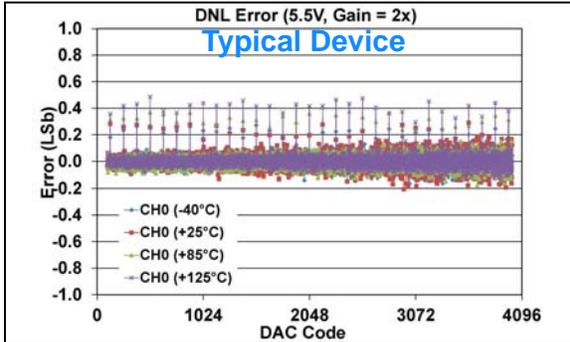


FIGURE 1-70: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - **MCP48FXB21**)
(**12-bit:** $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '1'$ (2x)).

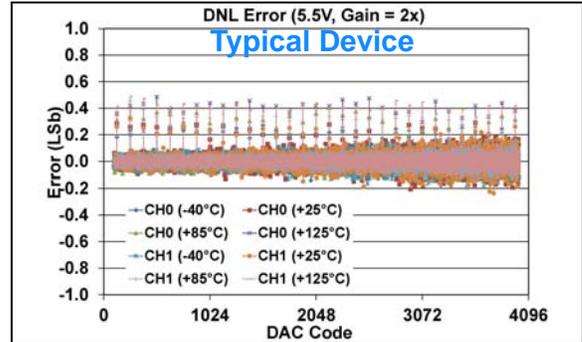


FIGURE 1-73: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - **MCP48FXB22**)
(**12-bit:** $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '1'$ (2x)).

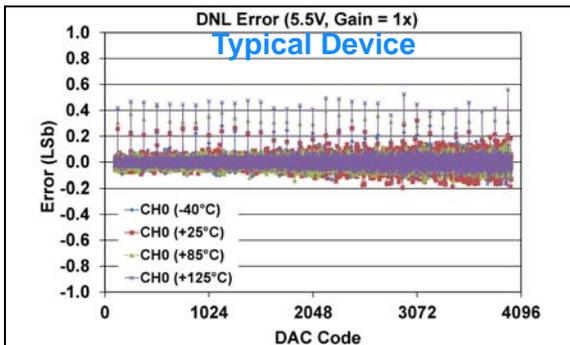


FIGURE 1-71: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - **MCP48FXB21**)
(**12-bit:** $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

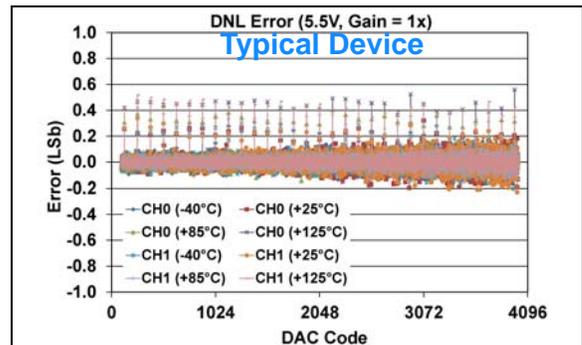


FIGURE 1-74: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - **MCP48FXB22**)
(**12-bit:** $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

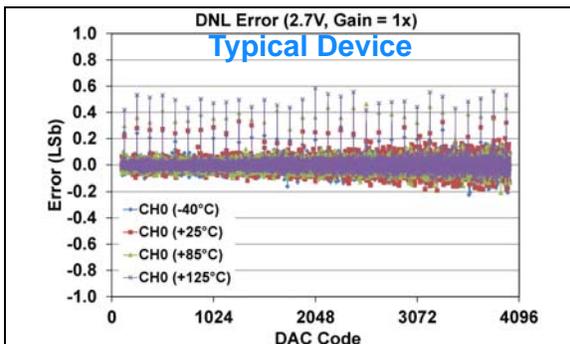


FIGURE 1-72: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - **MCP48FXB21**)
(**12-bit:** $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

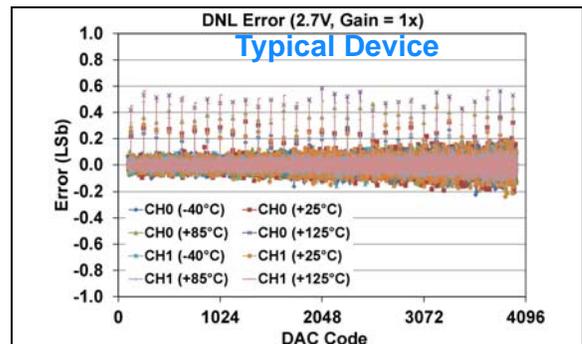


FIGURE 1-75: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - **MCP48FXB22**)
(**12-bit:** $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = V_{DD}$, $Gx = '0'$ (1x)

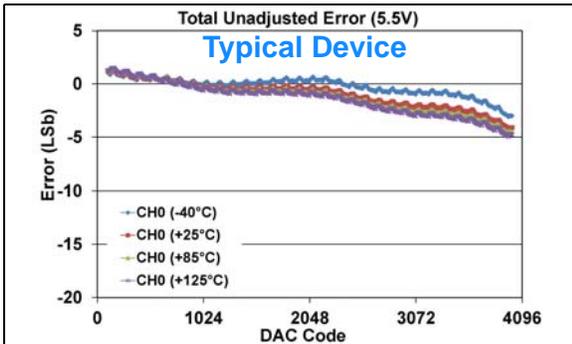


FIGURE 1-76: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB21)

(12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

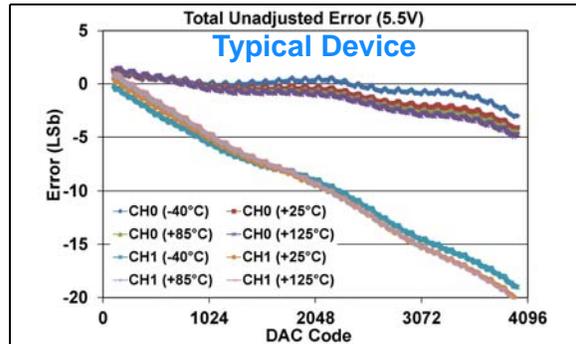


FIGURE 1-79: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB22)

(12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

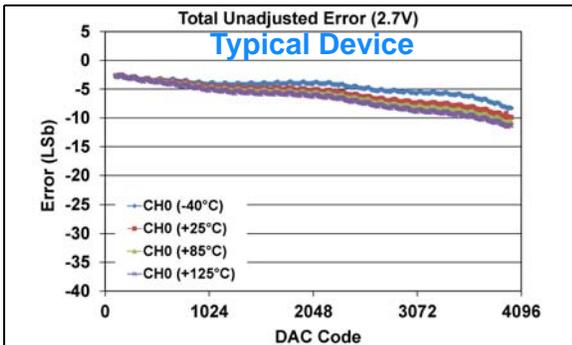


FIGURE 1-77: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB21)

(12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

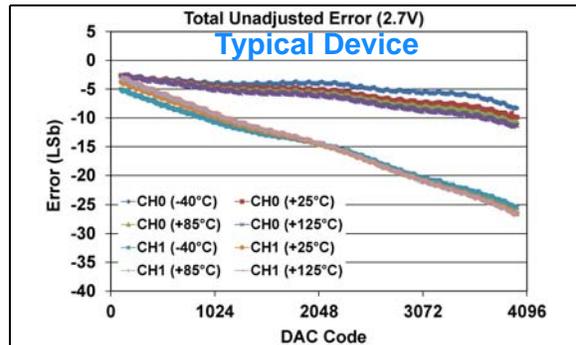


FIGURE 1-80: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB22)

(12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

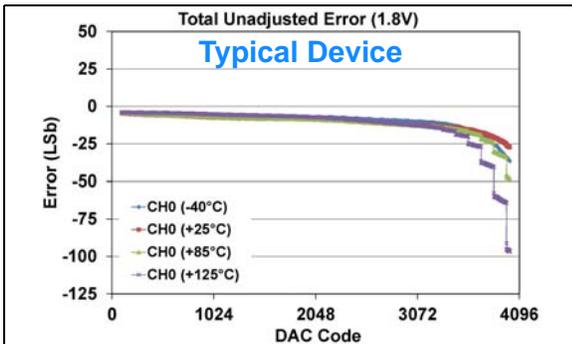


FIGURE 1-78: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB21)

(12-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x), (see [Appendix B.2](#) for additional information).

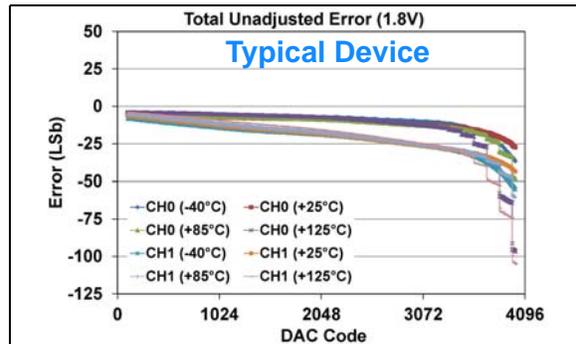


FIGURE 1-81: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB22)

(12-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x), (see [Appendix B.2](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = V_{DD}$, $Gx = '0'$ (1x)

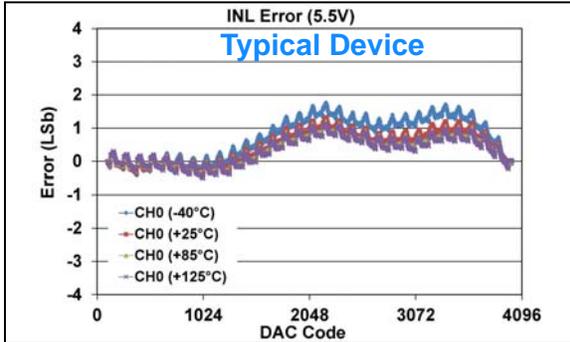


FIGURE 1-82: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21)
(12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

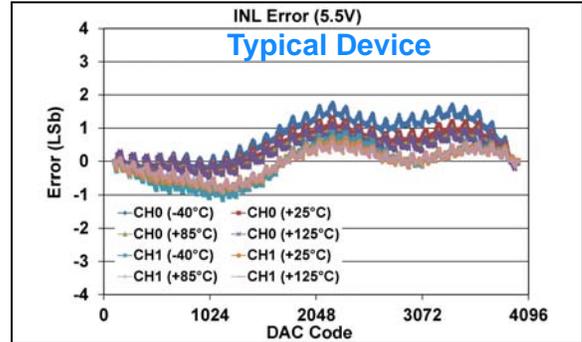


FIGURE 1-85: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22)
(12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

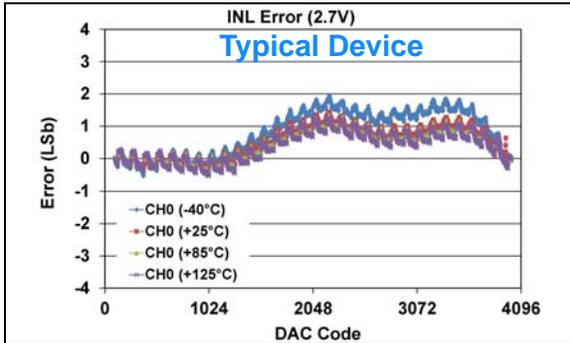


FIGURE 1-83: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21)
(12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

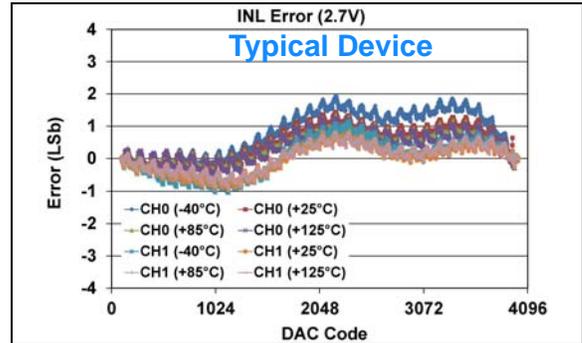


FIGURE 1-86: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22)
(12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

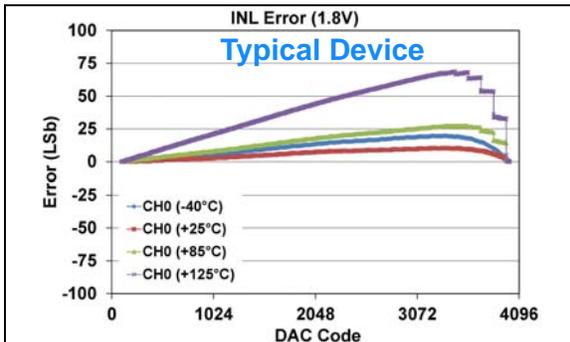


FIGURE 1-84: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21)
(12-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)), (see [Appendix B.2](#) for additional information).

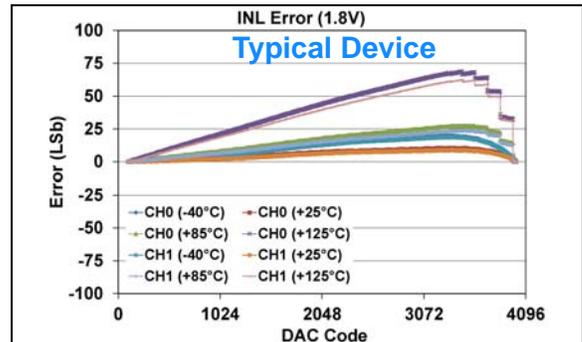


FIGURE 1-87: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22)
(12-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)), (see [Appendix B.2](#) for additional information).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = V_{DD}$, $Gx = '0'$ (1x)

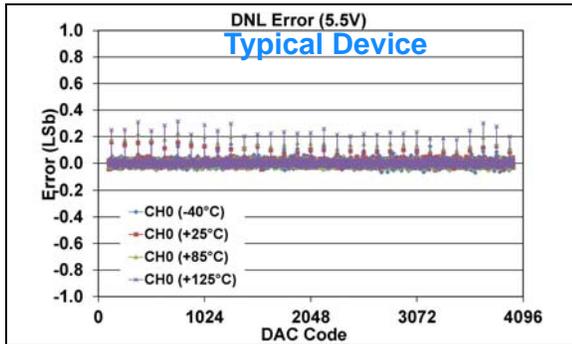


FIGURE 1-88: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21)
(12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

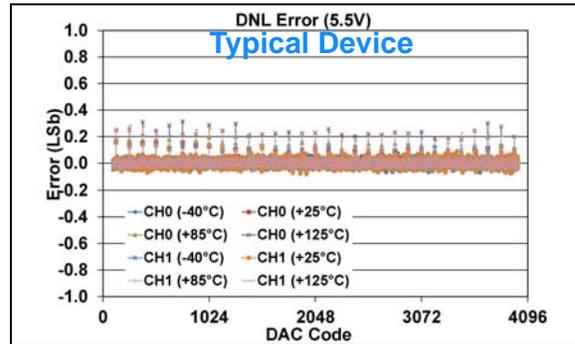


FIGURE 1-91: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22)
(12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

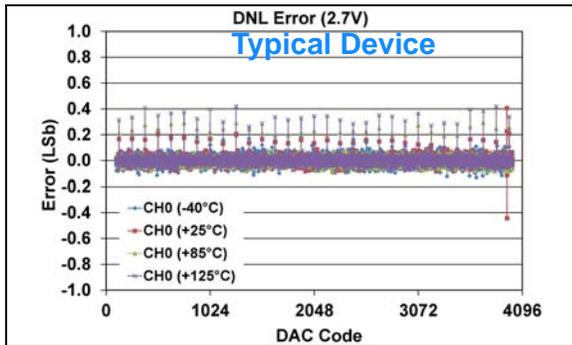


FIGURE 1-89: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21)
(12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

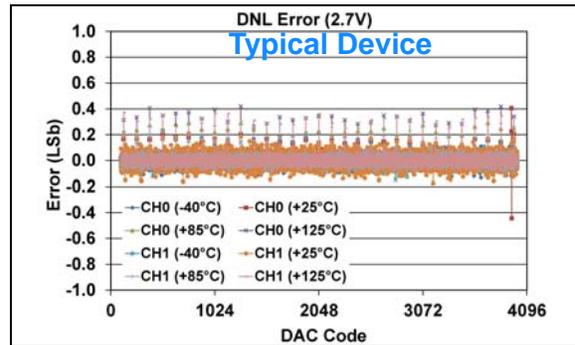


FIGURE 1-92: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22)
(12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

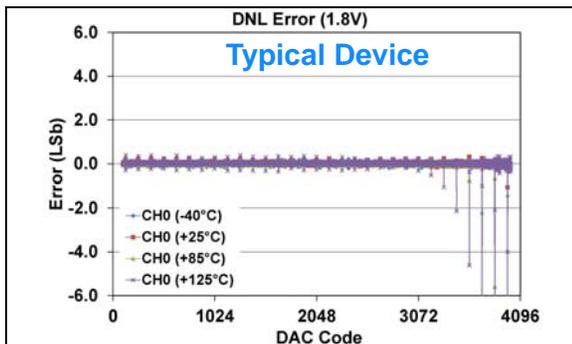


FIGURE 1-90: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21)
(12-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)), (see [Appendix B.2](#) for additional information).

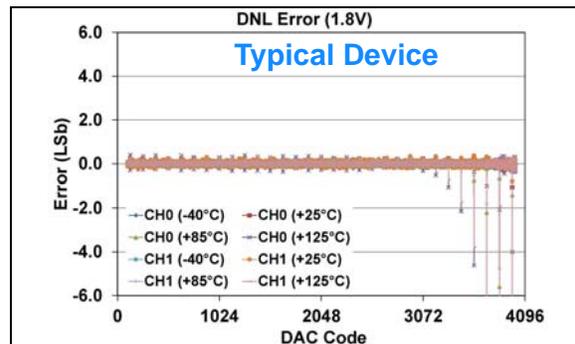


FIGURE 1-93: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22)
(12-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)), (see [Appendix B.2](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 1\text{V}$, $Gx = '0'$ (1x)

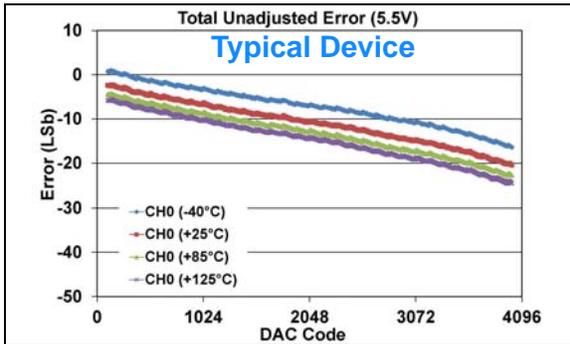


FIGURE 1-94: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB21)
(**12-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

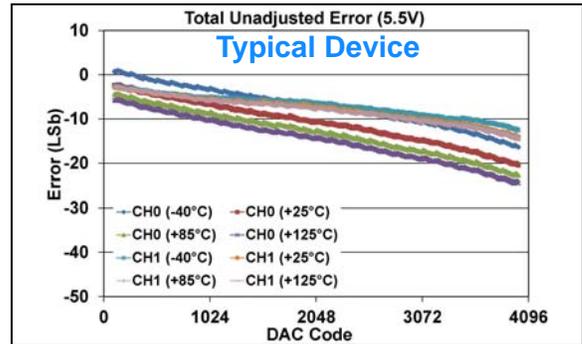


FIGURE 1-97: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB22)
(**12-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

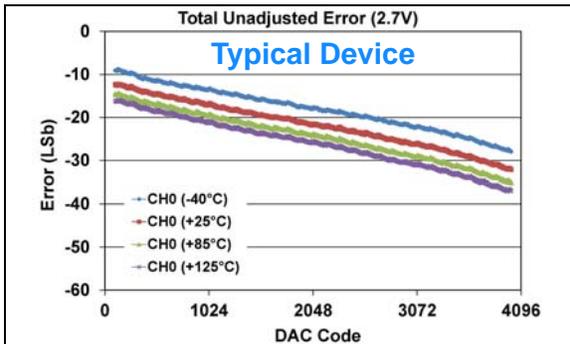


FIGURE 1-95: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB21)
(**12-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

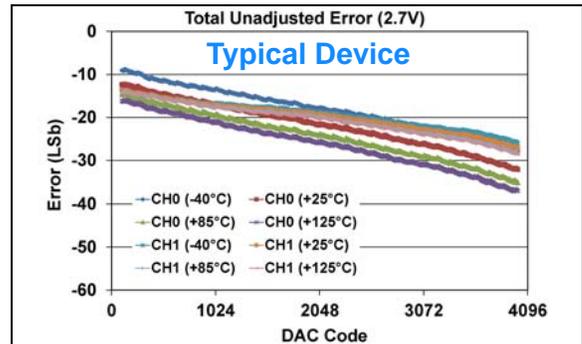


FIGURE 1-98: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB22)
(**12-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

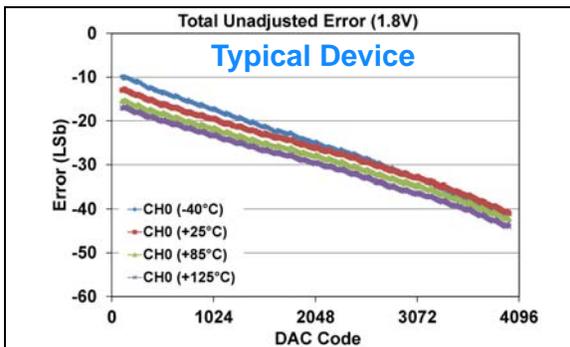


FIGURE 1-96: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB21)
(**12-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

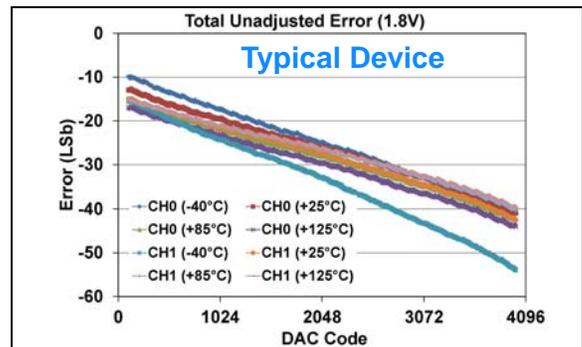


FIGURE 1-99: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB22)
(**12-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 1\text{V}$, $Gx = '0'$ (1x)

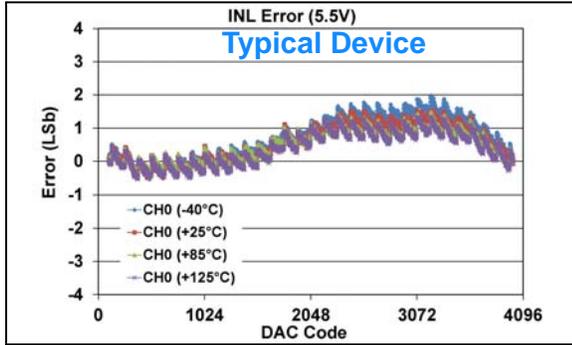


FIGURE 1-100: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

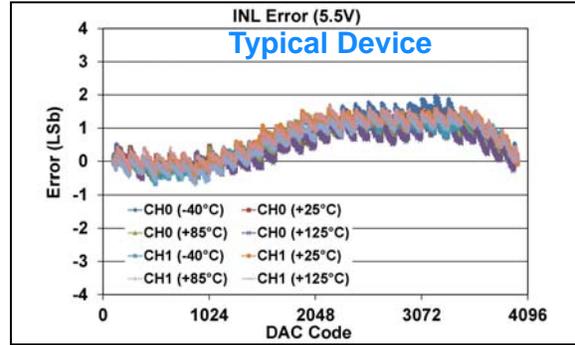


FIGURE 1-103: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

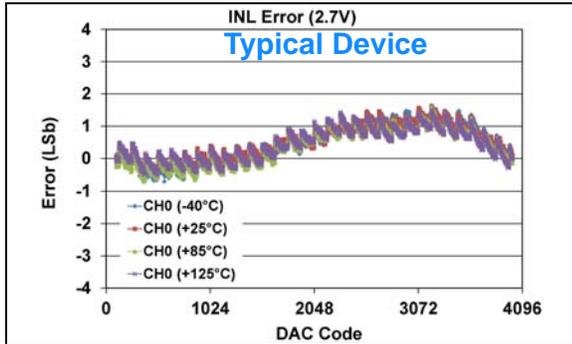


FIGURE 1-101: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

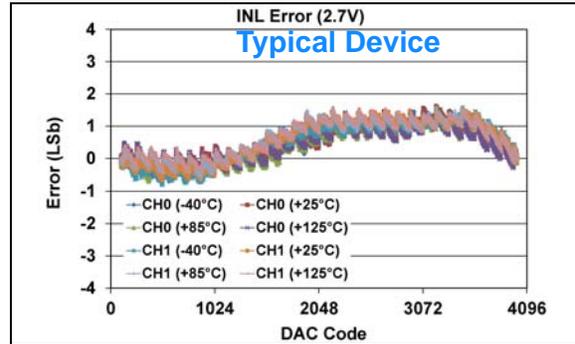


FIGURE 1-104: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

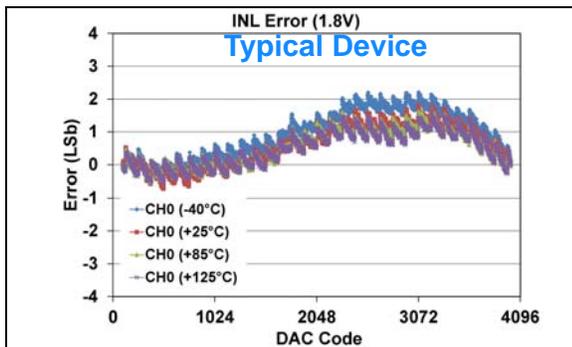


FIGURE 1-102: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (12-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

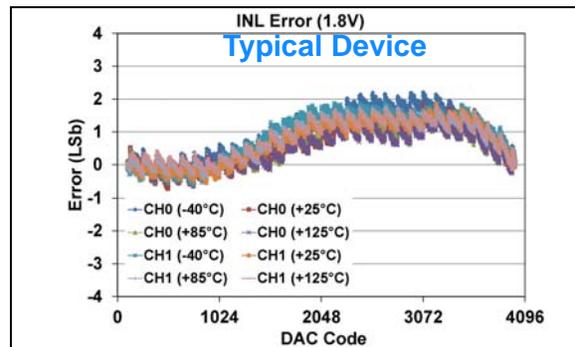


FIGURE 1-105: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (12-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 1\text{V}$, $Gx = '0'$ (1x)

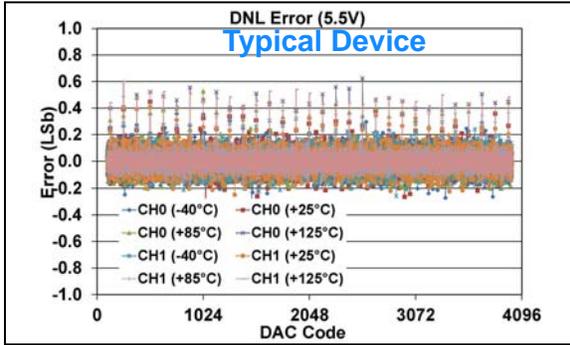


FIGURE 1-106: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (**12-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

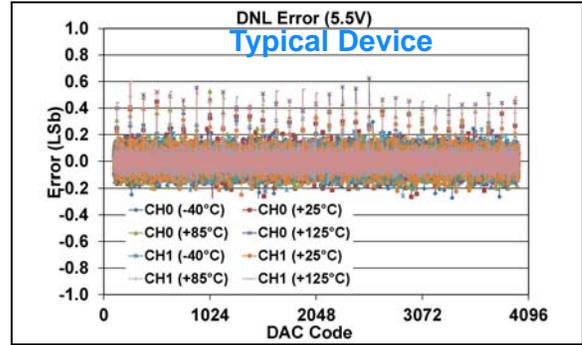


FIGURE 1-109: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (**12-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

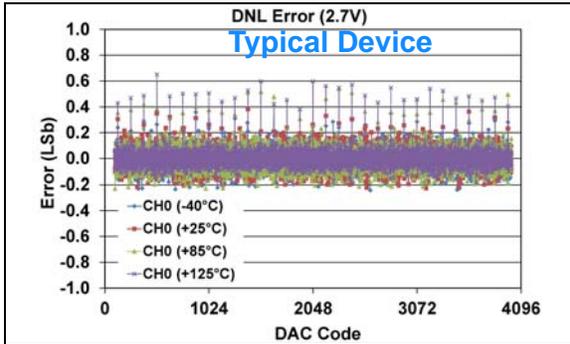


FIGURE 1-107: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (**12-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

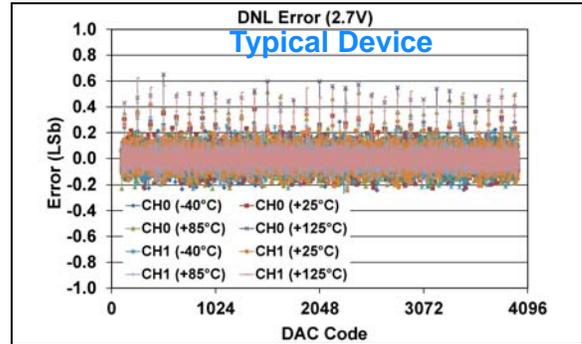


FIGURE 1-110: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (**12-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

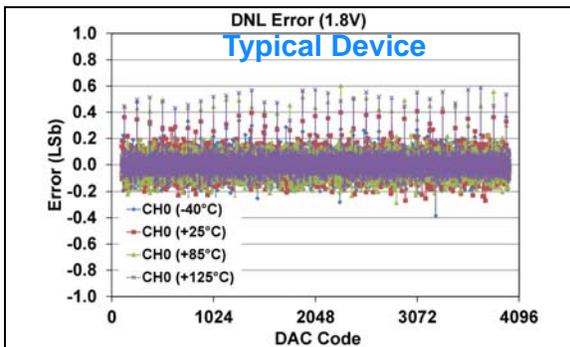


FIGURE 1-108: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (**12-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

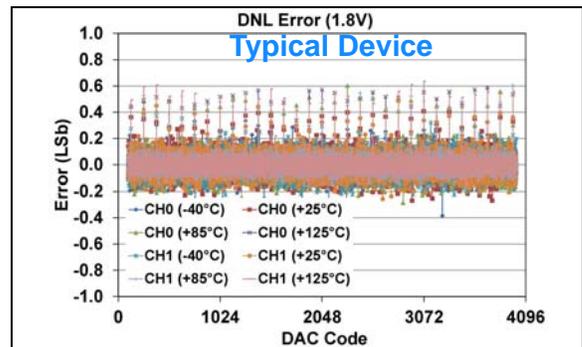


FIGURE 1-111: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (**12-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 1\text{V}$, $Gx = '1'$ (2x)

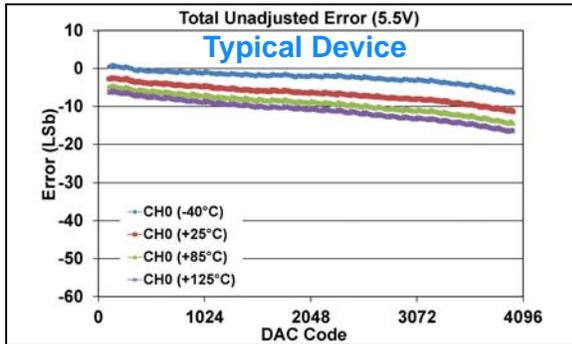


FIGURE 1-112: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB21**)
(12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

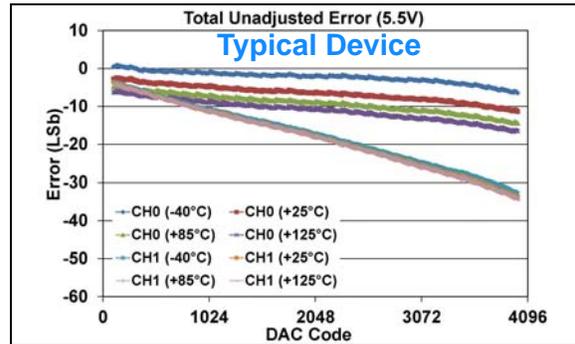


FIGURE 1-115: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB22**)
(12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

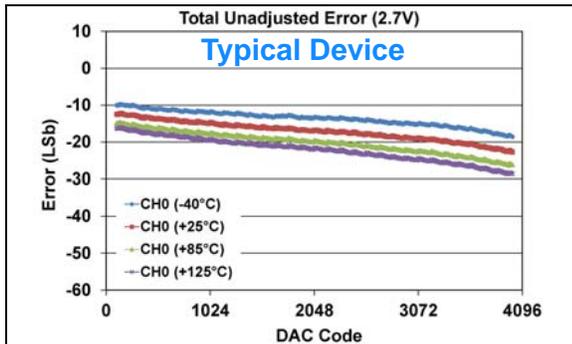


FIGURE 1-113: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB21**)
(12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

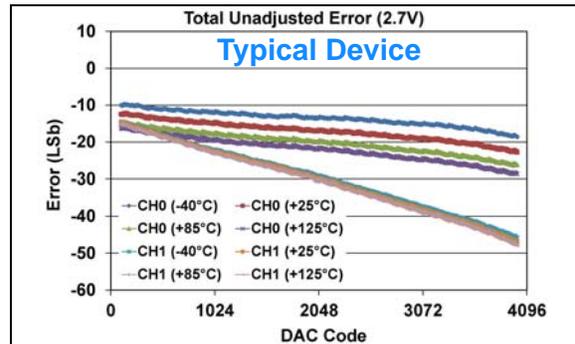


FIGURE 1-116: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB22**)
(12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

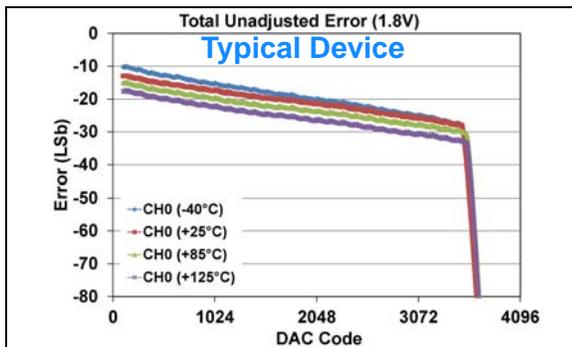


FIGURE 1-114: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB21**)
(12-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)),
(see [Appendix B.3](#) for additional information).

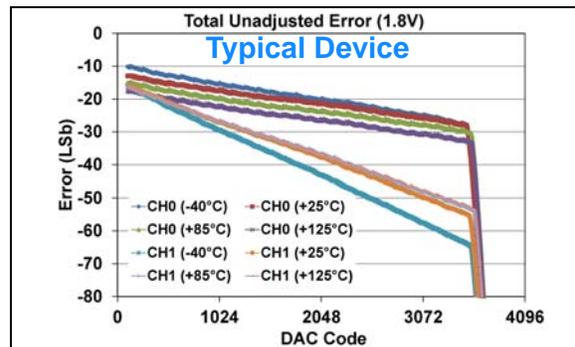


FIGURE 1-117: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB22**)
(12-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)),
(see [Appendix B.3](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 1\text{V}$, $Gx = '1'$ (2x)

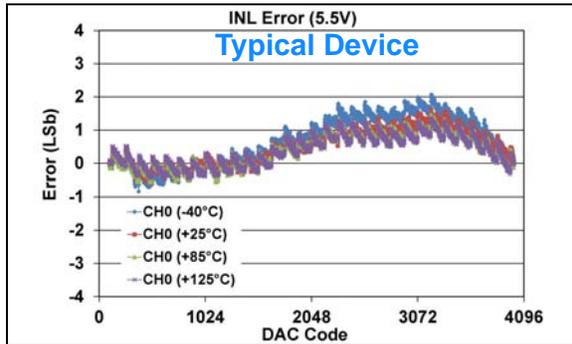


FIGURE 1-118: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (**12-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

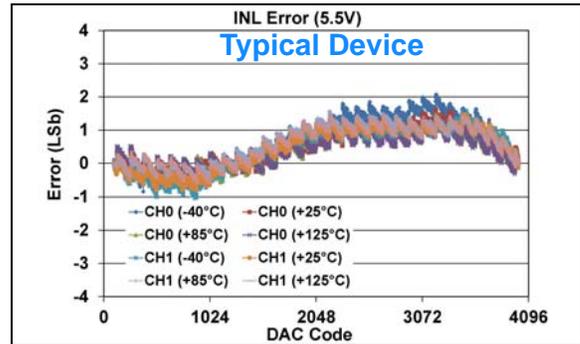


FIGURE 1-121: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (**12-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

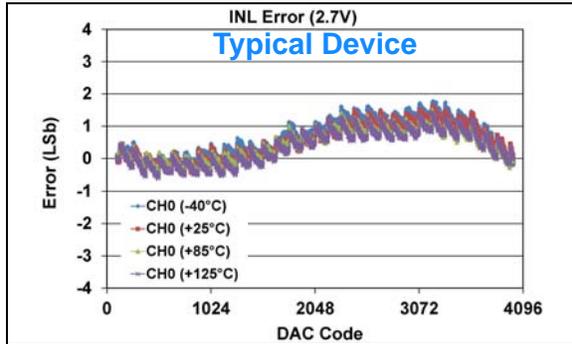


FIGURE 1-119: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (**12-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

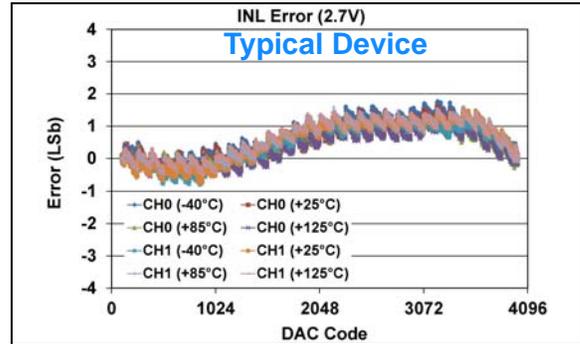


FIGURE 1-122: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (**12-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

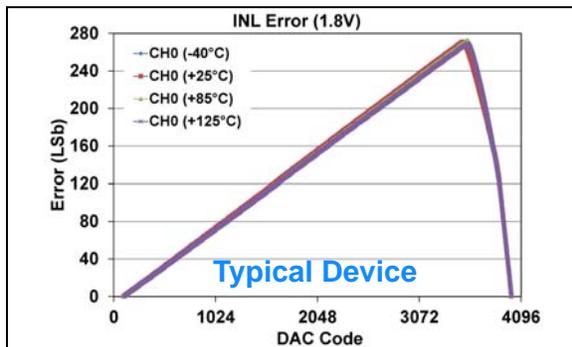


FIGURE 1-120: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (**12-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)), (see [Appendix B.3](#) for additional information).

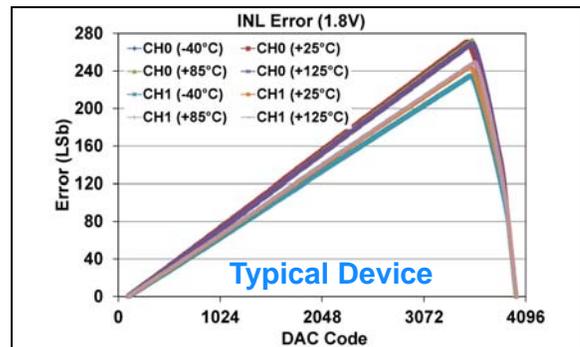


FIGURE 1-123: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (**12-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)), (see [Appendix B.3](#) for additional information).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 1\text{V}$, $Gx = '1'$ (2x)

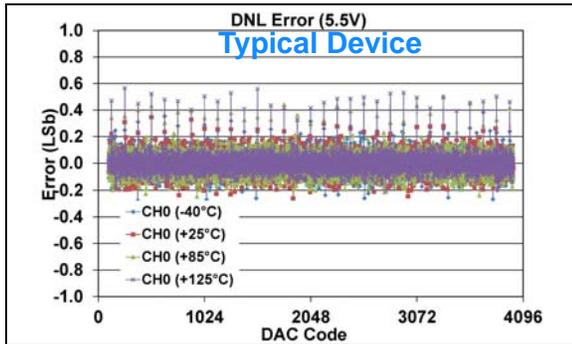


FIGURE 1-124: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

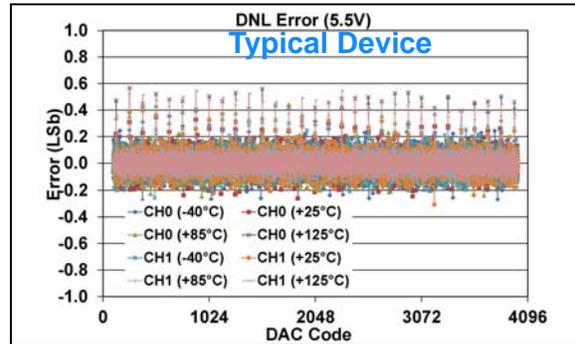


FIGURE 1-127: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

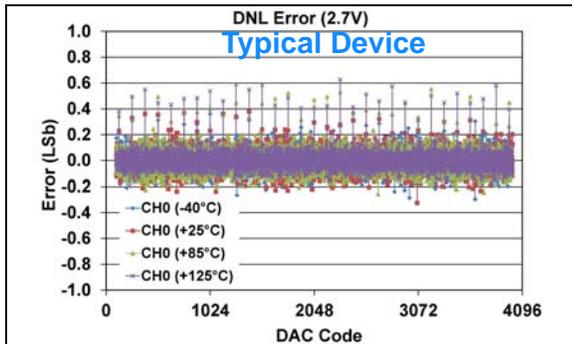


FIGURE 1-125: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

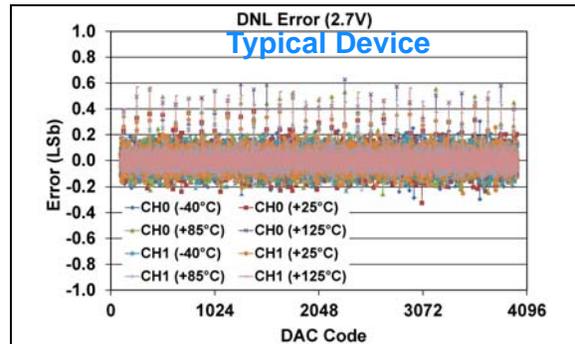


FIGURE 1-128: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

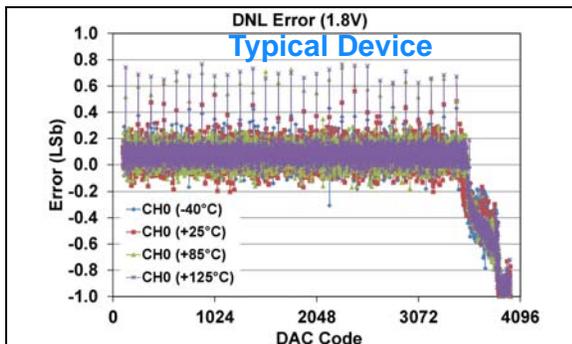


FIGURE 1-126: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (12-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)), (see [Appendix B.3](#) for additional information).

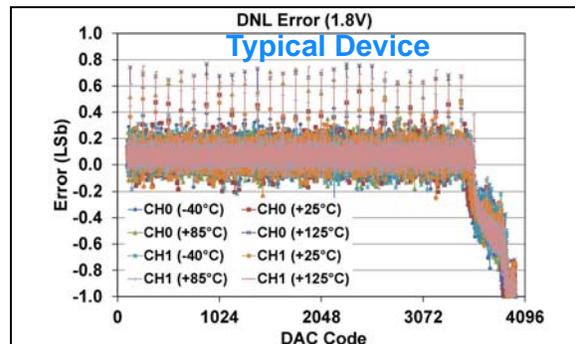


FIGURE 1-129: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (12-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)), (see [Appendix B.3](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 2.048\text{V}$

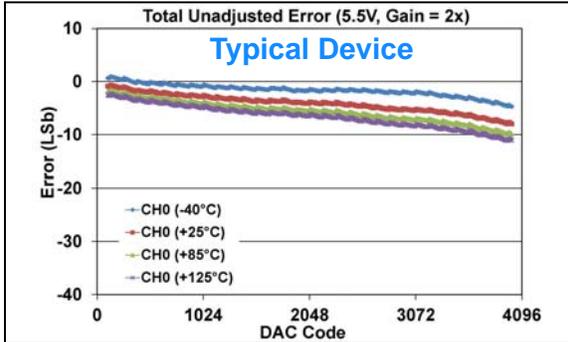


FIGURE 1-130: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB21)
(12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

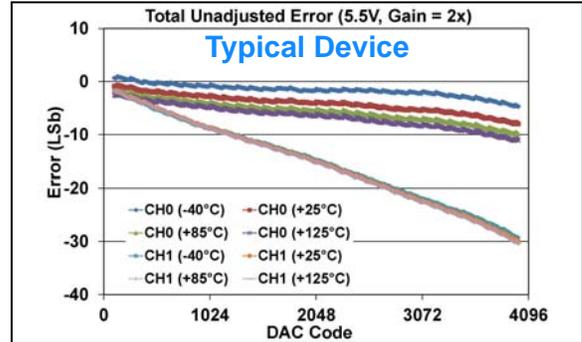


FIGURE 1-133: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB22)
(12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

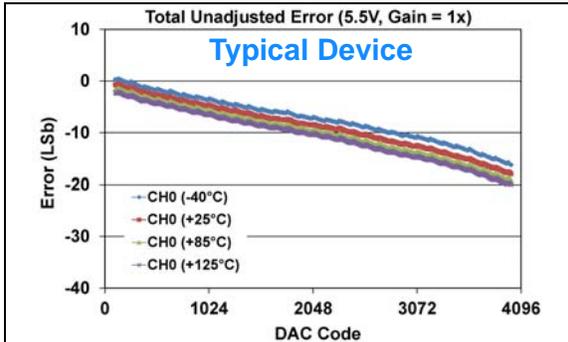


FIGURE 1-131: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB21)
(12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

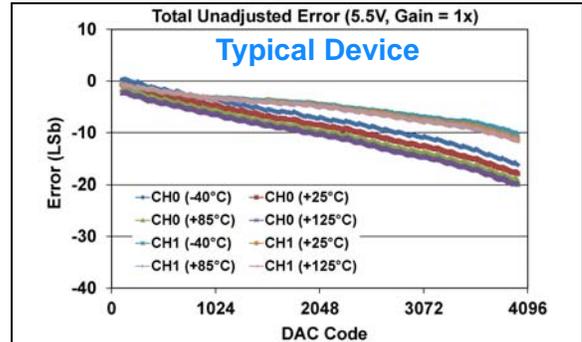


FIGURE 1-134: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB22)
(12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

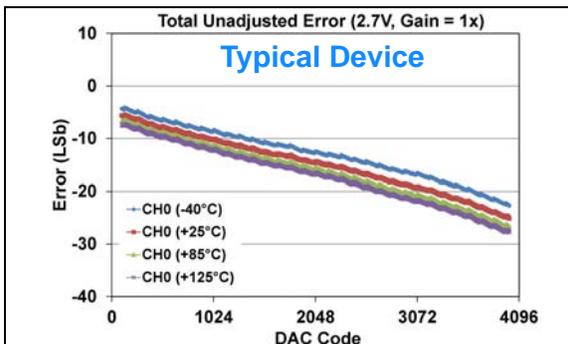


FIGURE 1-132: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB21)
(12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

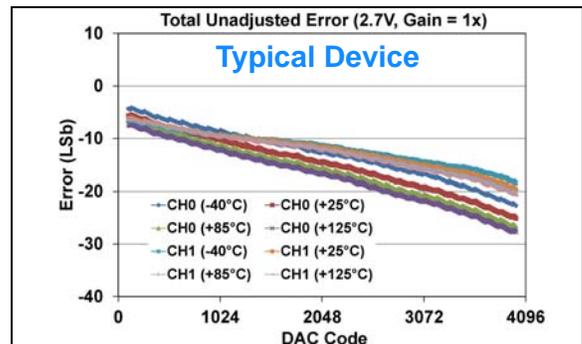


FIGURE 1-135: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB22)
(12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 2.048\text{V}$

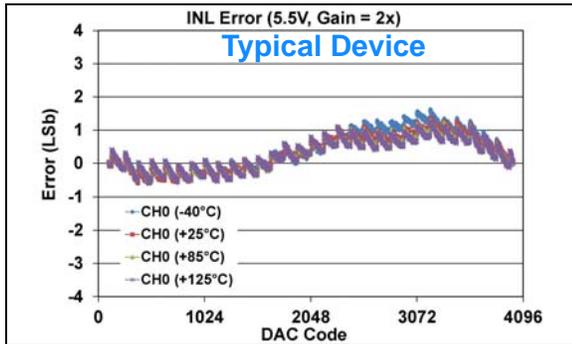


FIGURE 1-136: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

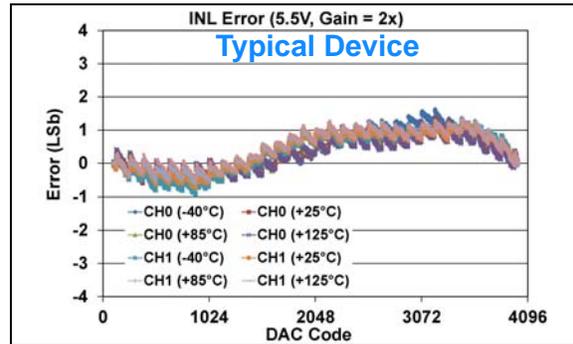


FIGURE 1-139: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

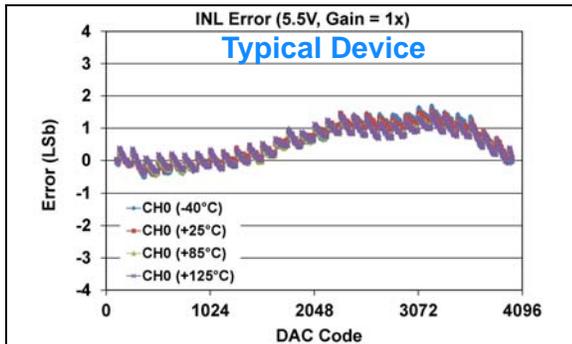


FIGURE 1-137: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

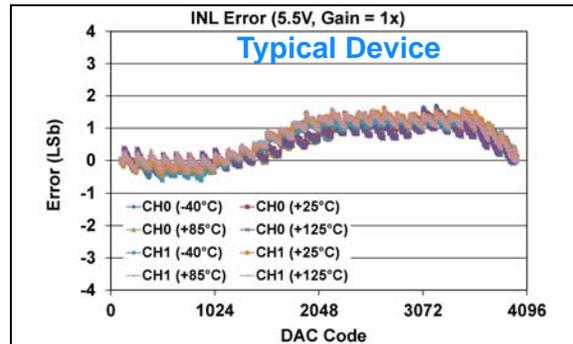


FIGURE 1-140: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

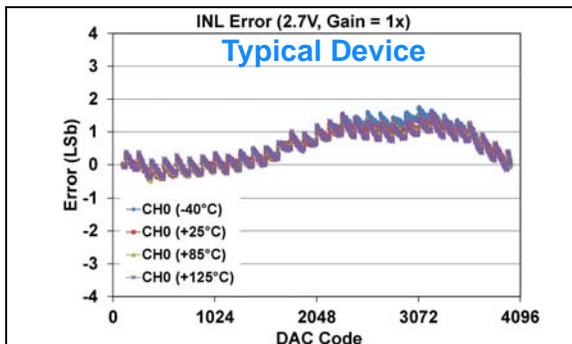


FIGURE 1-138: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

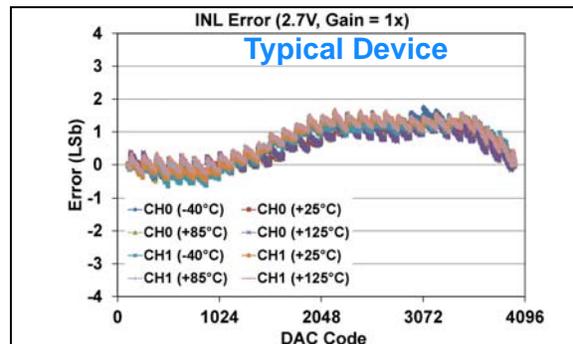


FIGURE 1-141: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 2.048\text{V}$

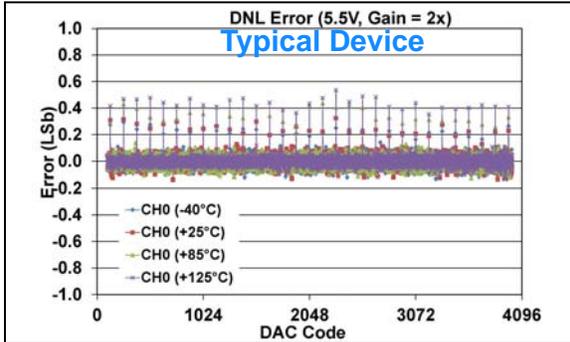


FIGURE 1-142: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (**12-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

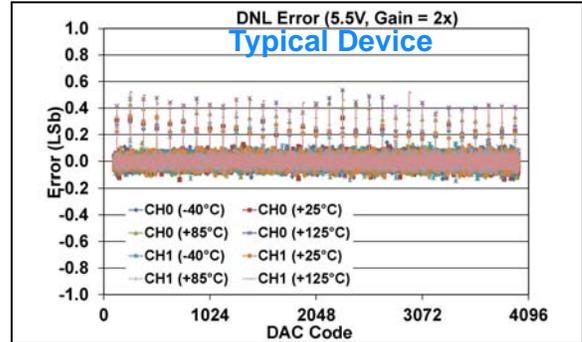


FIGURE 1-145: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (**12-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

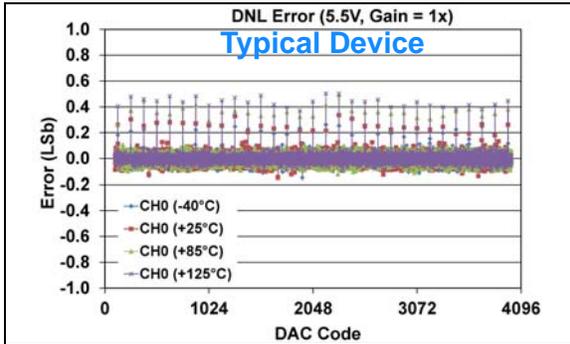


FIGURE 1-143: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (**12-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

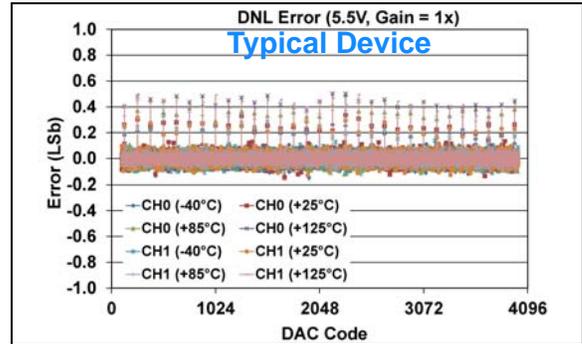


FIGURE 1-146: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (**12-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

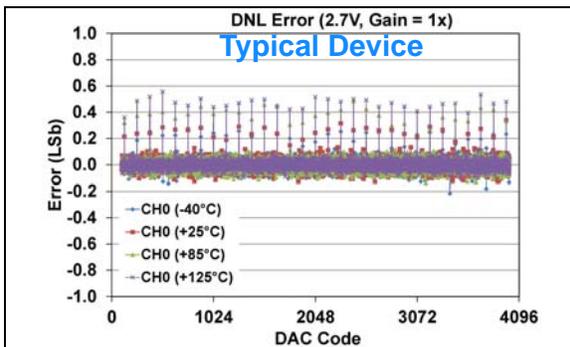


FIGURE 1-144: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (**12-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

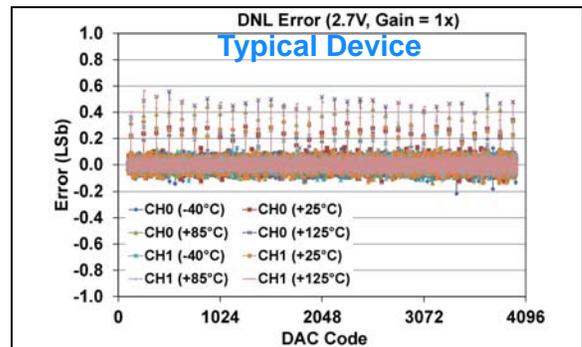


FIGURE 1-147: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (**12-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = V_{DD}$, $Gx = '0'$ (1x)

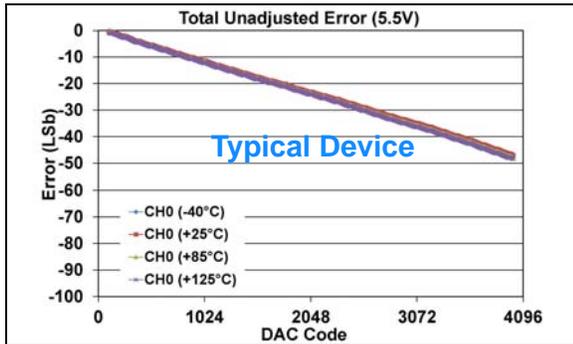


FIGURE 1-148: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB21)

(12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

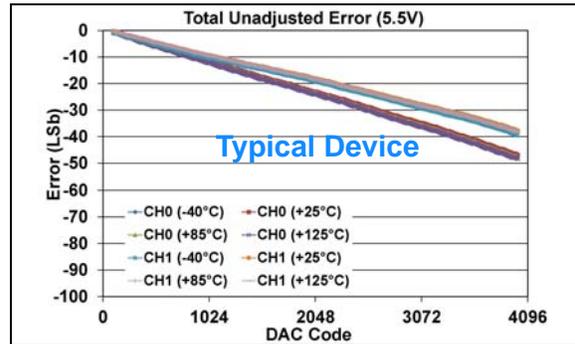


FIGURE 1-151: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB22)

(12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

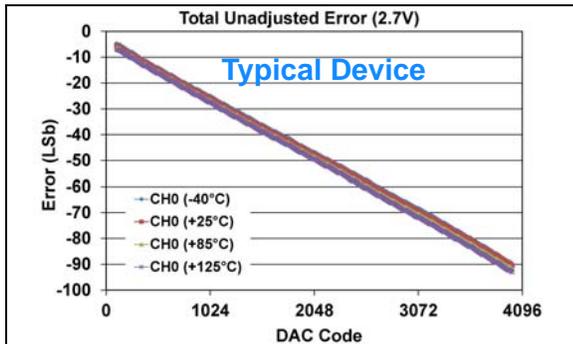


FIGURE 1-149: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB21)

(12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

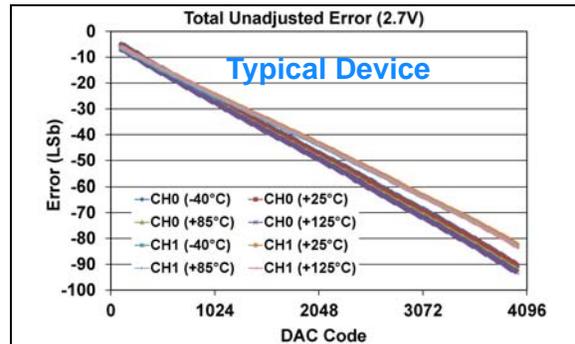


FIGURE 1-152: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB22)

(12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

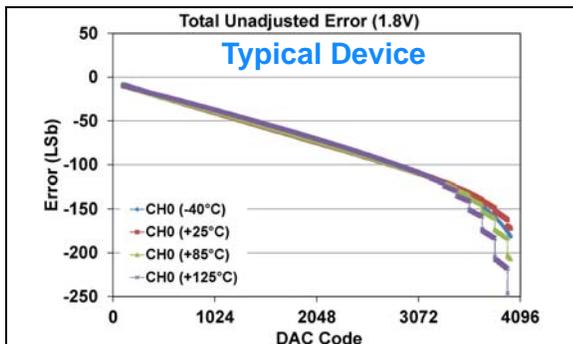


FIGURE 1-150: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB21)

(12-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)), (see [Appendix B.4](#) for additional information).

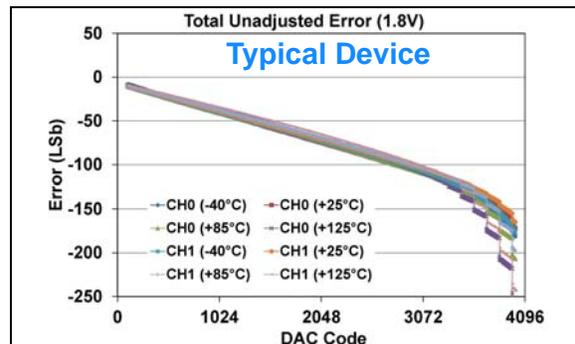


FIGURE 1-153: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB22)

(12-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)), (see [Appendix B.4](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = V_{DD}$, $Gx = '0'$ (1x)

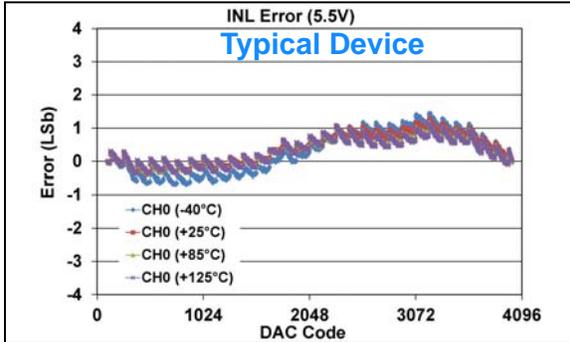


FIGURE 1-154: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21)
(12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

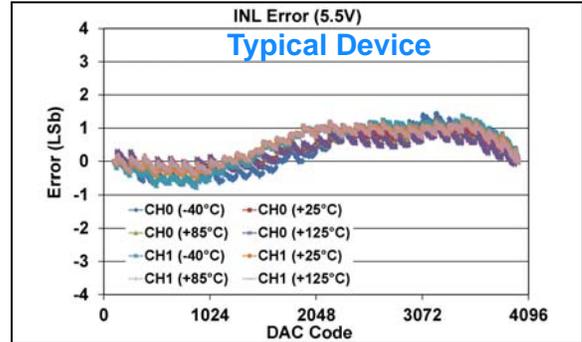


FIGURE 1-157: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22)
(12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

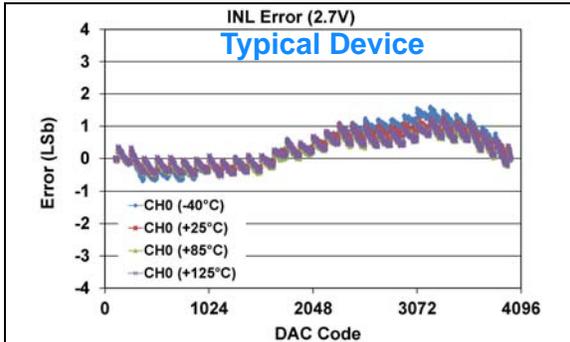


FIGURE 1-155: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21)
(12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

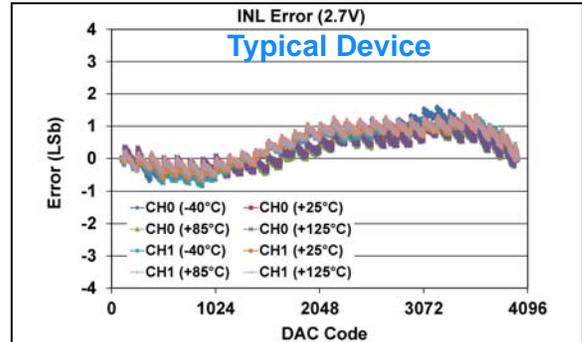


FIGURE 1-158: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22)
(12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

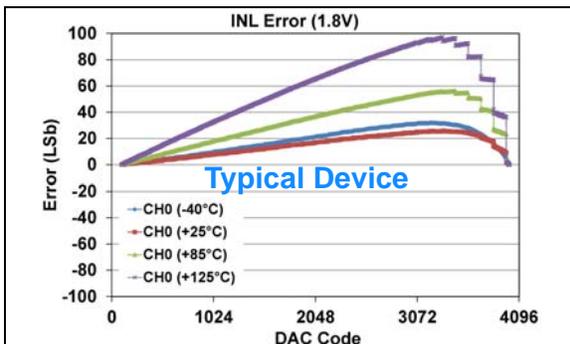


FIGURE 1-156: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21)
(12-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x), (see Appendix B.4 for additional information).

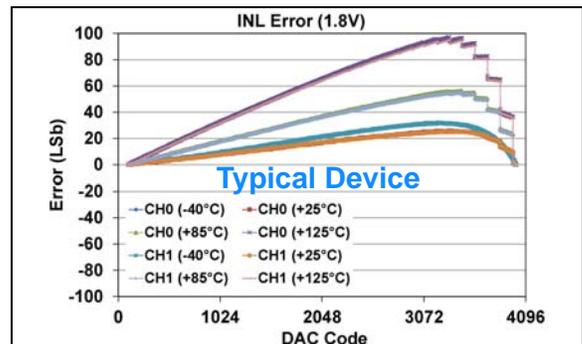


FIGURE 1-159: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22)
(12-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x), (see Appendix B.4 for additional information).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = V_{DD}$, $Gx = '0'$ (1x)

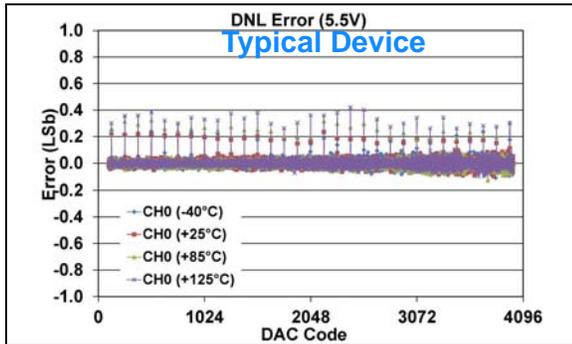


FIGURE 1-160: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (**12-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

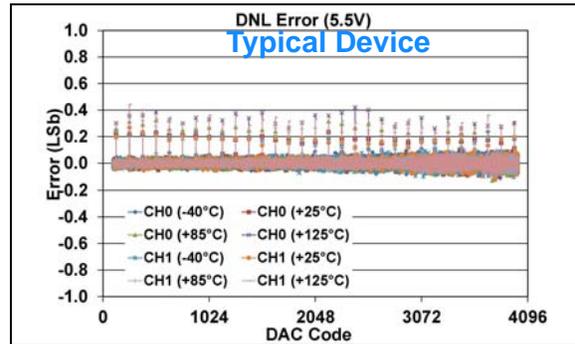


FIGURE 1-163: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (**12-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

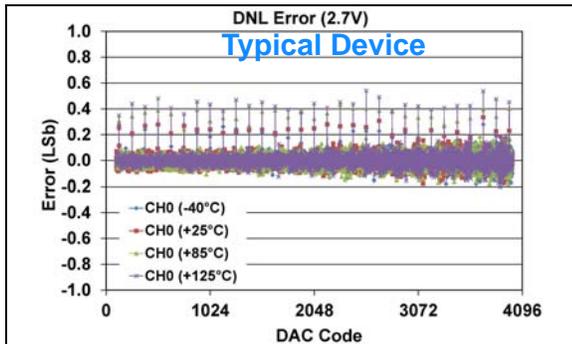


FIGURE 1-161: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (**12-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

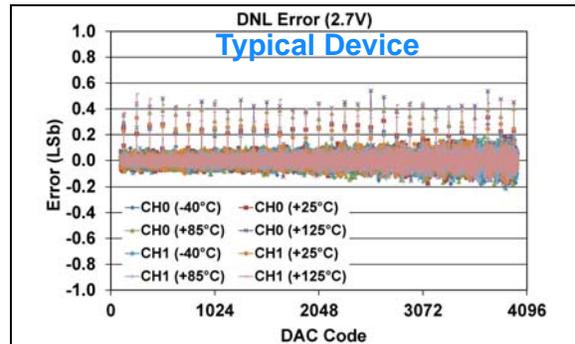


FIGURE 1-164: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (**12-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

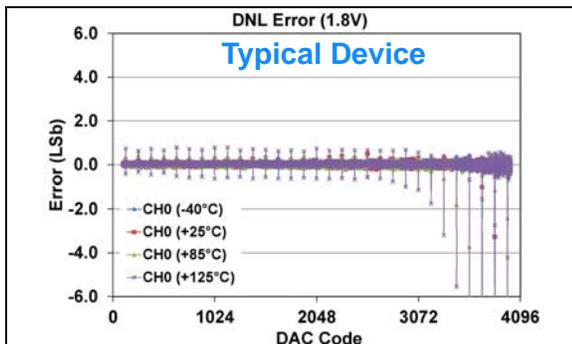


FIGURE 1-162: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (**12-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)), (see [Appendix B.4](#) for additional information).

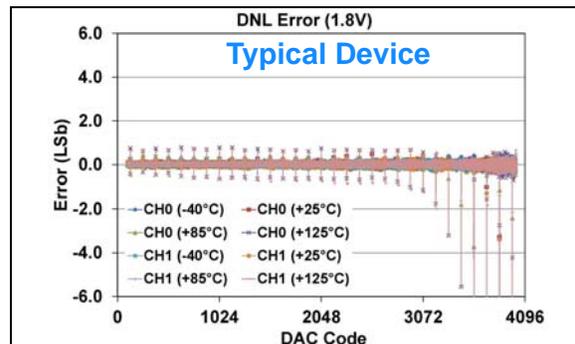


FIGURE 1-165: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (**12-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)), (see [Appendix B.4](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 1\text{V}$, $Gx = '0'$ (1x)

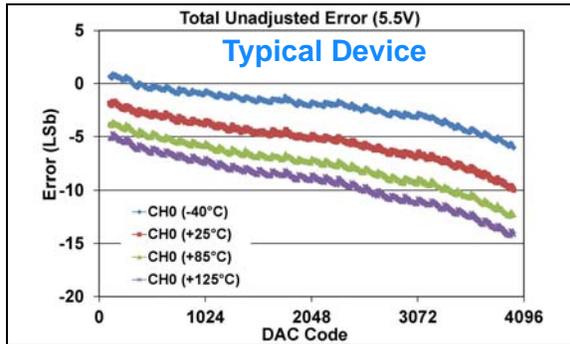


FIGURE 1-166: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB21)
(**12-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

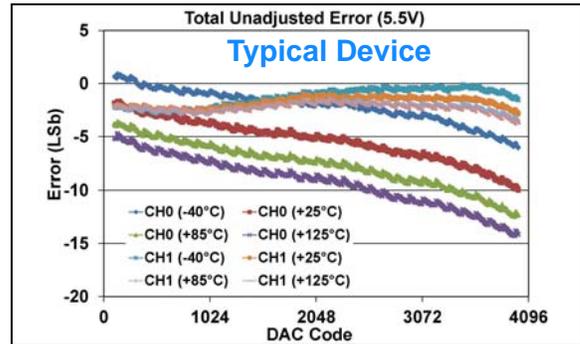


FIGURE 1-169: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB22)
(**12-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

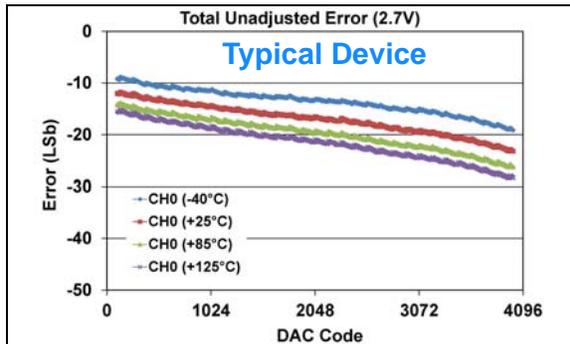


FIGURE 1-167: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB21)
(**12-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

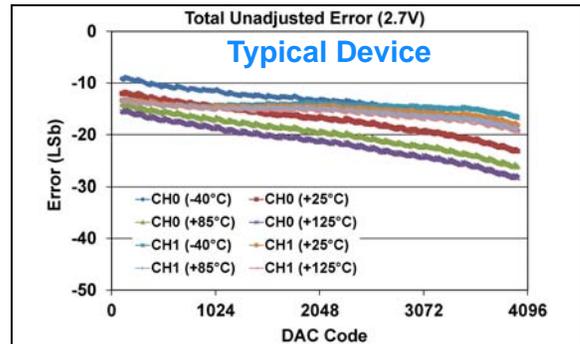


FIGURE 1-170: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB22)
(**12-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

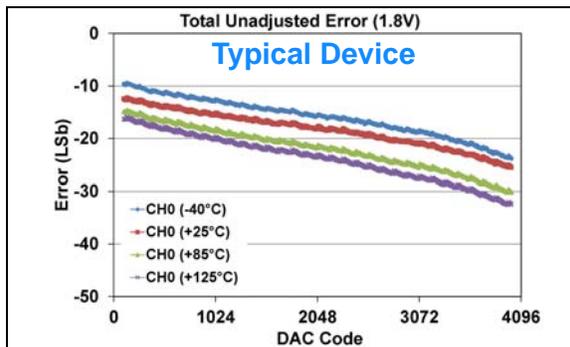


FIGURE 1-168: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB21)
(**12-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

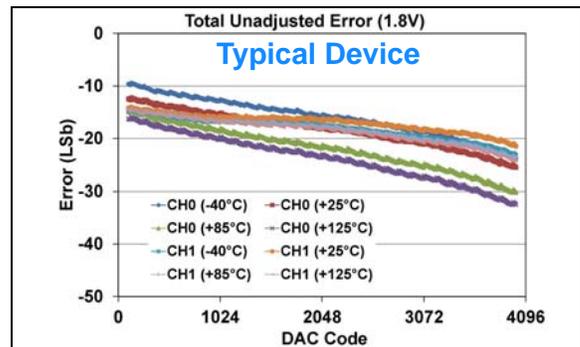


FIGURE 1-171: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB22)
(**12-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 1\text{V}$, $Gx = '0'$ (1x)

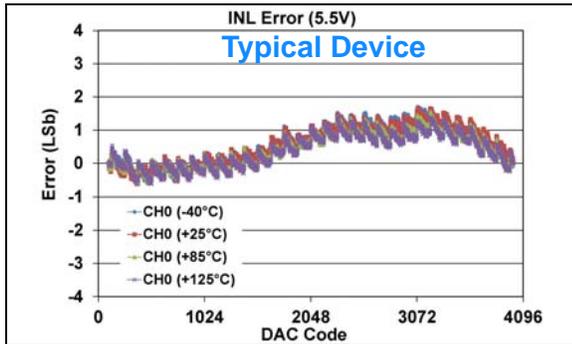


FIGURE 1-172: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - **MCP48FXB21**)
(12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

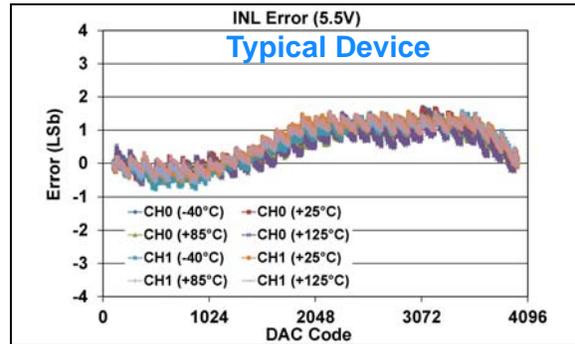


FIGURE 1-175: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - **MCP48FXB22**)
(12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

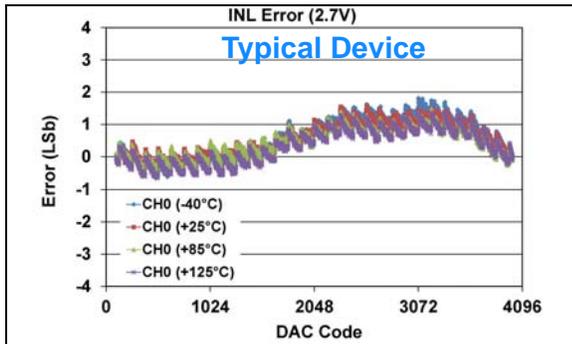


FIGURE 1-173: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - **MCP48FXB21**)
(12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

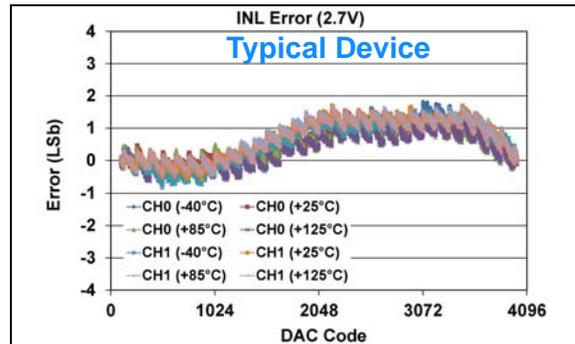


FIGURE 1-176: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - **MCP48FXB22**)
(12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

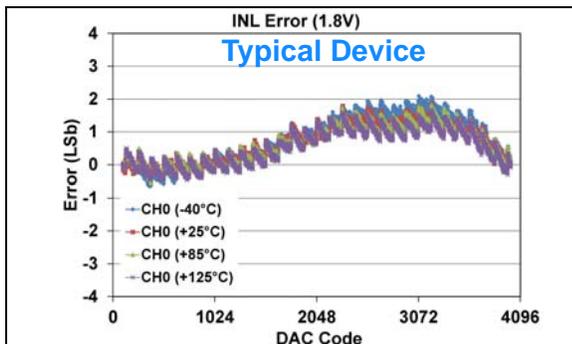


FIGURE 1-174: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - **MCP48FXB21**)
(12-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

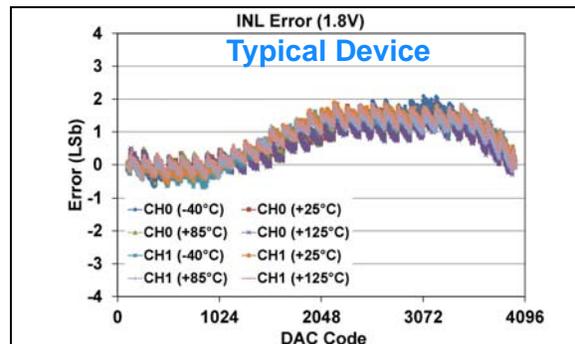


FIGURE 1-177: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - **MCP48FXB22**)
(12-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 1\text{V}$, $Gx = '0'$ (1x)

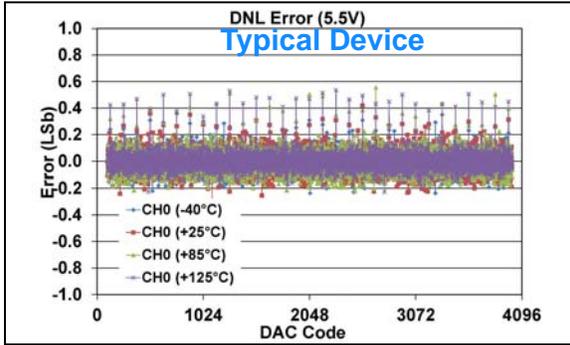


FIGURE 1-178: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (**12-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

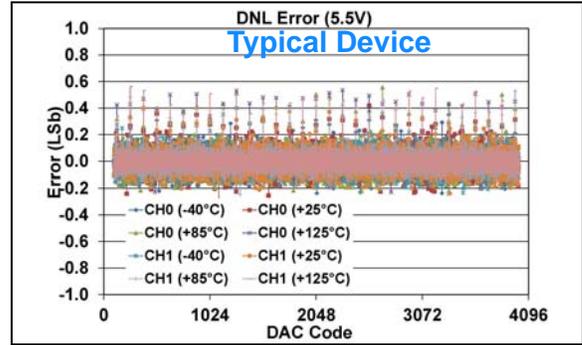


FIGURE 1-181: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (**12-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

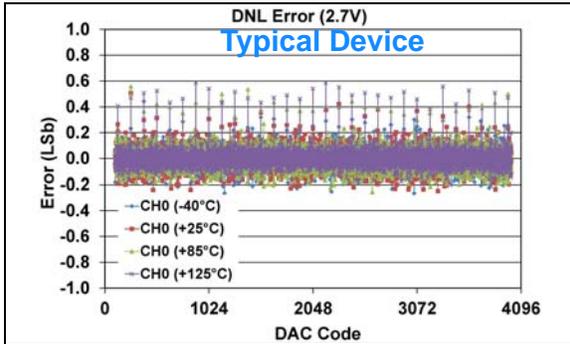


FIGURE 1-179: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (**12-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

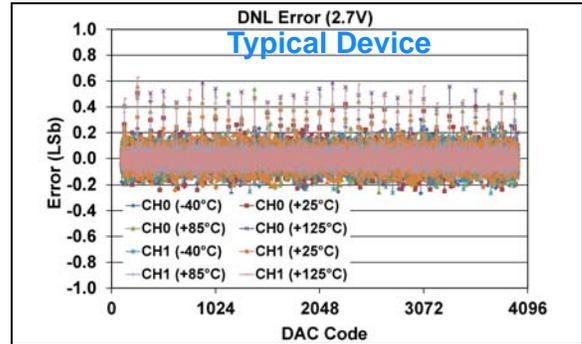


FIGURE 1-182: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (**12-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

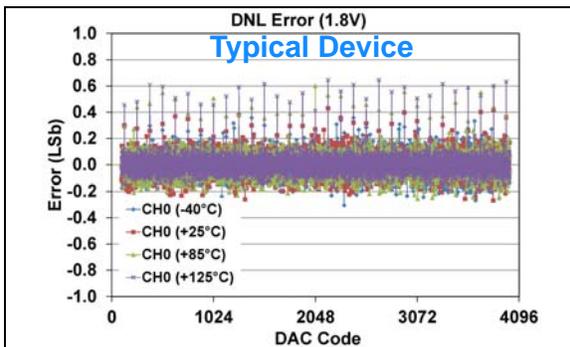


FIGURE 1-180: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (**12-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

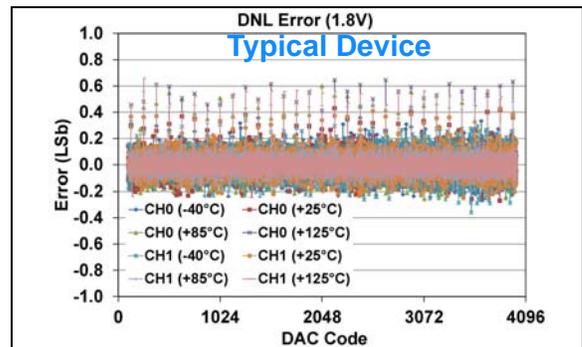


FIGURE 1-183: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (**12-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 1\text{V}$, $Gx = '1'$ (2x)

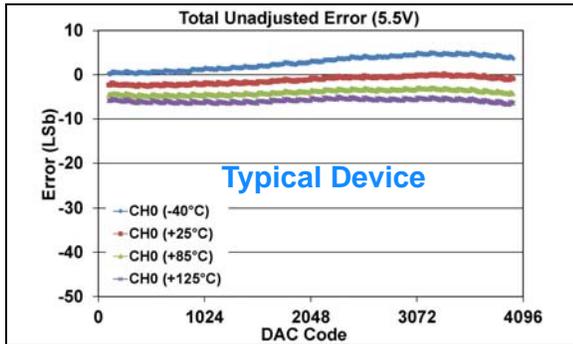


FIGURE 1-184: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB21)
(12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

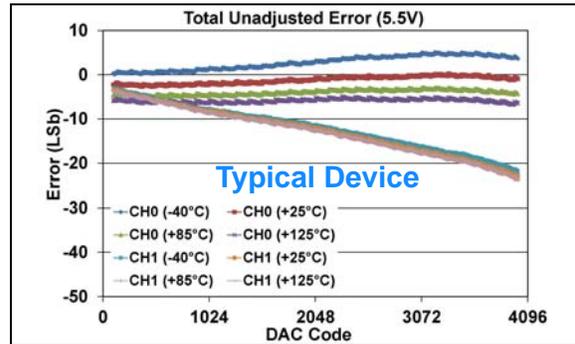


FIGURE 1-187: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB22)
(12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

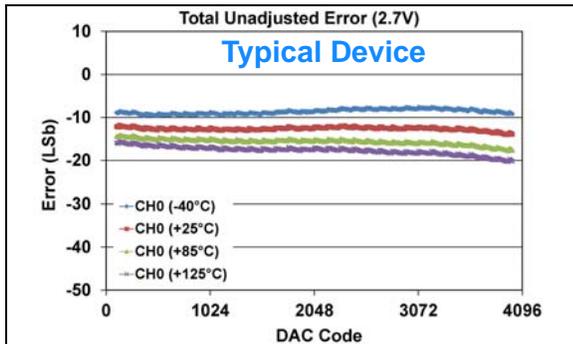


FIGURE 1-185: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB21)
(12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

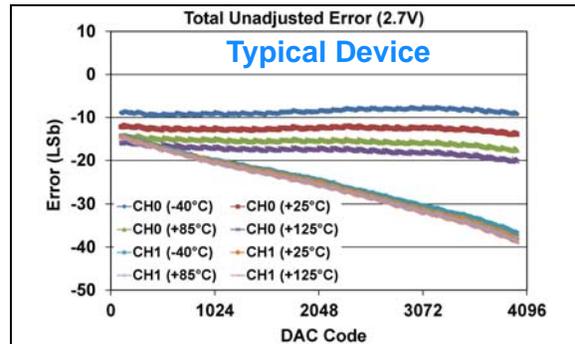


FIGURE 1-188: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB22)
(12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

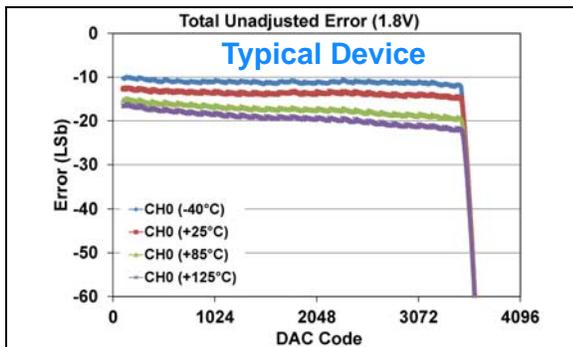


FIGURE 1-186: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB21)
(12-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)),
(see [Appendix B.5](#) for additional information).

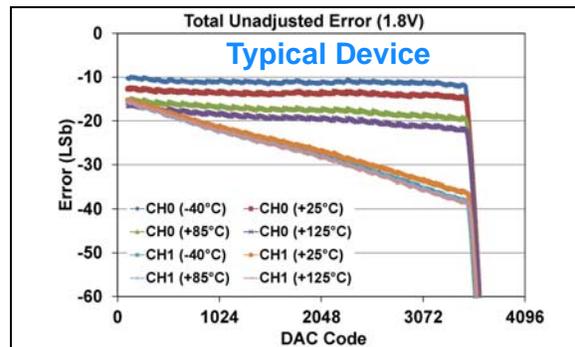


FIGURE 1-189: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB22)
(12-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)),
(see [Appendix B.5](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 1\text{V}$, $Gx = '1'$ (2x)

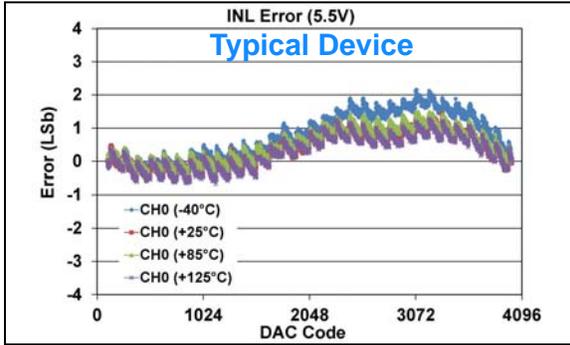


FIGURE 1-190: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (**12-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

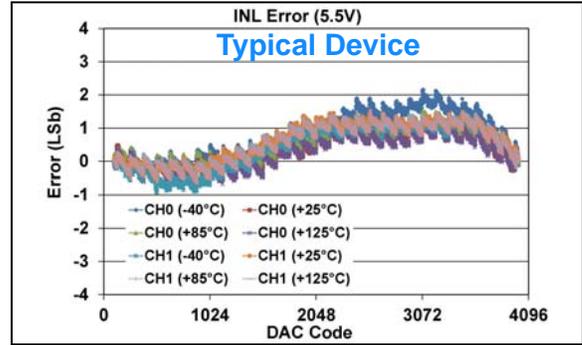


FIGURE 1-193: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (**12-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

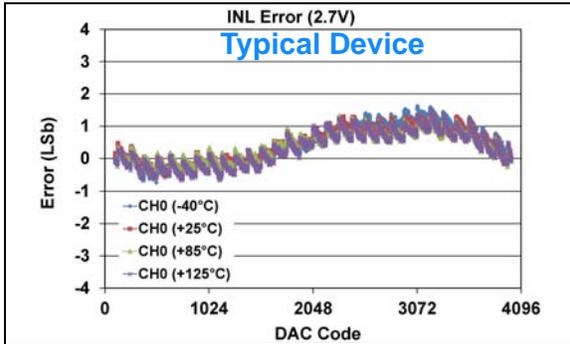


FIGURE 1-191: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (**12-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

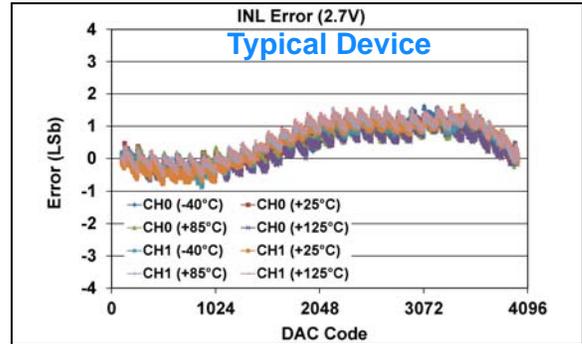


FIGURE 1-194: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (**12-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

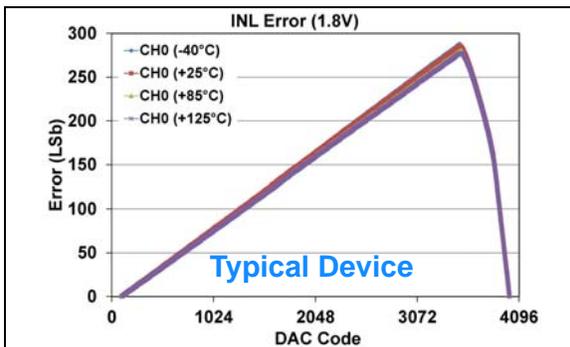


FIGURE 1-192: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (**12-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)), (see [Appendix B.5](#) for additional information).

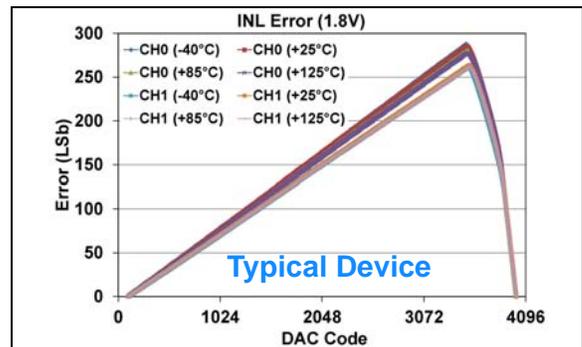


FIGURE 1-195: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (**12-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)), (see [Appendix B.5](#) for additional information).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 1\text{V}$, $Gx = '1'$ (2x)

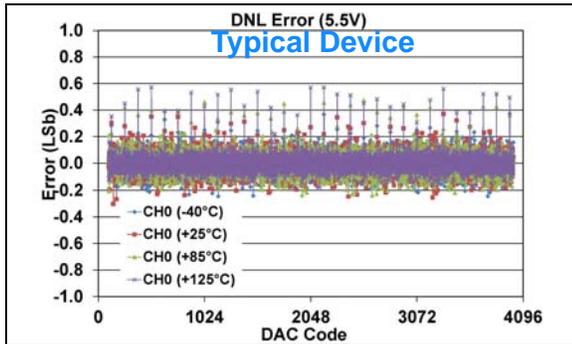


FIGURE 1-196: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

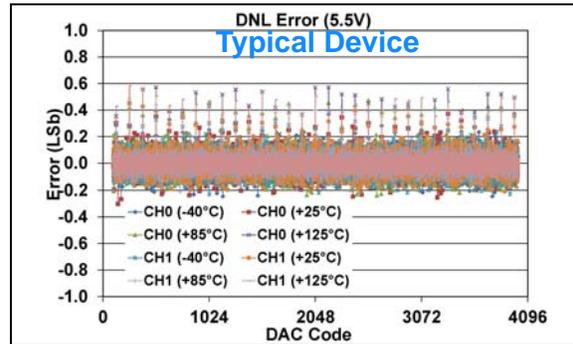


FIGURE 1-199: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

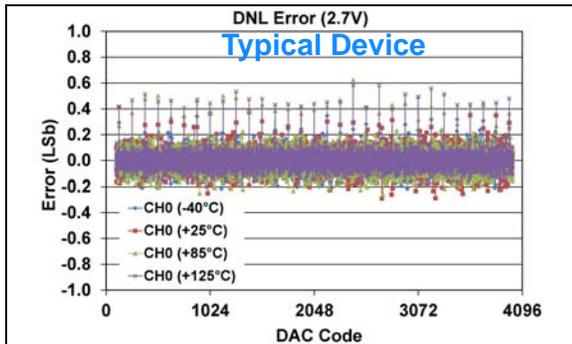


FIGURE 1-197: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

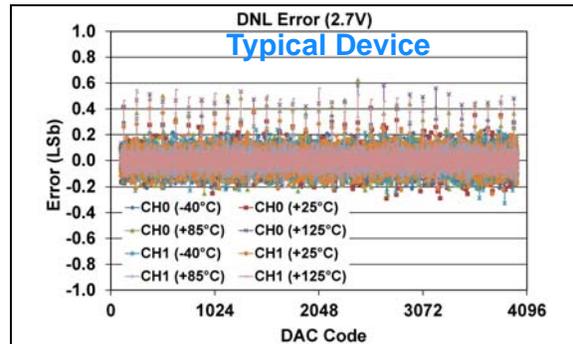


FIGURE 1-200: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

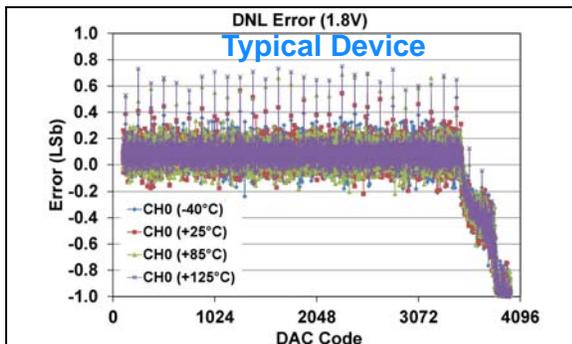


FIGURE 1-198: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (12-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)), (see [Appendix B.5](#) for additional information).

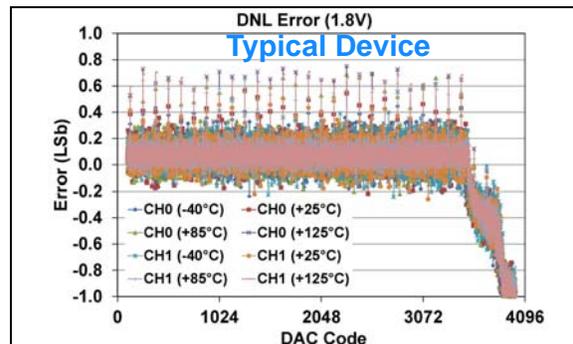


FIGURE 1-201: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (12-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)), (see [Appendix B.5](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 2.048\text{V}$

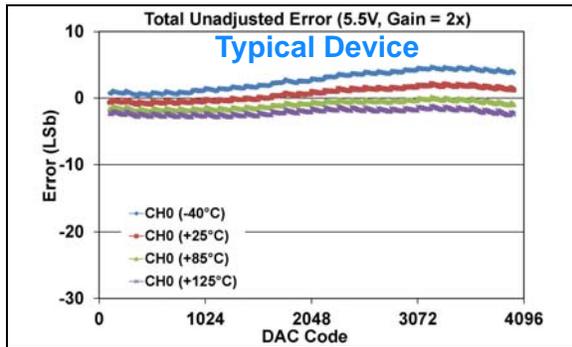


FIGURE 1-202: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB21)
(12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x).

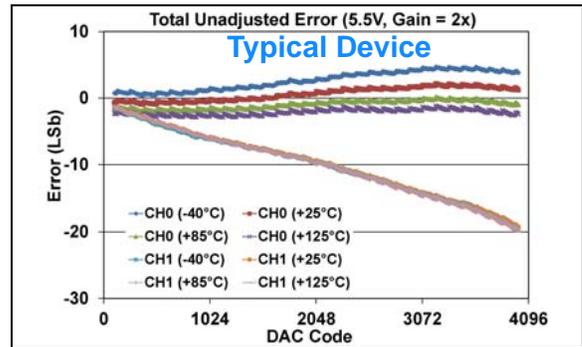


FIGURE 1-205: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB22)
(12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x).

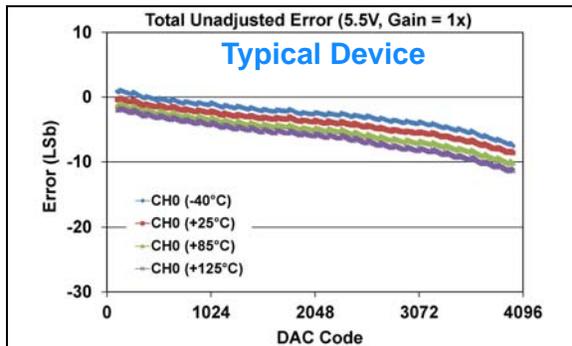


FIGURE 1-203: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB21)
(12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x).

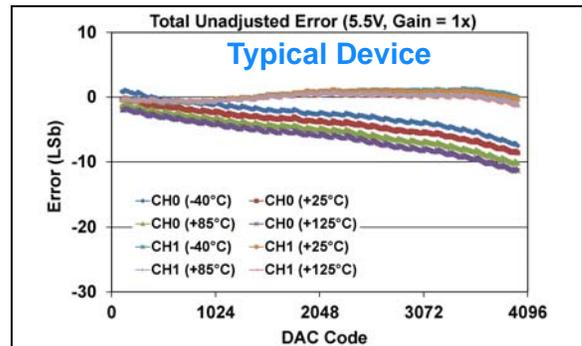


FIGURE 1-206: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB22)
(12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x).

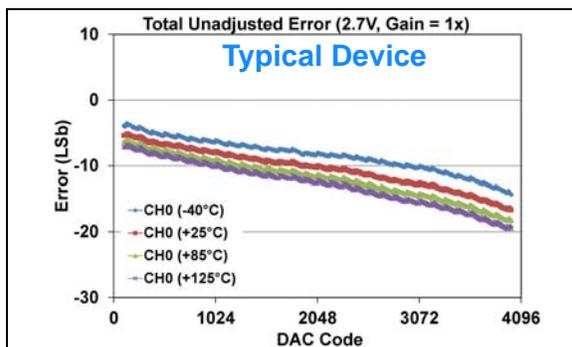


FIGURE 1-204: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB21)
(12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x).

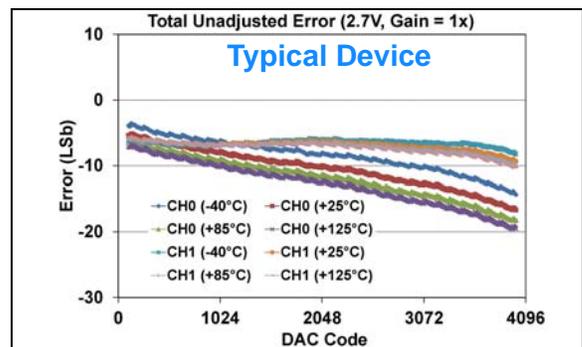


FIGURE 1-207: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB22)
(12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 2.048\text{V}$

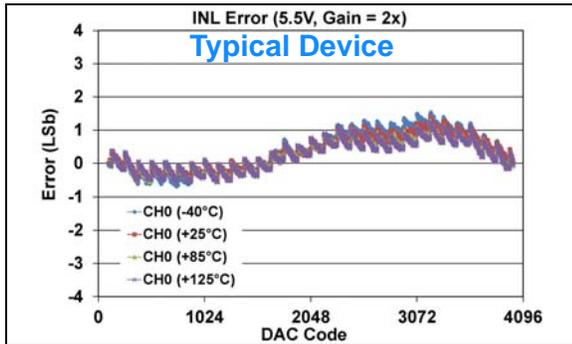


FIGURE 1-208: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

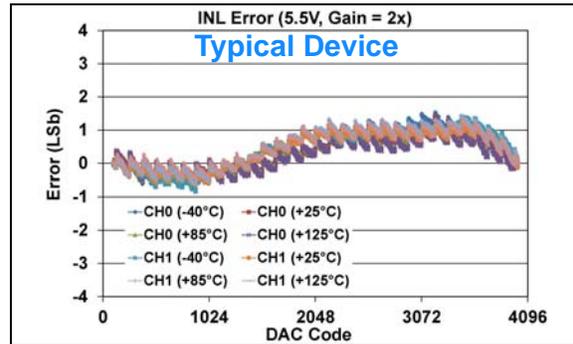


FIGURE 1-211: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

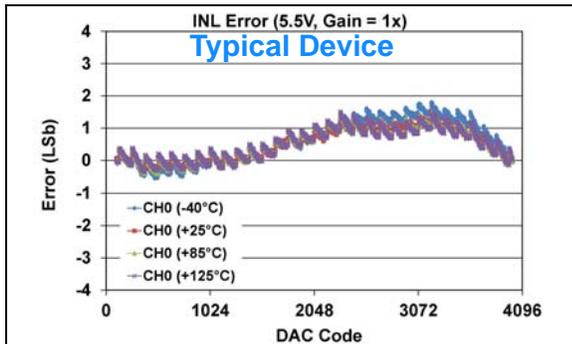


FIGURE 1-209: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

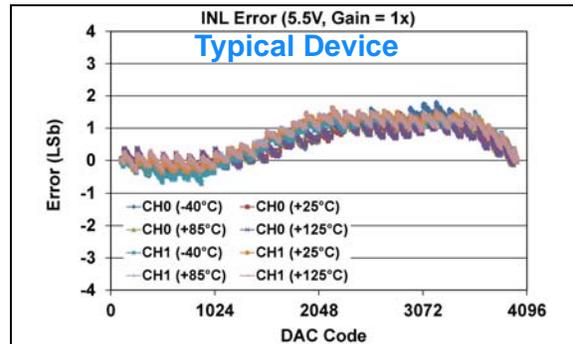


FIGURE 1-212: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (12-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

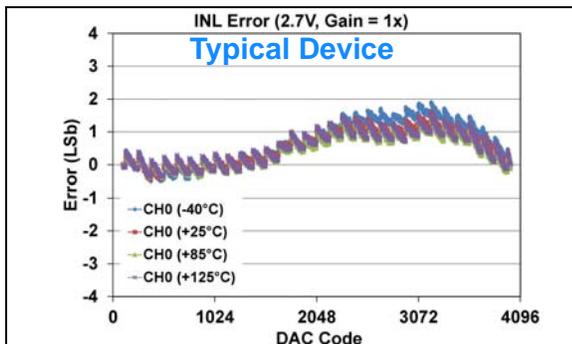


FIGURE 1-210: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

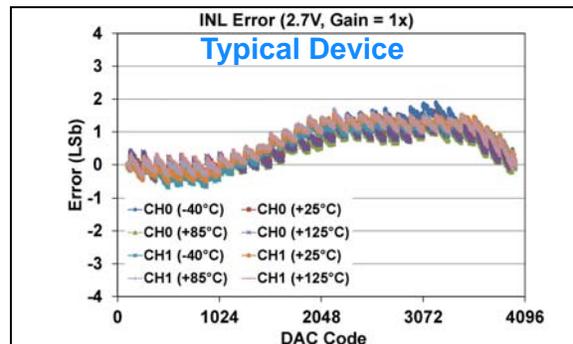


FIGURE 1-213: INL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (12-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

12-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 2.048\text{V}$

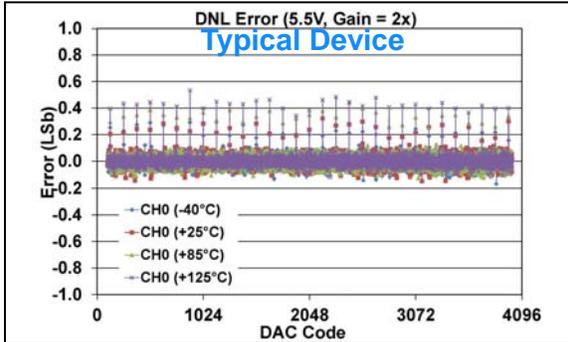


FIGURE 1-214: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (**12-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

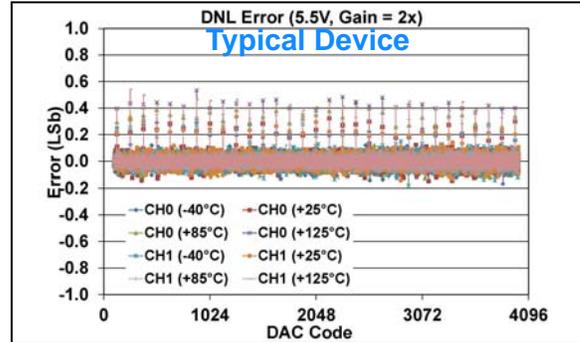


FIGURE 1-217: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (**12-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

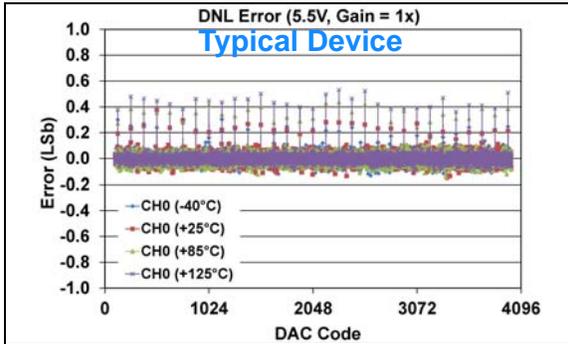


FIGURE 1-215: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (**12-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

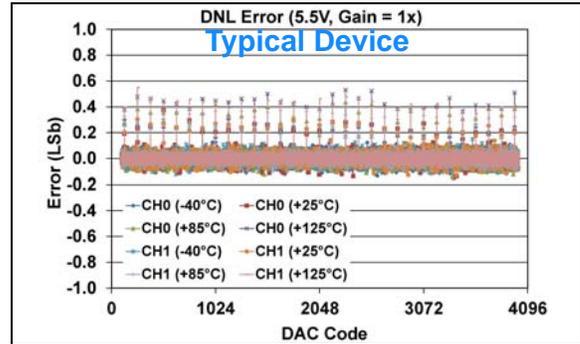


FIGURE 1-218: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (**12-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

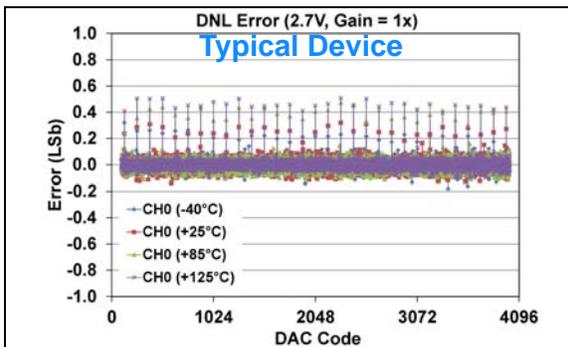


FIGURE 1-216: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Single Channel - MCP48FXB21) (**12-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

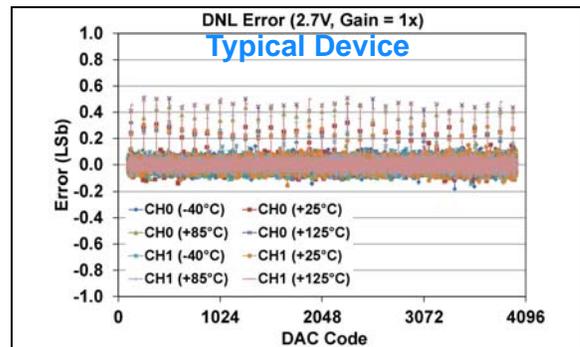


FIGURE 1-219: DNL Error vs. DAC Code, and Temperature (Code 100 - 4000) (Dual Channel - MCP48FXB22) (**12-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

MCP48FXBXX

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '00'$ (V_{DD} Mode), $Gx = '0'$ (1x)

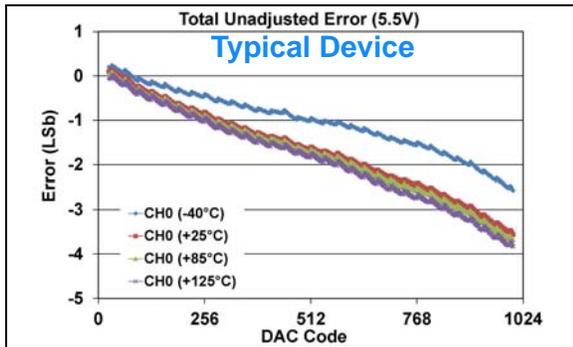


FIGURE 1-220: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

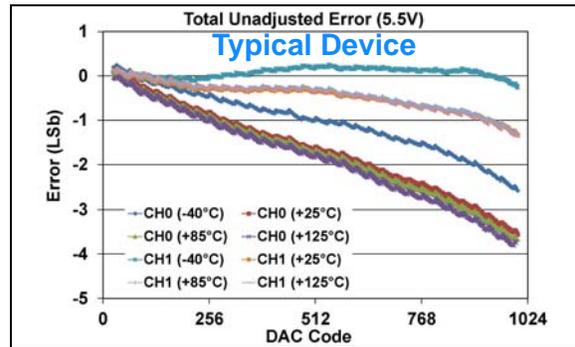


FIGURE 1-223: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

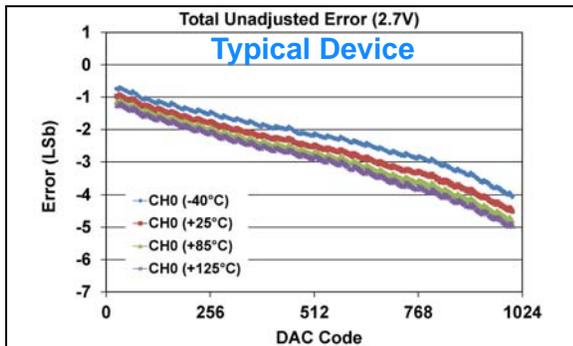


FIGURE 1-221: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

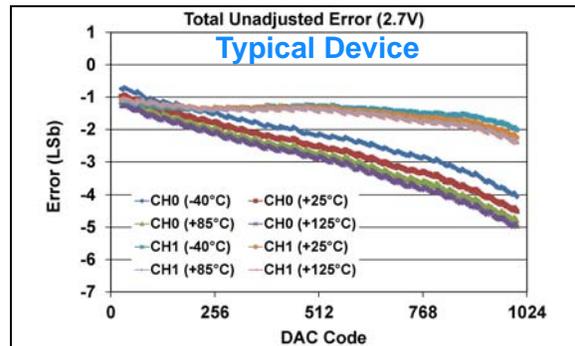


FIGURE 1-224: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

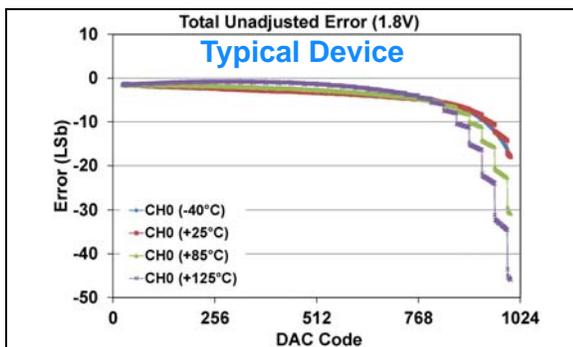


FIGURE 1-222: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 1.8\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)),
(see [Appendix B.1](#) for additional information).

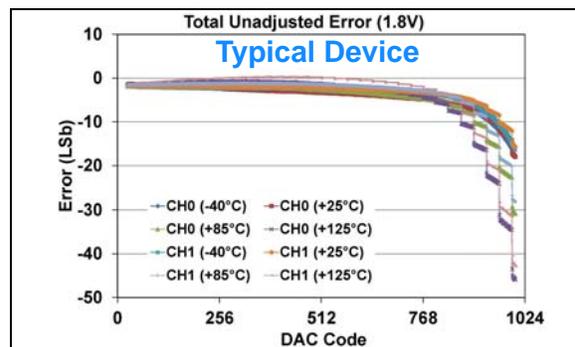


FIGURE 1-225: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 1.8\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)),
(see [Appendix B.1](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '00'$ (V_{DD} Mode), $Gx = '0'$ (1x)

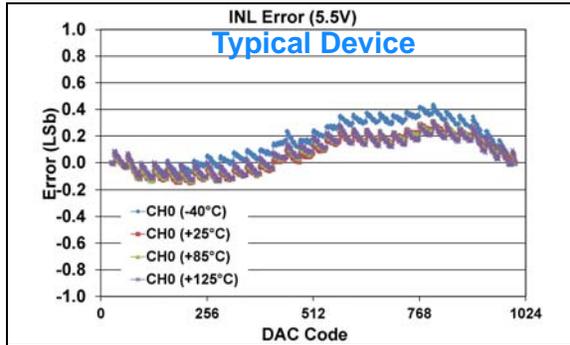


FIGURE 1-226: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(**10-bit:** $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

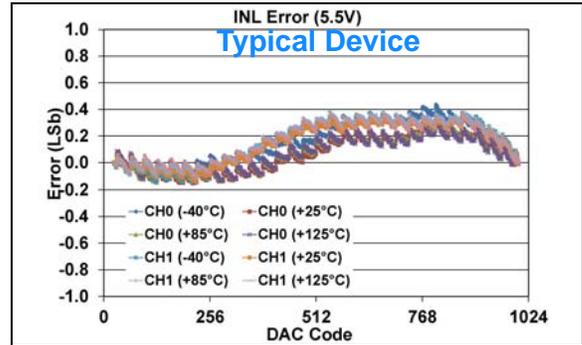


FIGURE 1-229: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(**10-bit:** $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

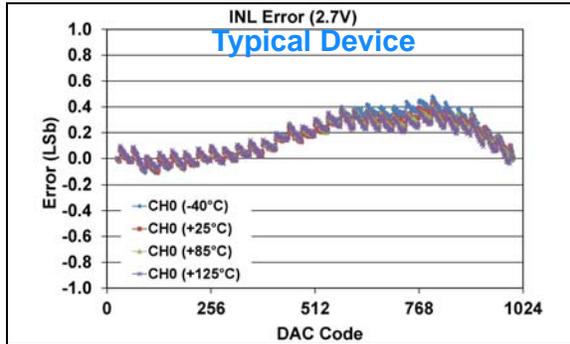


FIGURE 1-227: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(**10-bit:** $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

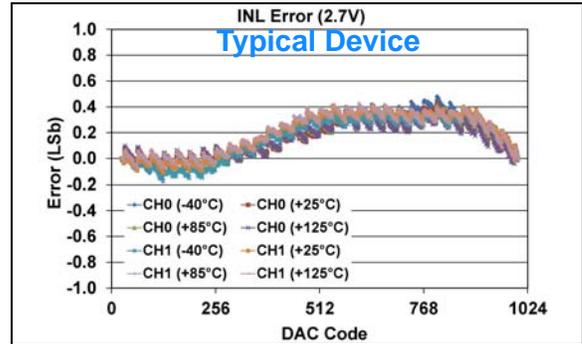


FIGURE 1-230: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(**10-bit:** $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

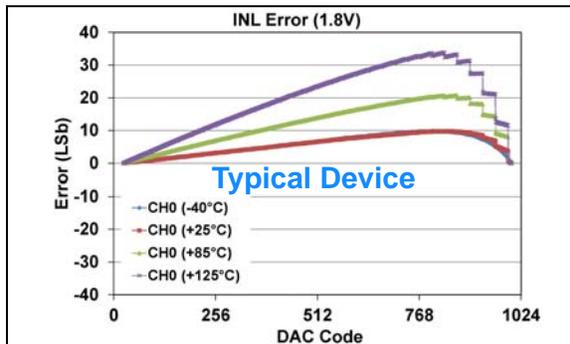


FIGURE 1-228: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(**10-bit:** $V_{DD} = 1.8\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)),
(see [Appendix B.1](#) for additional information).

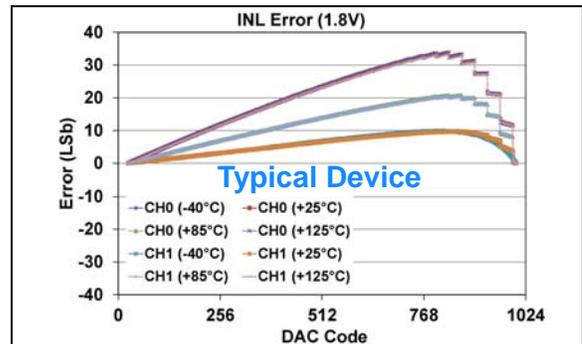


FIGURE 1-231: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(**10-bit:** $V_{DD} = 1.8\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)),
(see [Appendix B.1](#) for additional information).

MCP48FXBXX

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '00'$ (V_{DD} Mode), $Gx = '0'$ (1x)

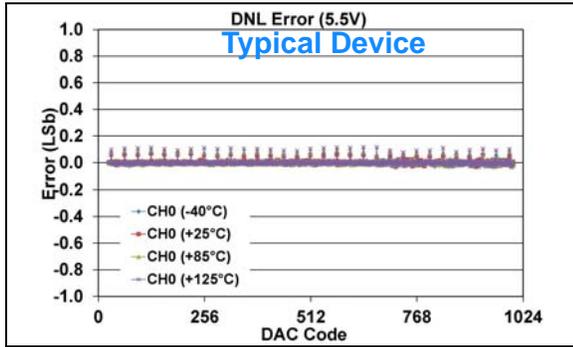


FIGURE 1-232: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

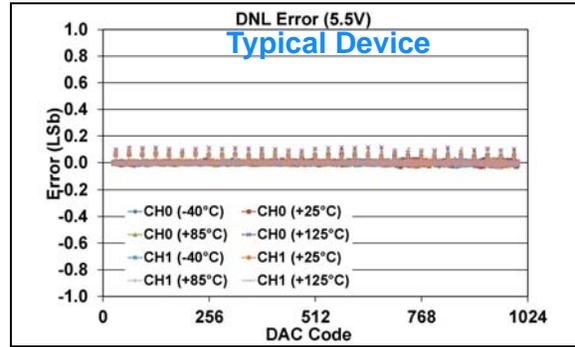


FIGURE 1-235: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

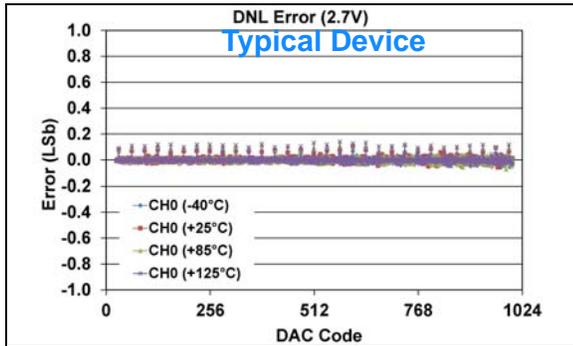


FIGURE 1-233: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

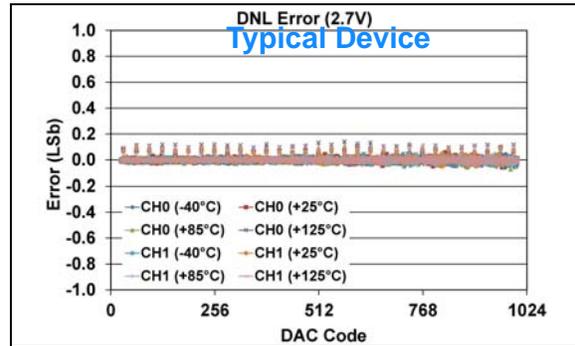


FIGURE 1-236: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

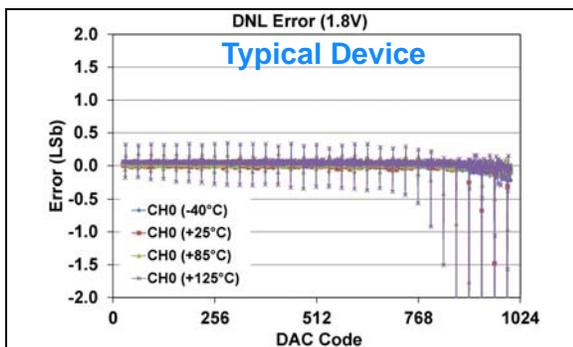


FIGURE 1-234: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 1.8\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)),
(see [Appendix B.1](#) for additional information).

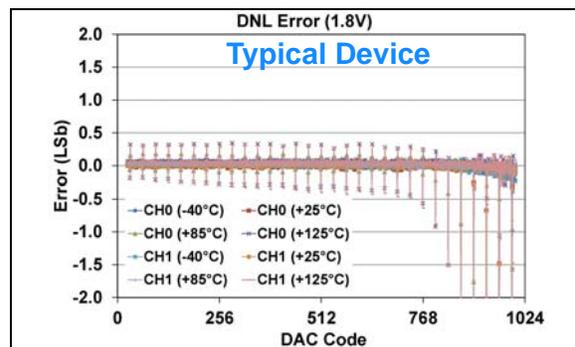


FIGURE 1-237: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 1.8\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)),
(see [Appendix B.1](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '01'$ (Bandgap Mode)

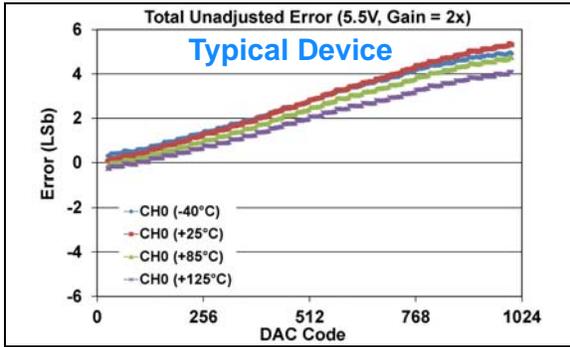


FIGURE 1-238: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '1'$ (2x)).

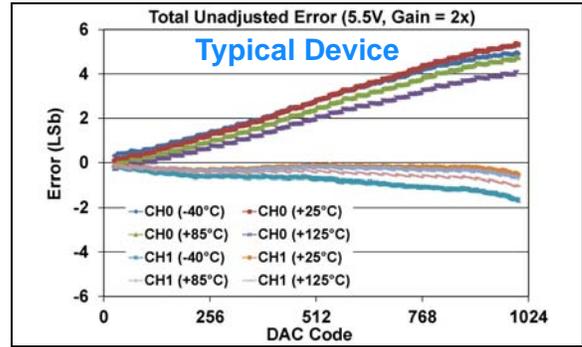


FIGURE 1-241: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '1'$ (2x)).

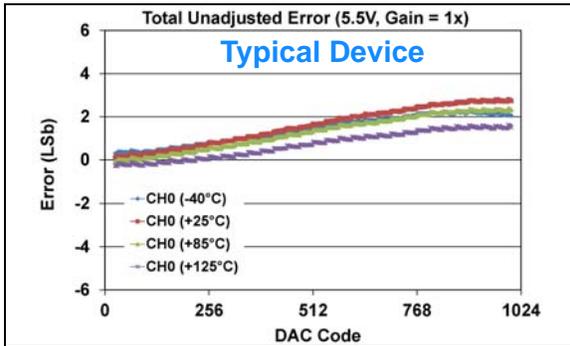


FIGURE 1-239: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

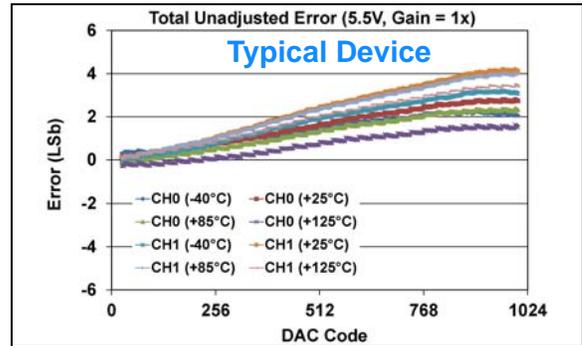


FIGURE 1-242: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

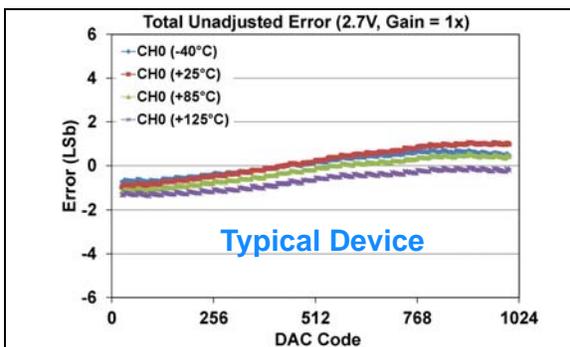


FIGURE 1-240: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

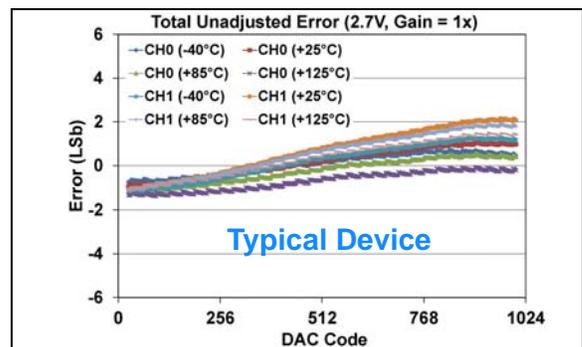


FIGURE 1-243: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

MCP48FXBXX

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '01'$ (Bandgap Mode)

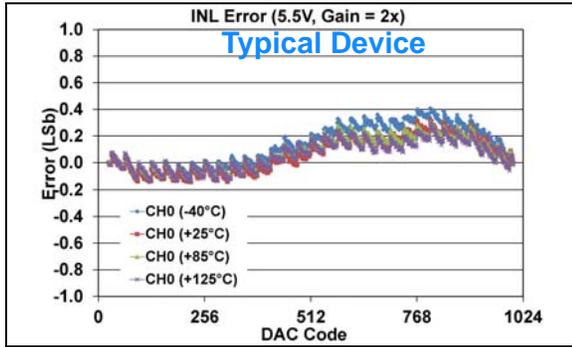


FIGURE 1-244: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**) (10-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '1'$ (2x)).

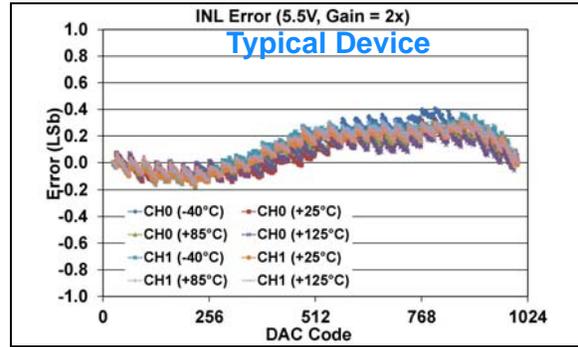


FIGURE 1-247: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**) (10-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '1'$ (2x)).

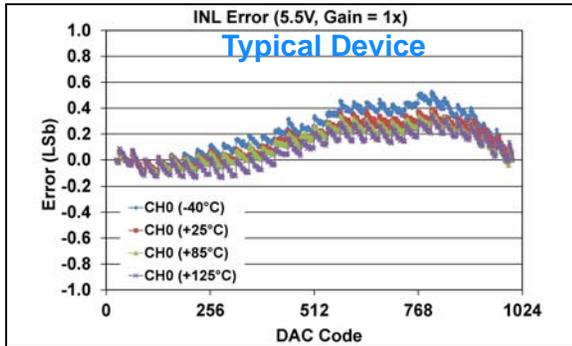


FIGURE 1-245: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**) (10-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

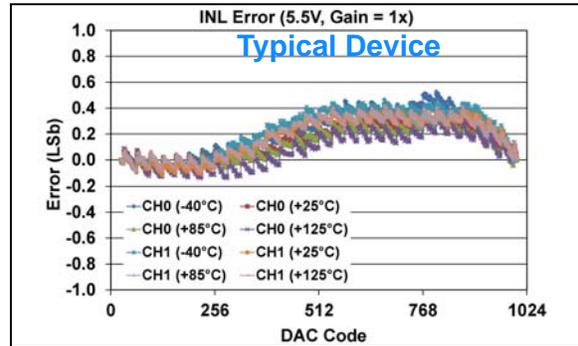


FIGURE 1-248: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**) (10-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

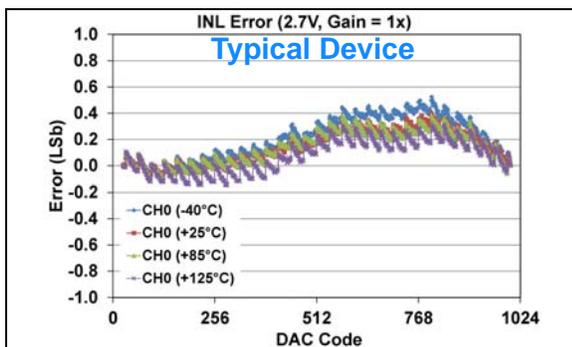


FIGURE 1-246: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**) (10-bit: $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

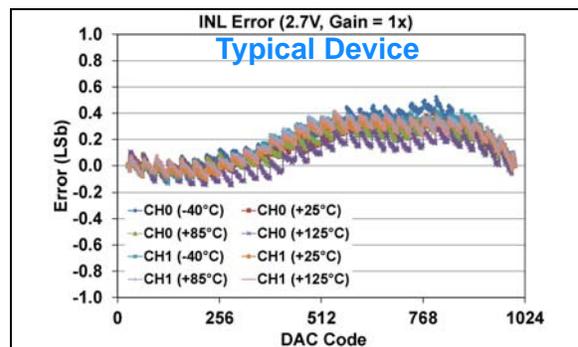


FIGURE 1-249: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**) (10-bit: $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '01'$ (Bandgap Mode)

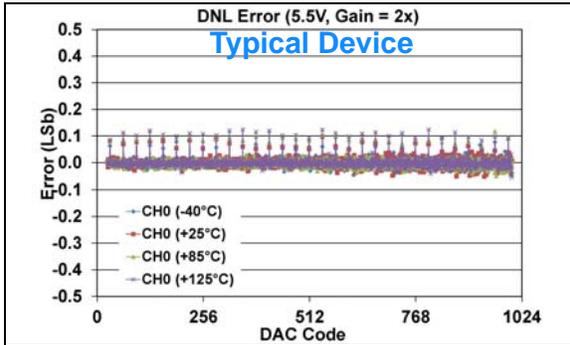


FIGURE 1-250: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(**10-bit:** $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '1'$ (2x)).

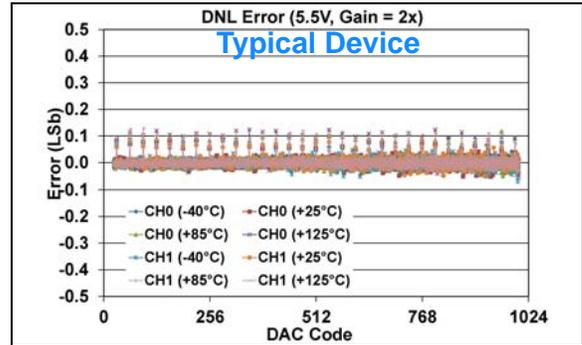


FIGURE 1-253: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(**10-bit:** $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '1'$ (2x)).

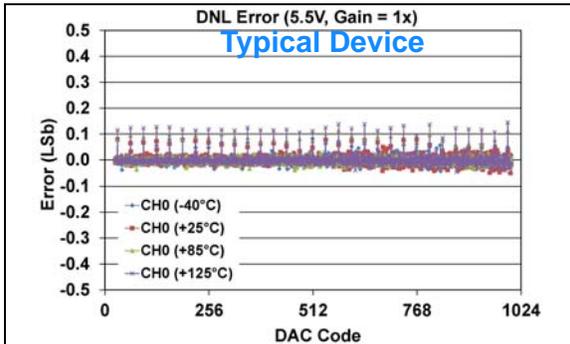


FIGURE 1-251: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(**10-bit:** $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

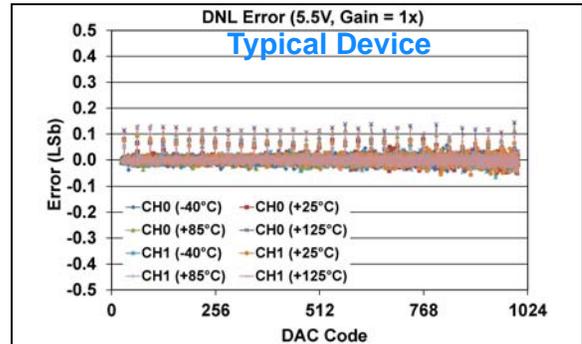


FIGURE 1-254: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(**10-bit:** $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

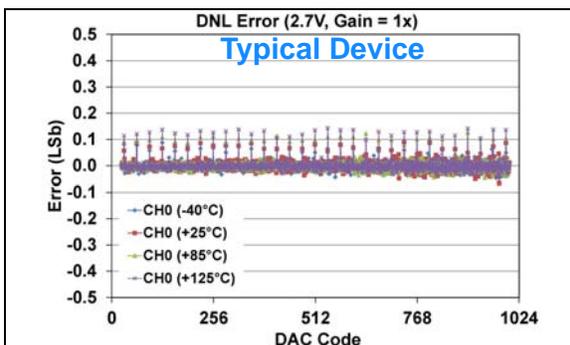


FIGURE 1-252: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(**10-bit:** $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

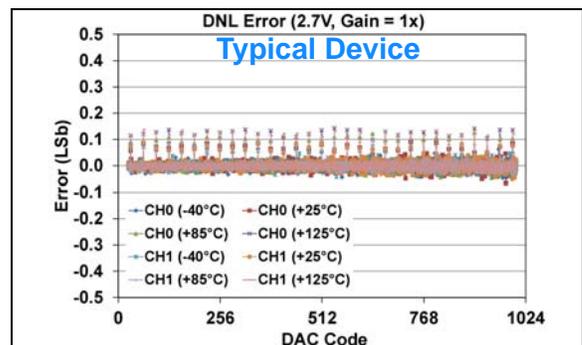


FIGURE 1-255: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(**10-bit:** $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

MCP48FXBXX

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = V_{DD}$, $Gx = '0'$ (1x)

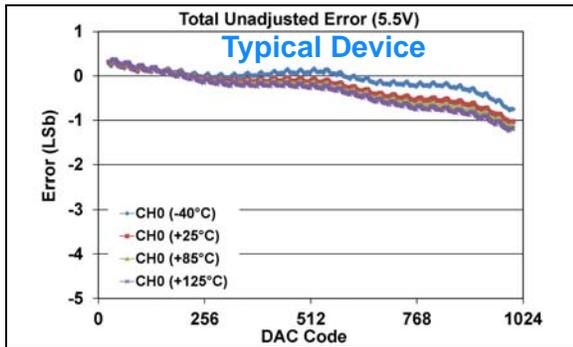


FIGURE 1-256: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB11)

(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

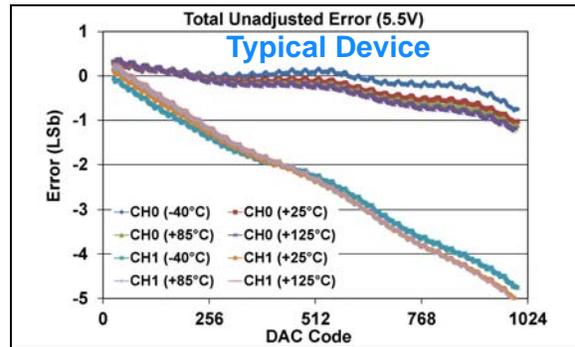


FIGURE 1-259: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB12)

(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

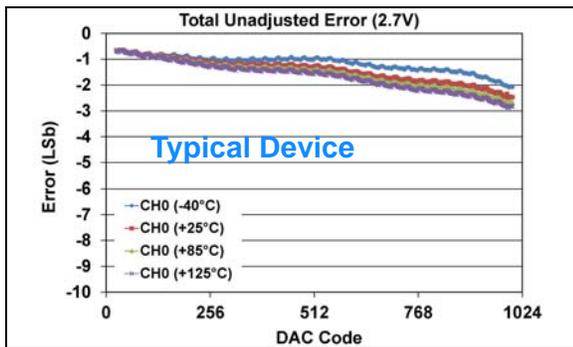


FIGURE 1-257: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB11)

(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

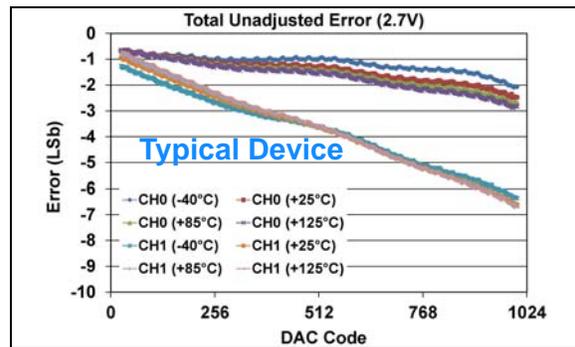


FIGURE 1-260: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB12)

(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

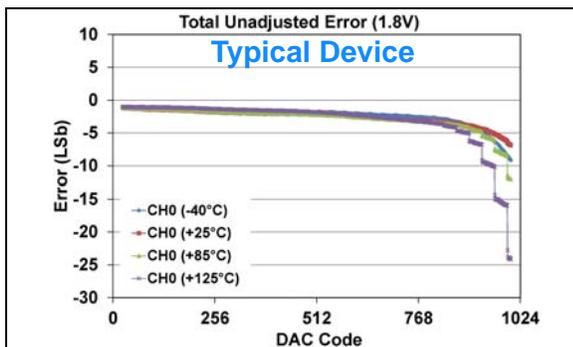


FIGURE 1-258: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB11)

(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)), (see Appendix B.2 for additional information).

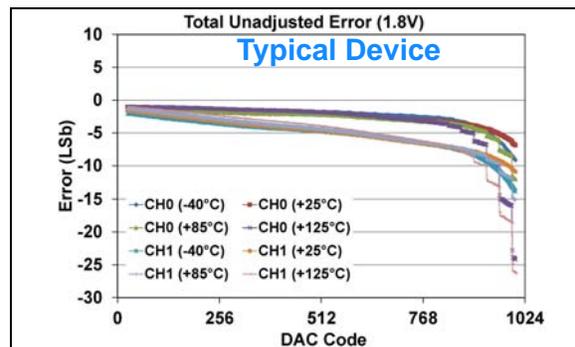


FIGURE 1-261: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB12)

(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)), (see Appendix B.2 for additional information).

MCP48FXBXX

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = V_{DD}$, $Gx = '0'$ (1x)

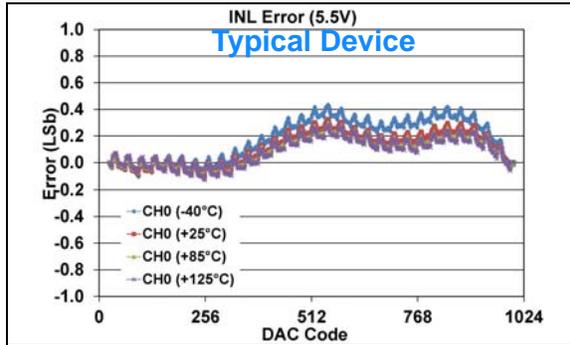


FIGURE 1-262: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - MCP48FXB11)

(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

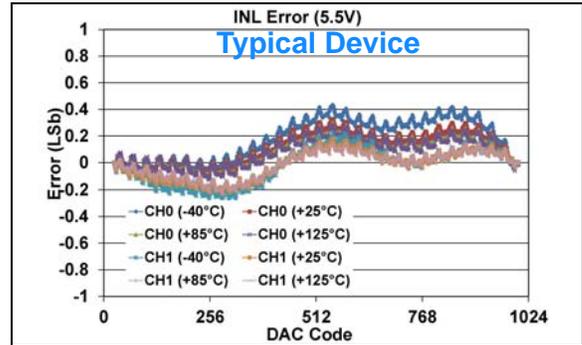


FIGURE 1-265: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - MCP48FXB12)

(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

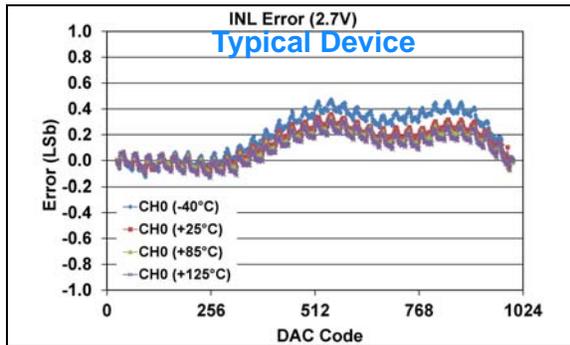


FIGURE 1-263: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - MCP48FXB11)

(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

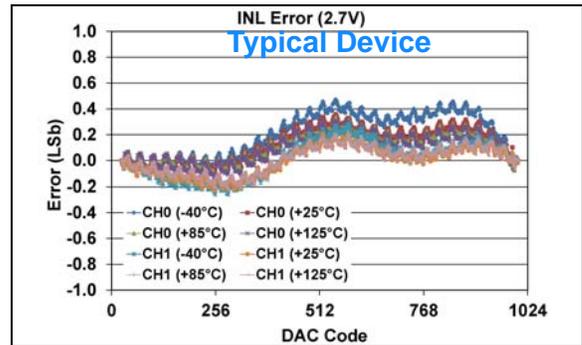


FIGURE 1-266: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - MCP48FXB12)

(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

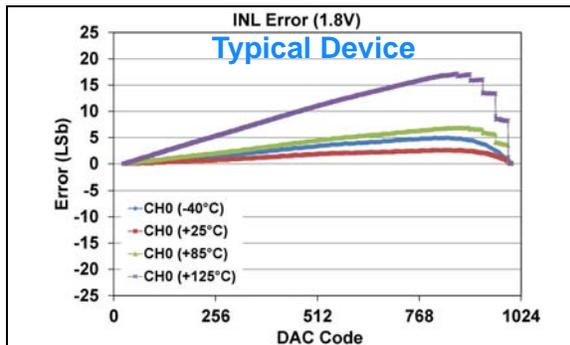


FIGURE 1-264: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - MCP48FXB11)

(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x), (see [Appendix B.2](#) for additional information).

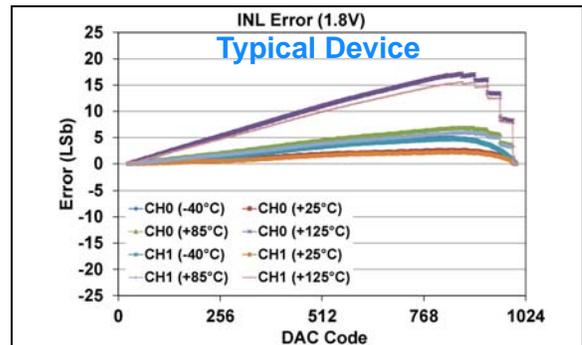


FIGURE 1-267: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - MCP48FXB12)

(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x), (see [Appendix B.2](#) for additional information).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = V_{DD}$, $Gx = '0'$ (1x)

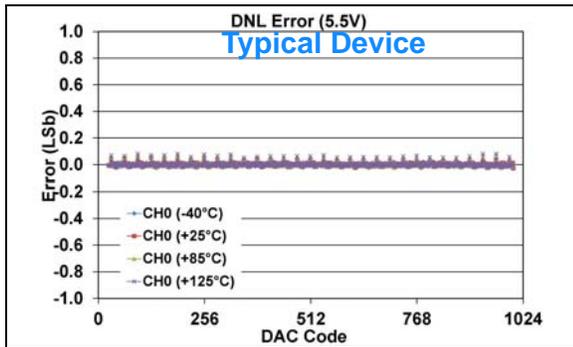


FIGURE 1-268: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - MCP48FXB11)

(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

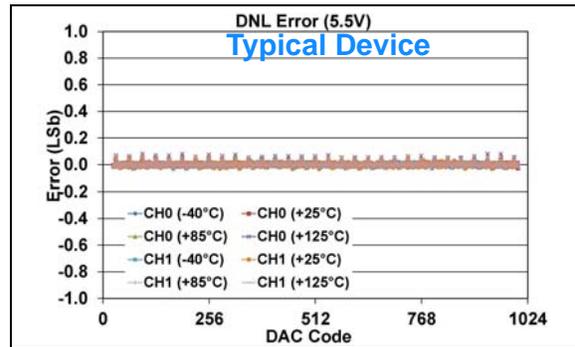


FIGURE 1-271: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - MCP48FXB12)

(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

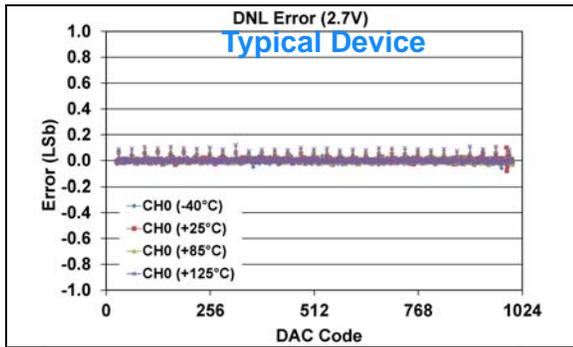


FIGURE 1-269: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - MCP48FXB11)

(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

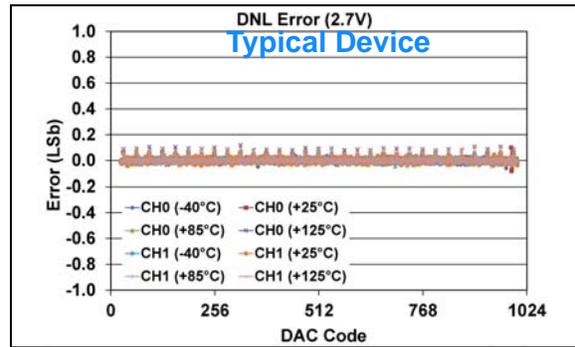


FIGURE 1-272: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - MCP48FXB12)

(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

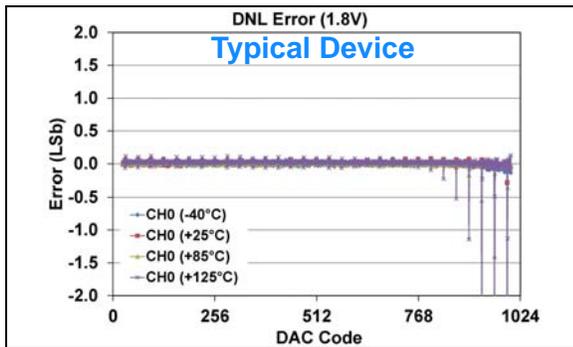


FIGURE 1-270: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - MCP48FXB11)

(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x), (see Appendix B.2 for additional information).

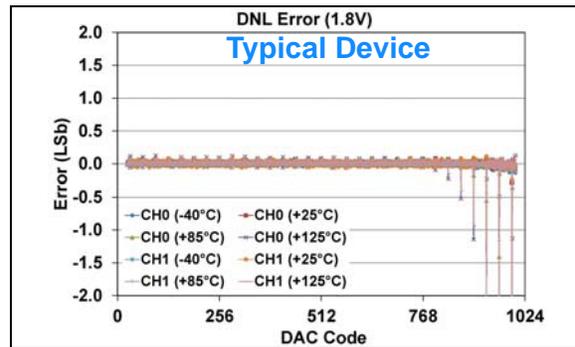


FIGURE 1-273: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - MCP48FXB12)

(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x), (see Appendix B.2 for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 1\text{V}$, $Gx = '0'$ (1x)

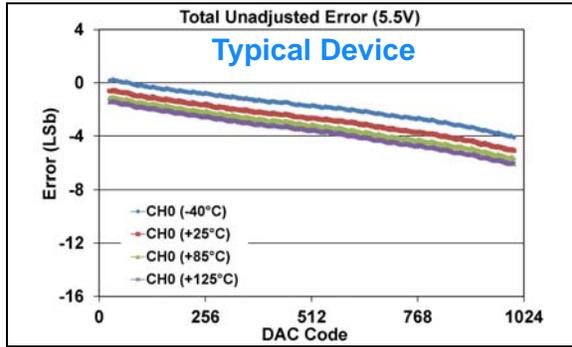


FIGURE 1-274: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB11)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

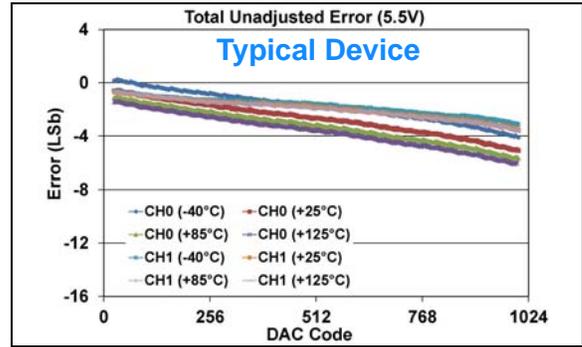


FIGURE 1-277: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB12)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

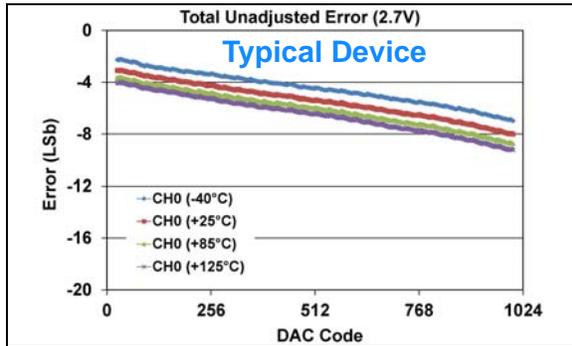


FIGURE 1-275: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB11)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

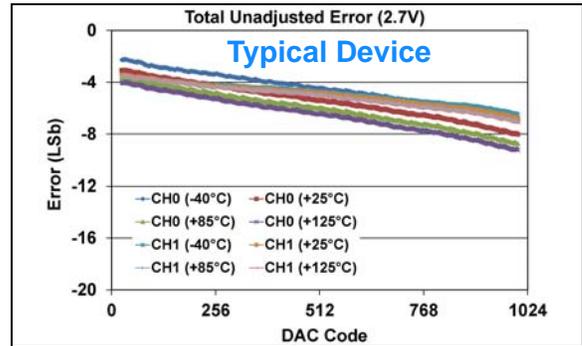


FIGURE 1-278: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB12)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

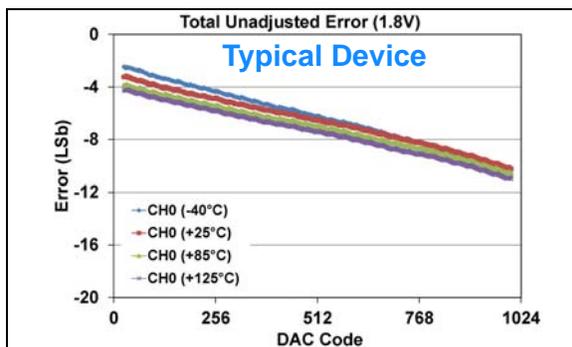


FIGURE 1-276: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB11)
(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

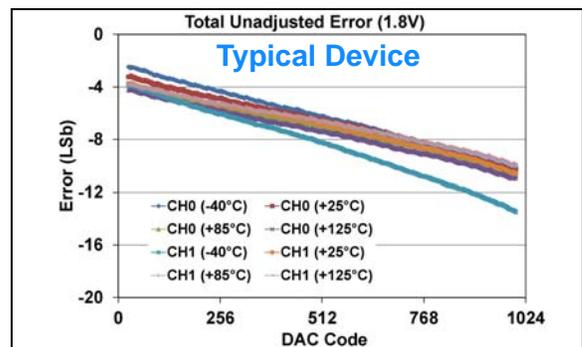


FIGURE 1-279: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB12)
(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 1\text{V}$, $Gx = '0'$ (1x)

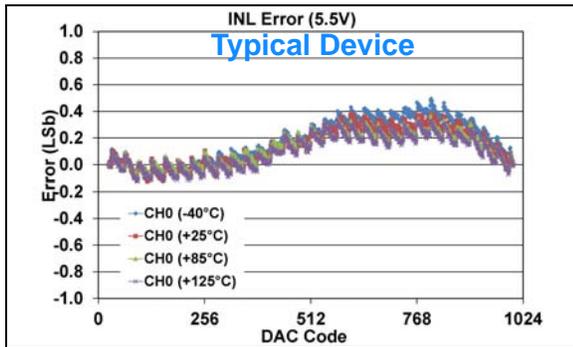


FIGURE 1-280: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

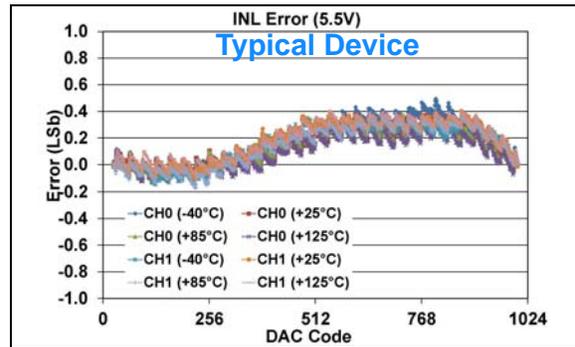


FIGURE 1-283: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

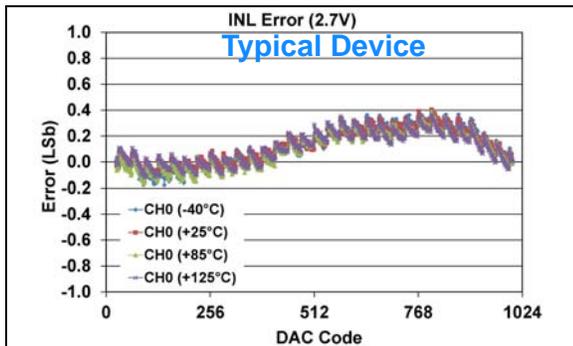


FIGURE 1-281: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

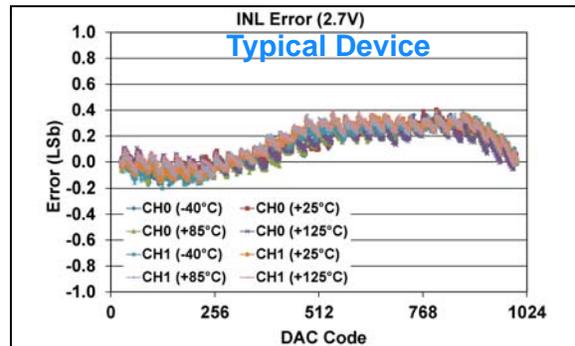


FIGURE 1-284: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

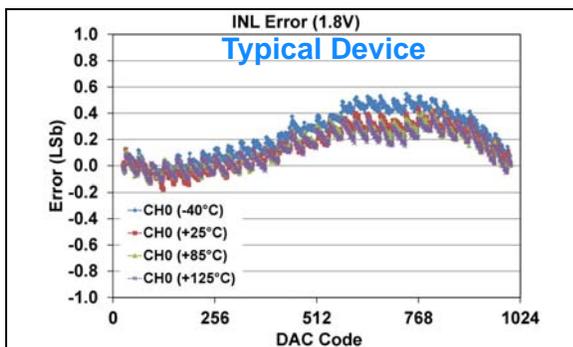


FIGURE 1-282: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

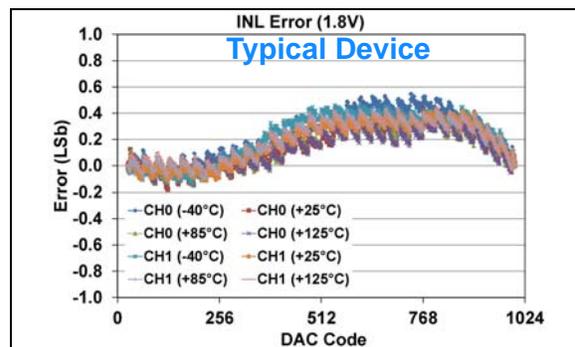


FIGURE 1-285: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 1\text{V}$, $Gx = '0'$ (1x)

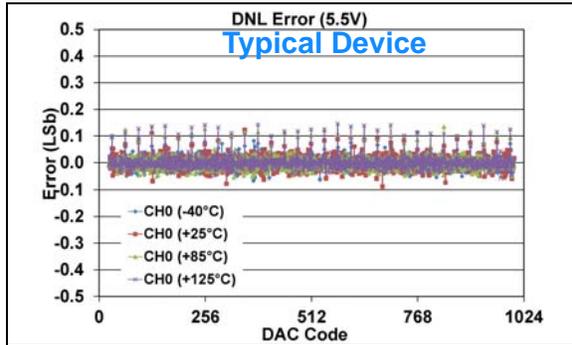


FIGURE 1-286: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(**10-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

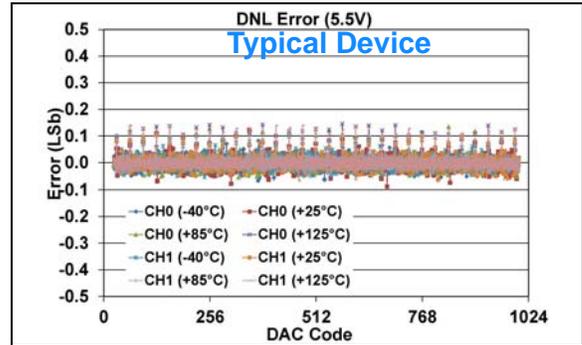


FIGURE 1-289: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(**10-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

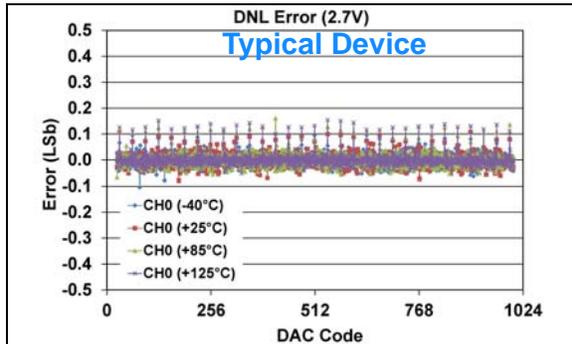


FIGURE 1-287: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(**10-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

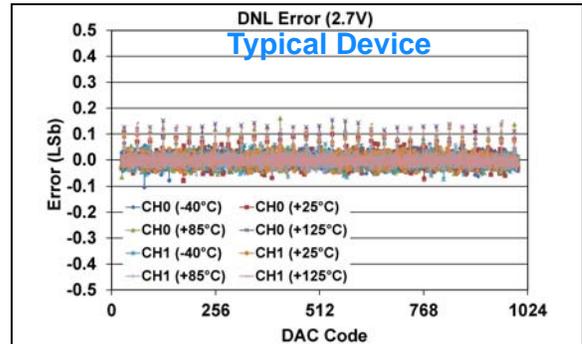


FIGURE 1-290: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(**10-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

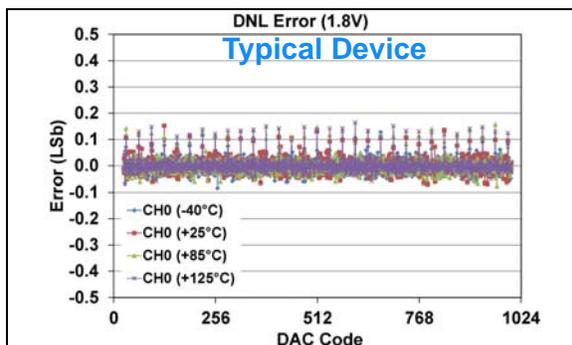


FIGURE 1-288: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(**10-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

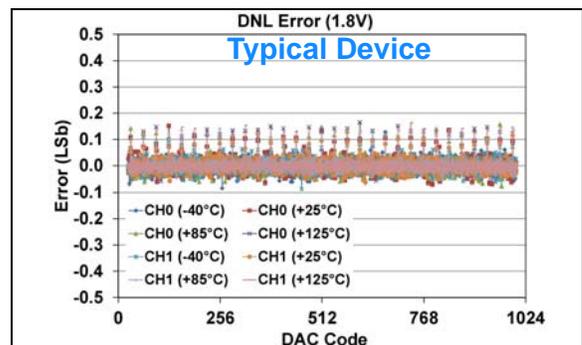


FIGURE 1-291: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(**10-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 1\text{V}$, $Gx = '1'$ (2x)

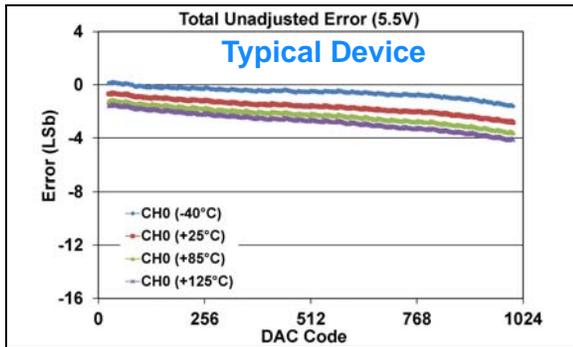


FIGURE 1-292: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

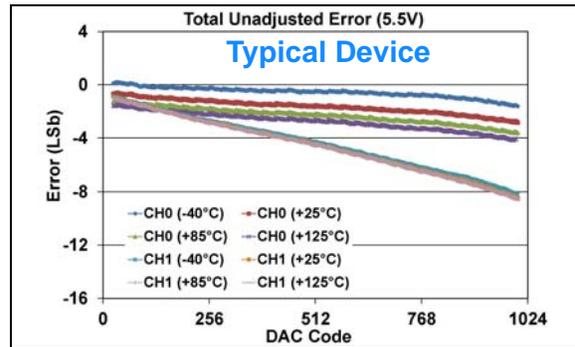


FIGURE 1-295: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

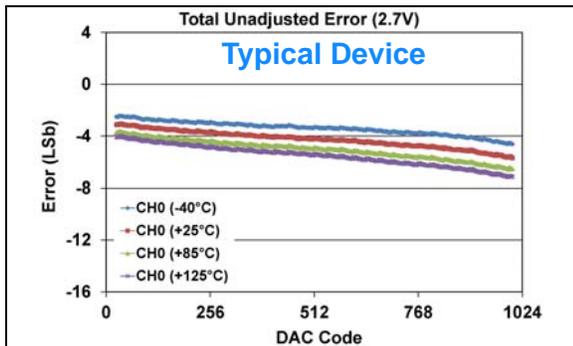


FIGURE 1-293: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

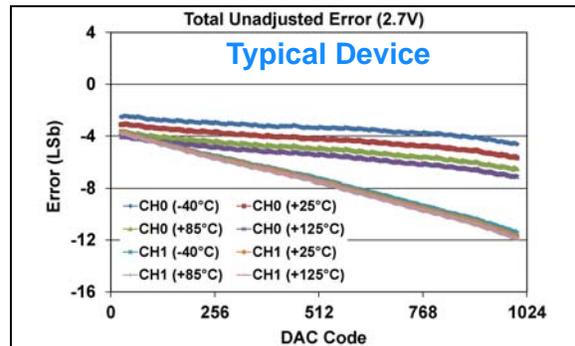


FIGURE 1-296: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

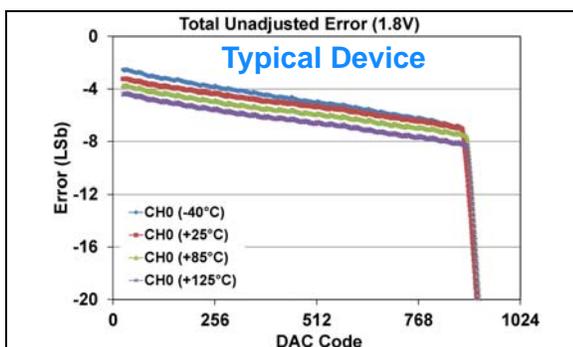


FIGURE 1-294: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)),
(see [Appendix B.3](#) for additional information).

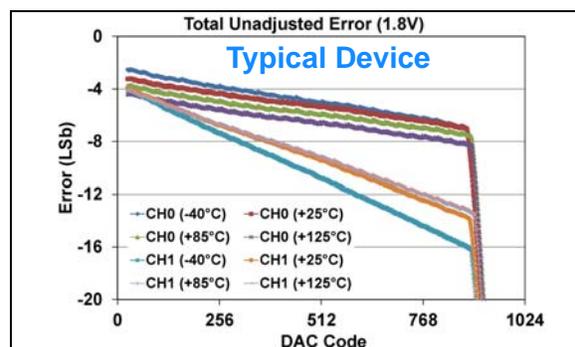


FIGURE 1-297: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)),
(see [Appendix B.3](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 1\text{V}$, $Gx = '1'$ (2x)

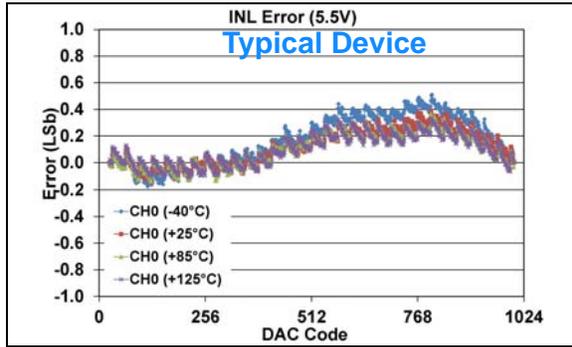


FIGURE 1-298: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - MCP48FXB11) (**10-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

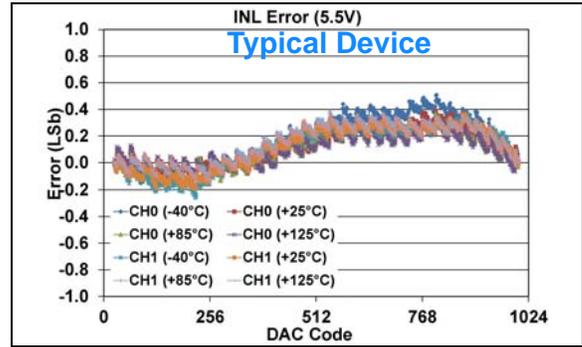


FIGURE 1-301: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - MCP48FXB12) (**10-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

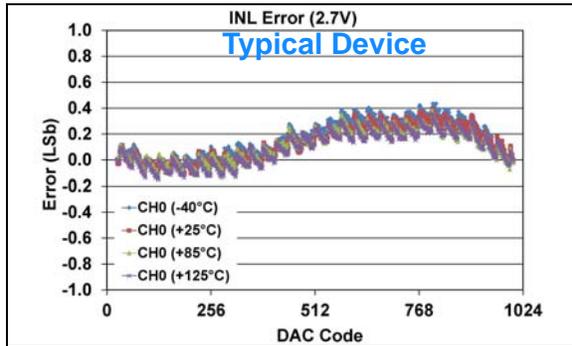


FIGURE 1-299: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - MCP48FXB11) (**10-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

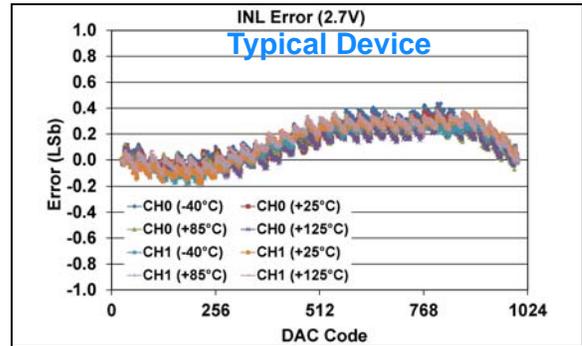


FIGURE 1-302: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - MCP48FXB12) (**10-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

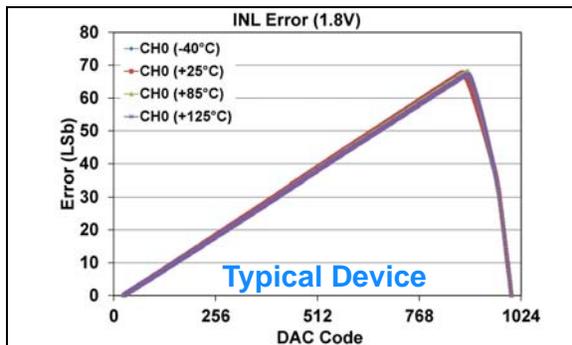


FIGURE 1-300: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - MCP48FXB11) (**10-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)), (see [Appendix B.3](#) for additional information).

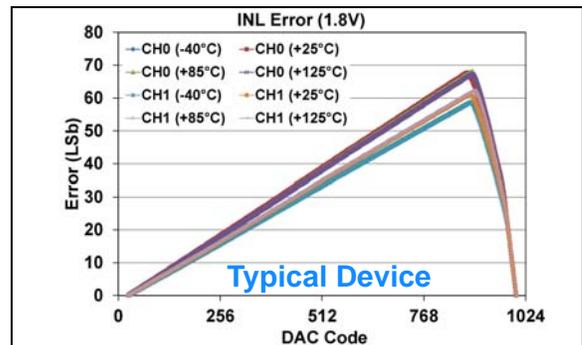


FIGURE 1-303: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - MCP48FXB12) (**10-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)), (see [Appendix B.3](#) for additional information).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 1\text{V}$, $Gx = '1'$ (2x)

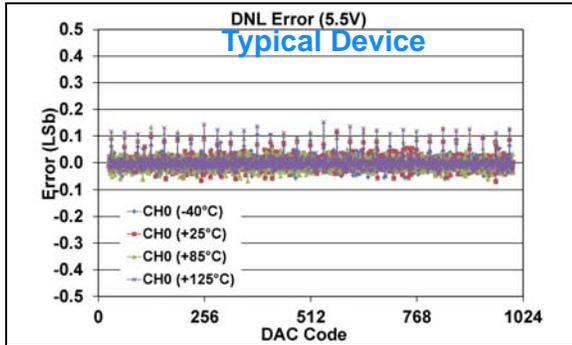


FIGURE 1-304: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

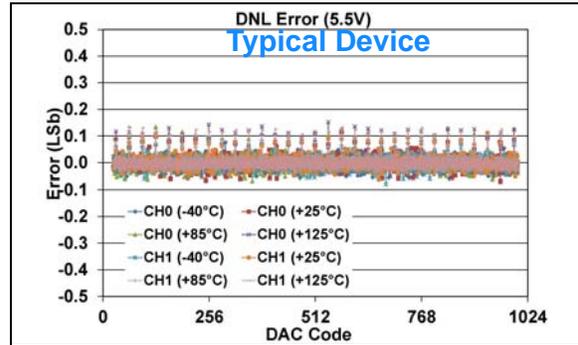


FIGURE 1-307: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

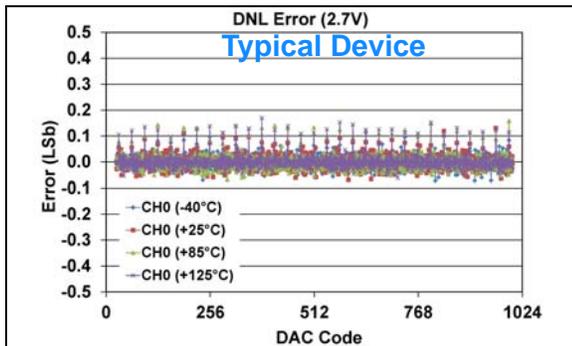


FIGURE 1-305: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

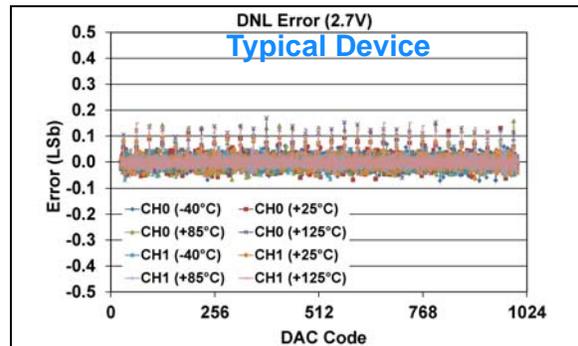


FIGURE 1-308: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

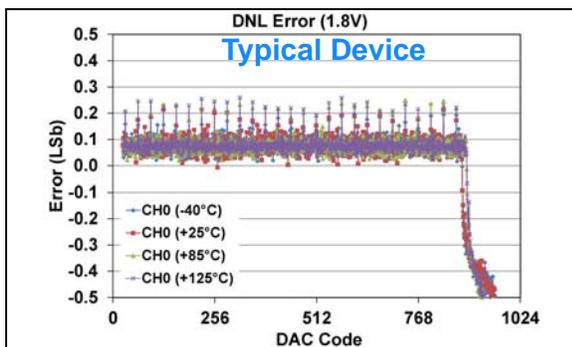


FIGURE 1-306: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)),
(see [Appendix B.3](#) for additional information).

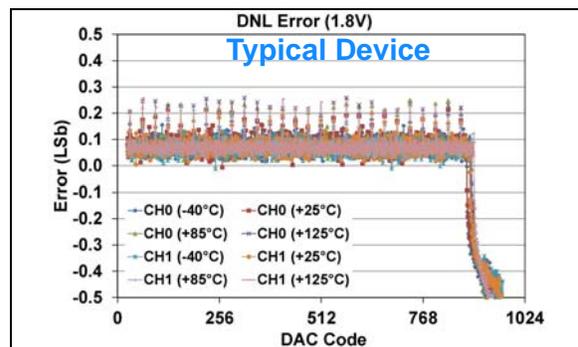


FIGURE 1-309: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)),
(see [Appendix B.3](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 2.048\text{V}$

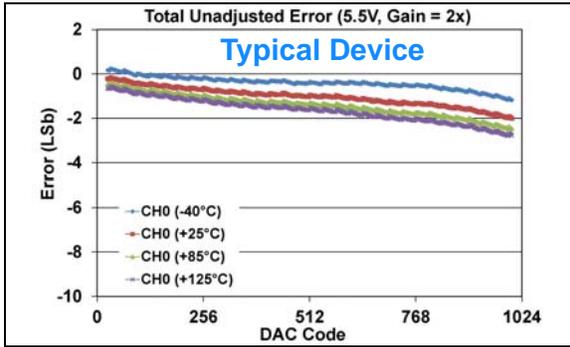


FIGURE 1-310: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB11)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

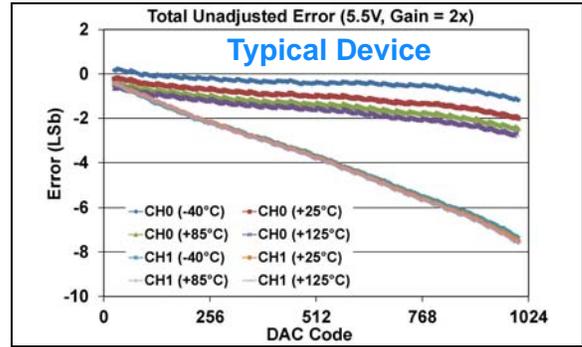


FIGURE 1-313: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB12)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

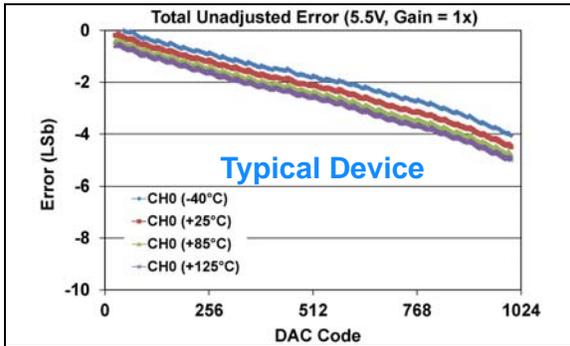


FIGURE 1-311: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB11)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

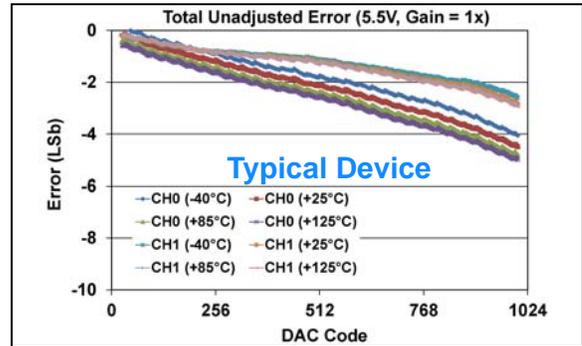


FIGURE 1-314: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB12)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

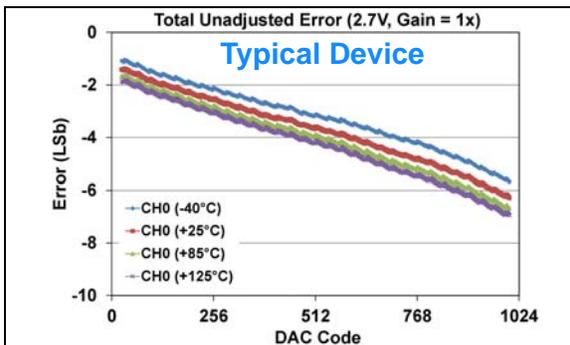


FIGURE 1-312: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB11)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

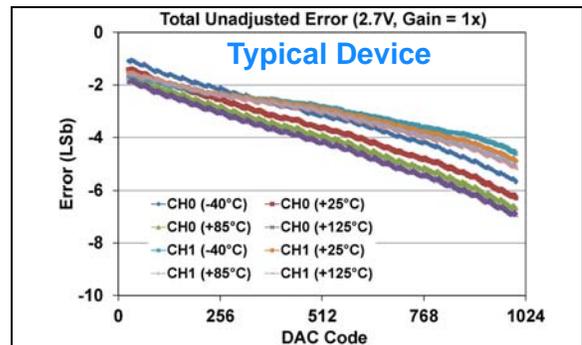


FIGURE 1-315: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB12)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 2.048\text{V}$

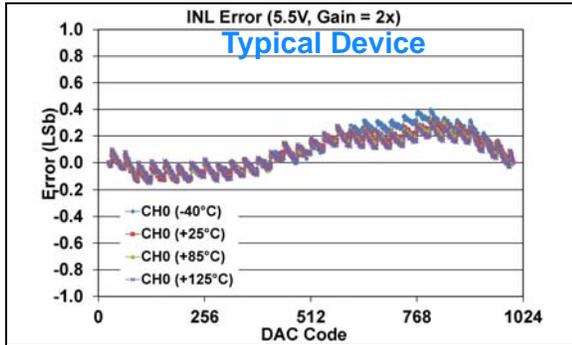


FIGURE 1-316: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

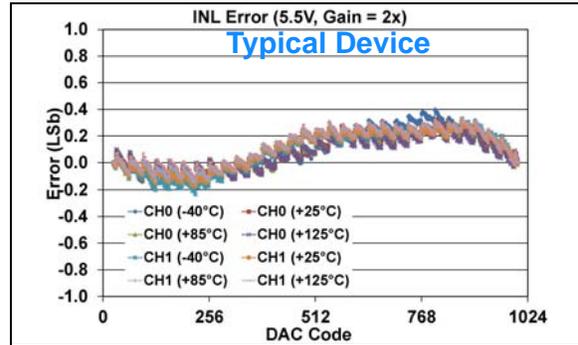


FIGURE 1-319: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

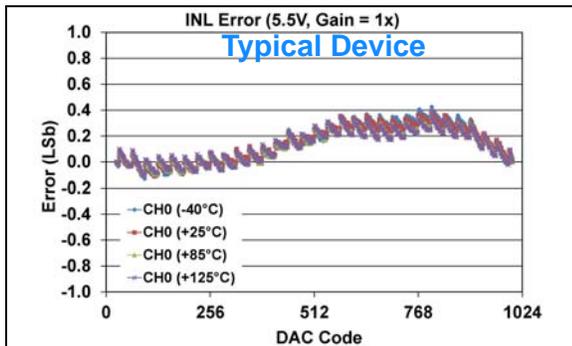


FIGURE 1-317: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

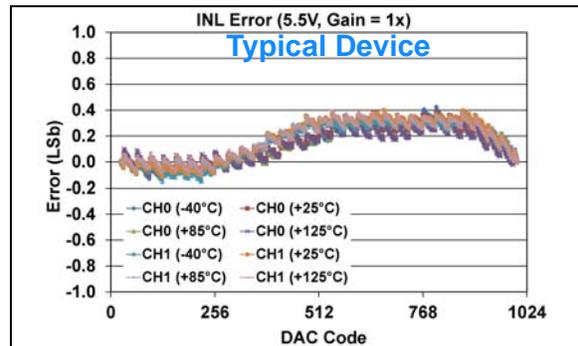


FIGURE 1-320: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

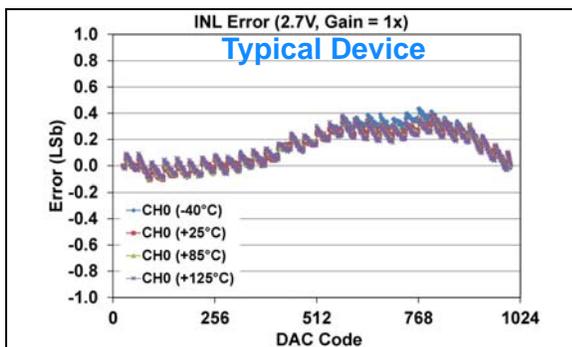


FIGURE 1-318: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

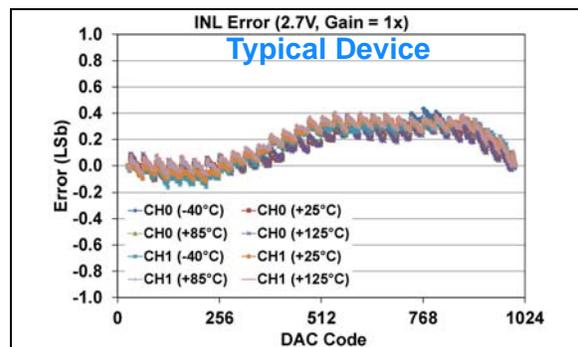


FIGURE 1-321: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 2.048\text{V}$

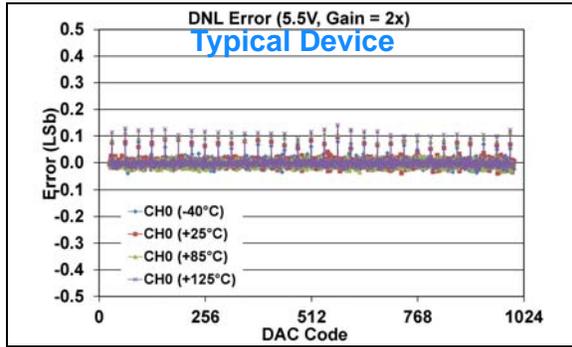


FIGURE 1-322: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(**10-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

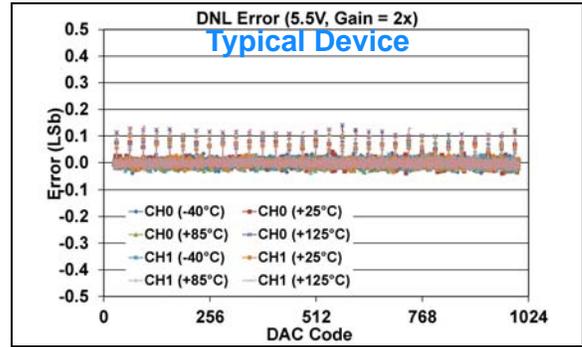


FIGURE 1-325: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(**10-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

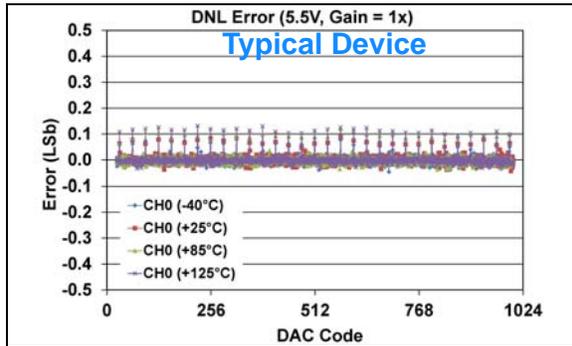


FIGURE 1-323: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(**10-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

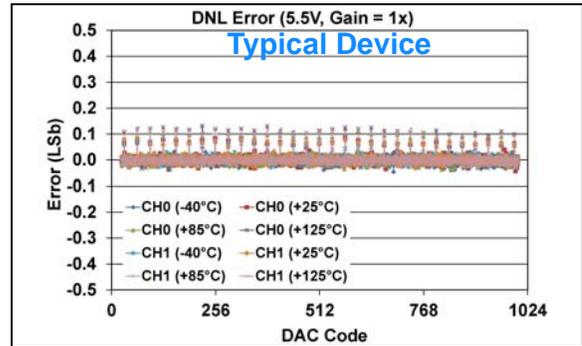


FIGURE 1-326: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(**10-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

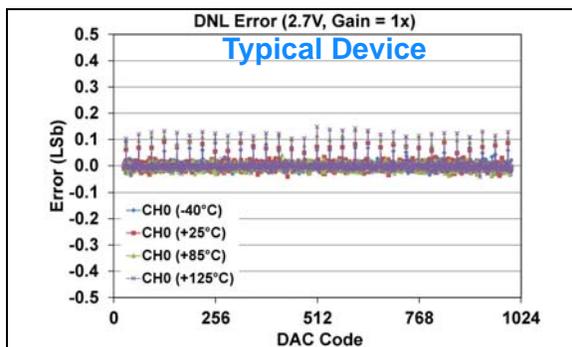


FIGURE 1-324: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(**10-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

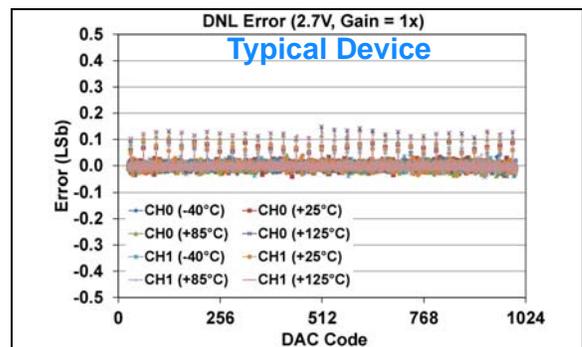


FIGURE 1-327: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(**10-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = V_{DD}$, $Gx = '0'$ (1x)

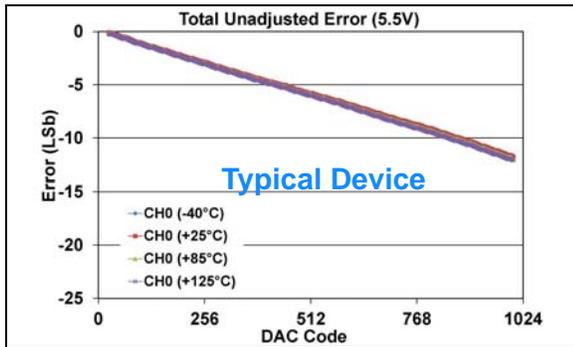


FIGURE 1-328: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB11**)

(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

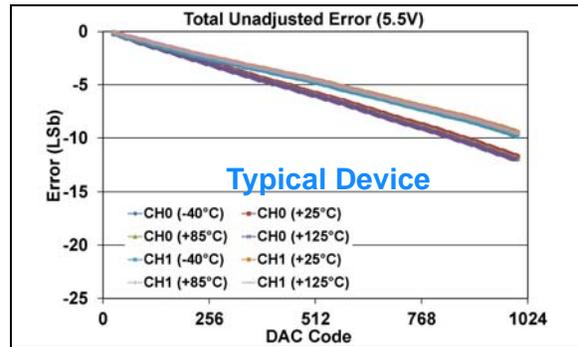


FIGURE 1-331: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB12**)

(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

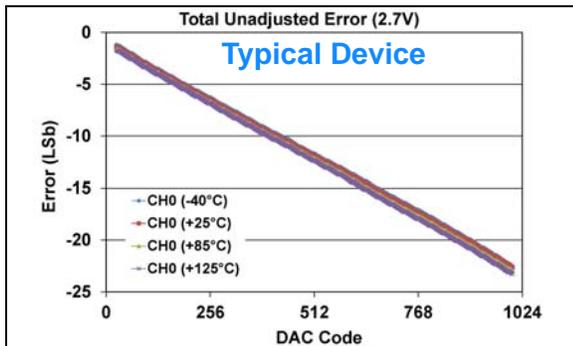


FIGURE 1-329: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB11**)

(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

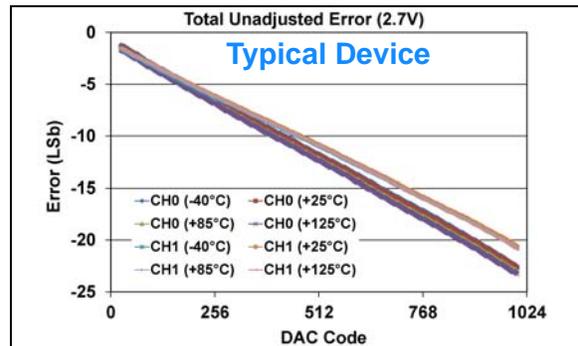


FIGURE 1-332: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB12**)

(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

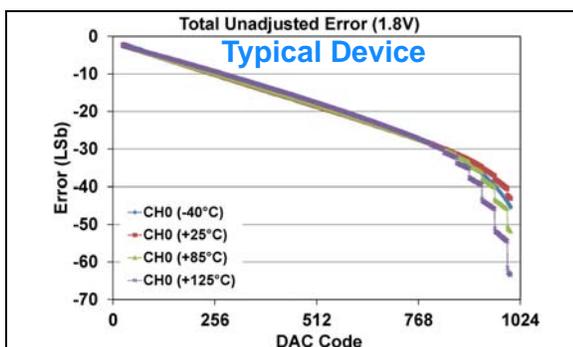


FIGURE 1-330: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB11**)

(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)), (see [Appendix B.4](#) for additional information).

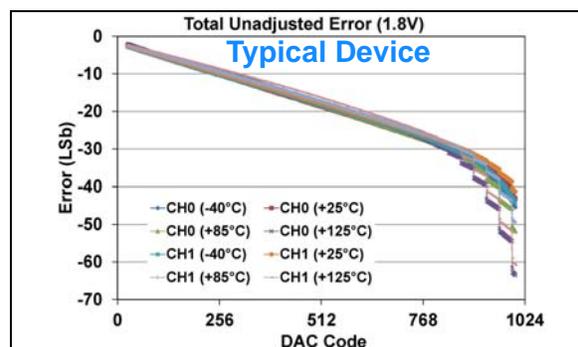


FIGURE 1-333: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB12**)

(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)), (see [Appendix B.4](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = V_{DD}$, $Gx = '0'$ (1x)

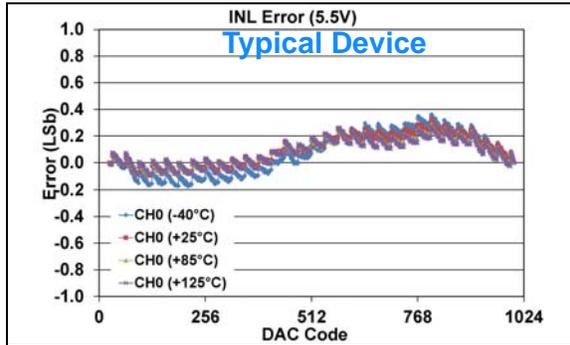


FIGURE 1-334: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - MCP48FXB11)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

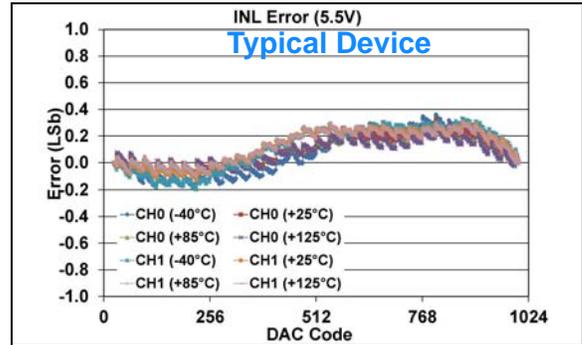


FIGURE 1-337: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - MCP48FXB12)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

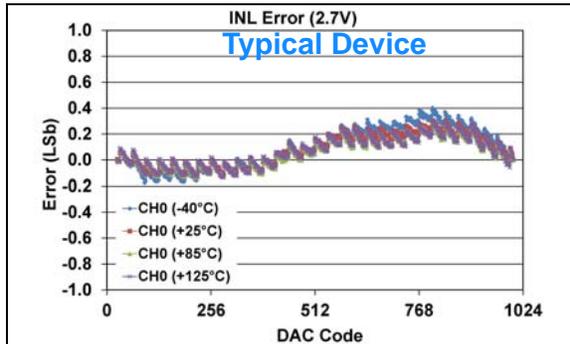


FIGURE 1-335: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - MCP48FXB11)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

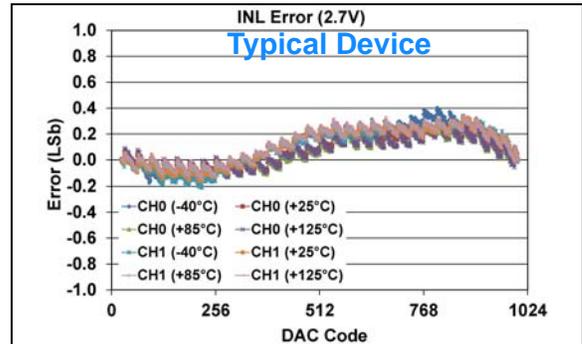


FIGURE 1-338: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - MCP48FXB12)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

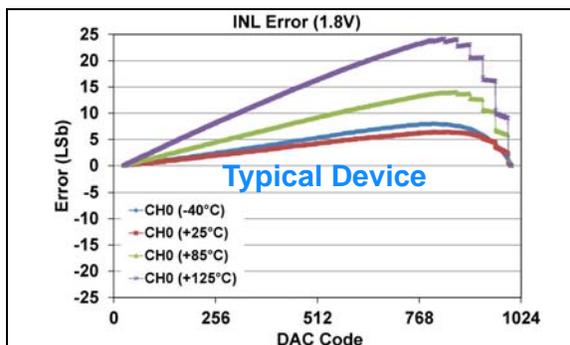


FIGURE 1-336: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - MCP48FXB11)
(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)), (see Appendix B.4 for additional information).

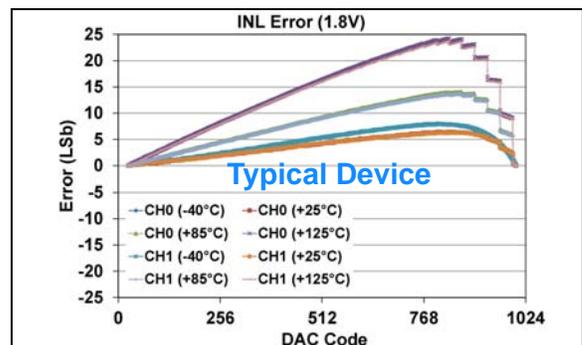


FIGURE 1-339: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - MCP48FXB12)
(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)), (see Appendix B.4 for additional information).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = V_{DD}$, $Gx = '0'$ (1x)

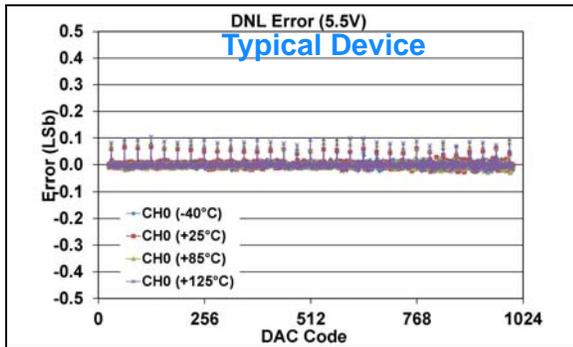


FIGURE 1-340: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

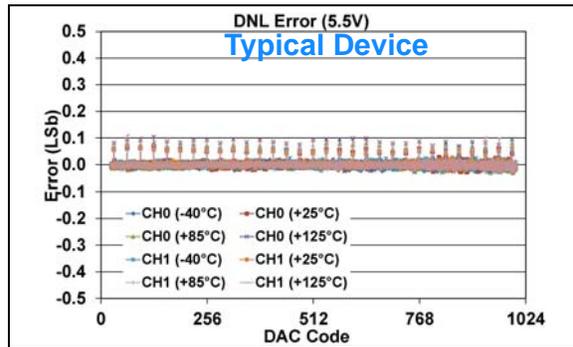


FIGURE 1-343: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

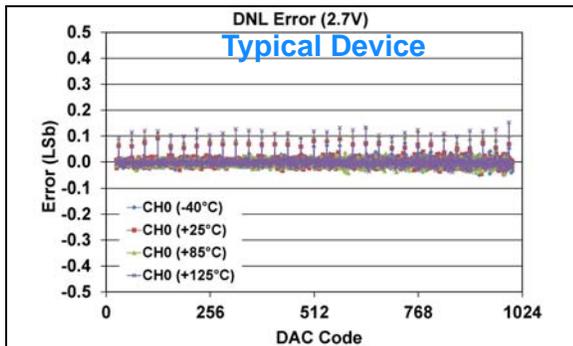


FIGURE 1-341: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

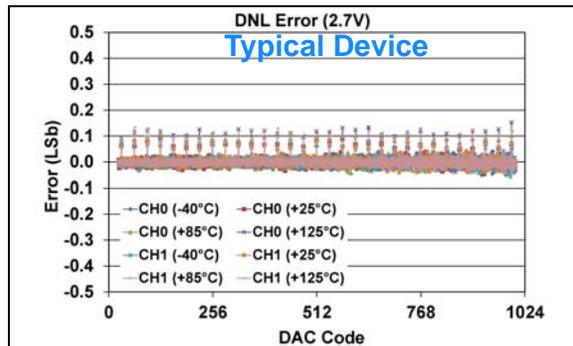


FIGURE 1-344: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

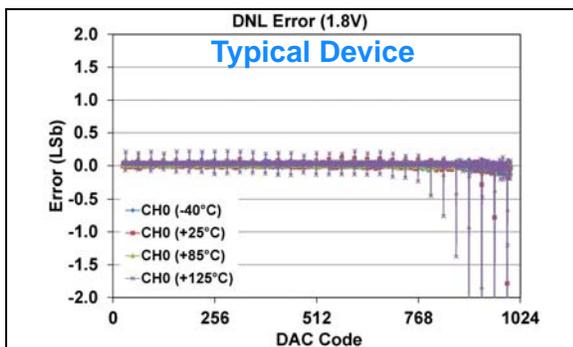


FIGURE 1-342: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)), (see [Appendix B.4](#) for additional information).

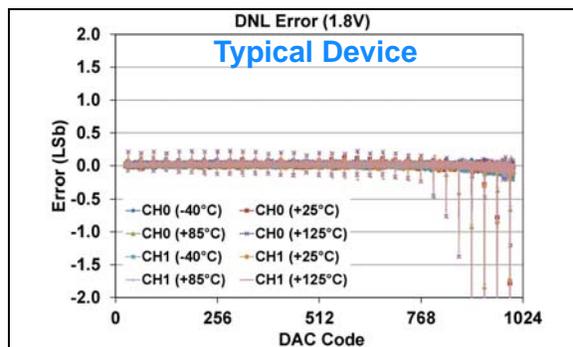


FIGURE 1-345: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)), (see [Appendix B.4](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 1\text{V}$, $Gx = '0'$ (1x)

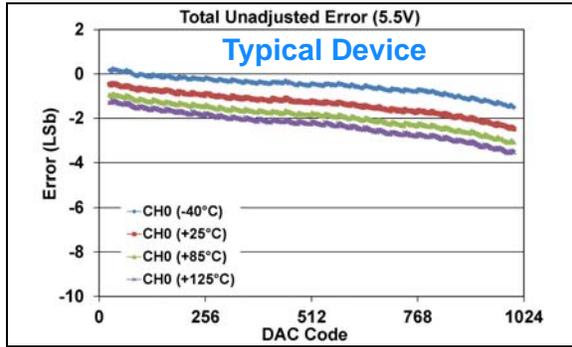


FIGURE 1-346: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB11)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

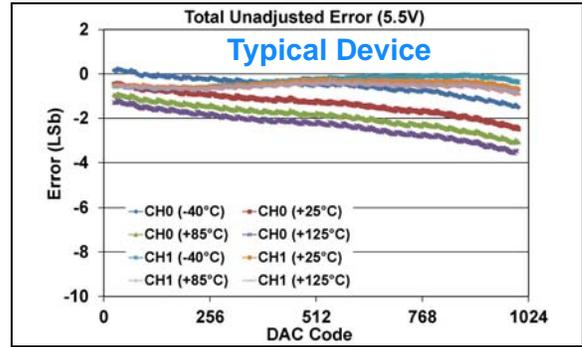


FIGURE 1-349: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB12)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

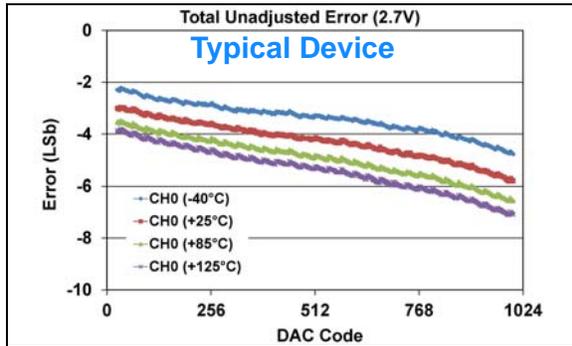


FIGURE 1-347: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB11)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

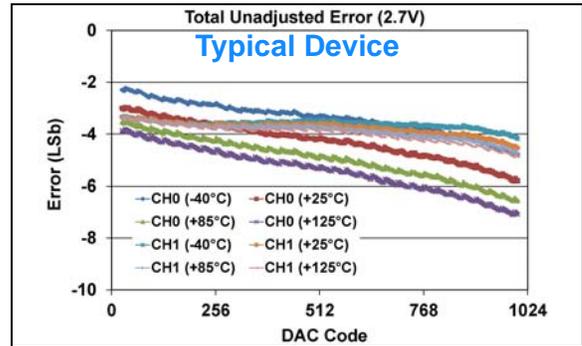


FIGURE 1-350: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB12)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

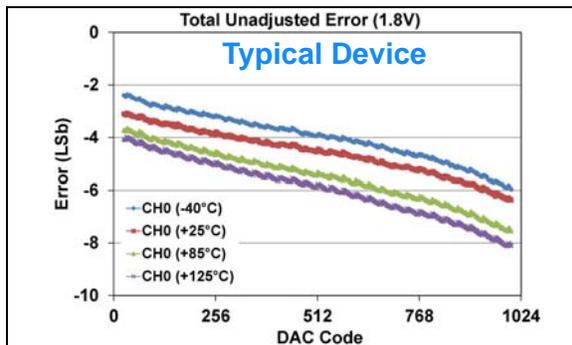


FIGURE 1-348: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB11)
(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

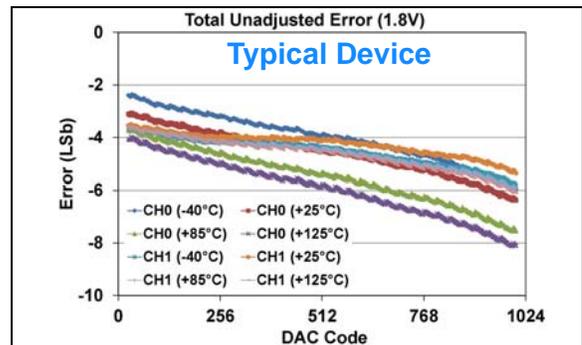


FIGURE 1-351: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB12)
(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 1\text{V}$, $Gx = '0'$ (1x)

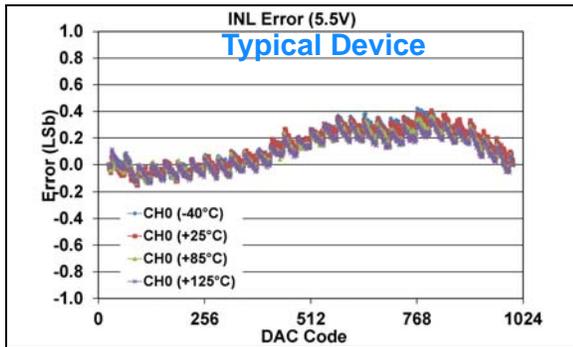


FIGURE 1-352: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

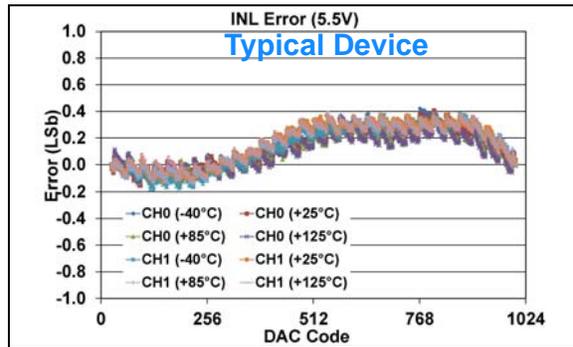


FIGURE 1-355: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

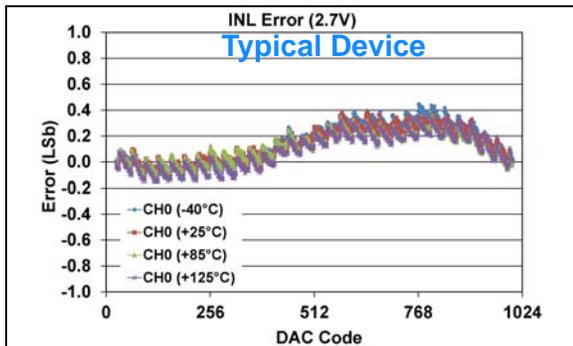


FIGURE 1-353: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

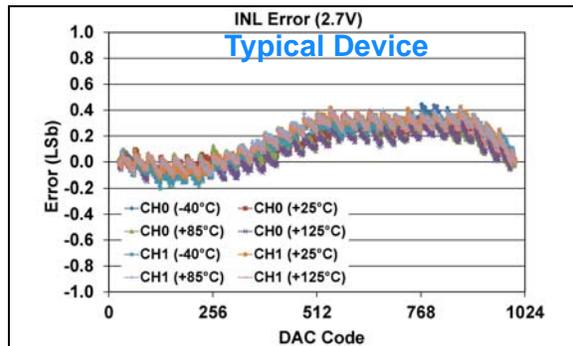


FIGURE 1-356: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

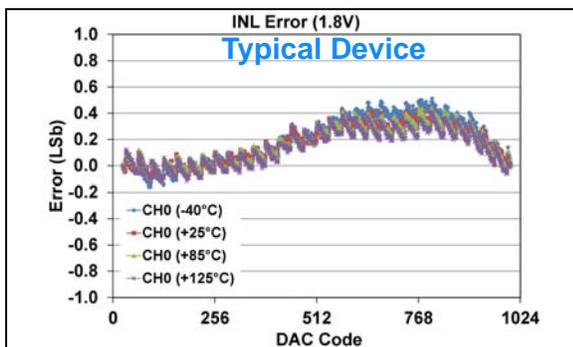


FIGURE 1-354: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

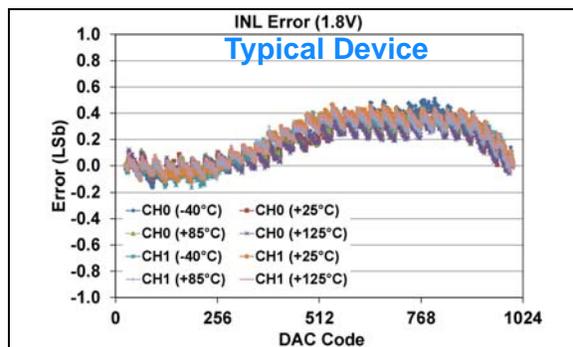


FIGURE 1-357: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 1\text{V}$, $Gx = '0'$ (1x)

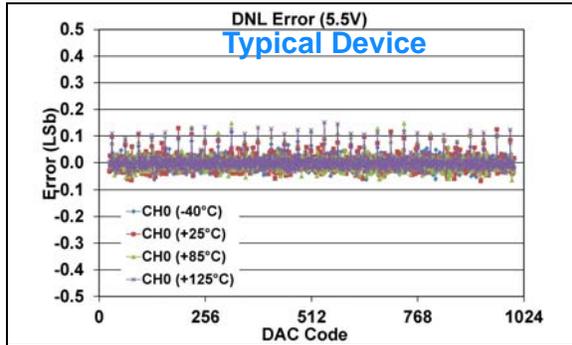


FIGURE 1-358: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(**10-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

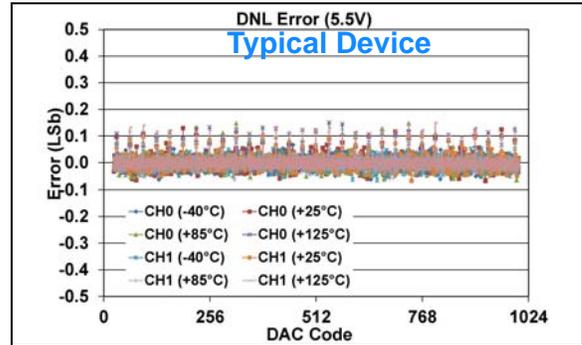


FIGURE 1-361: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(**10-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

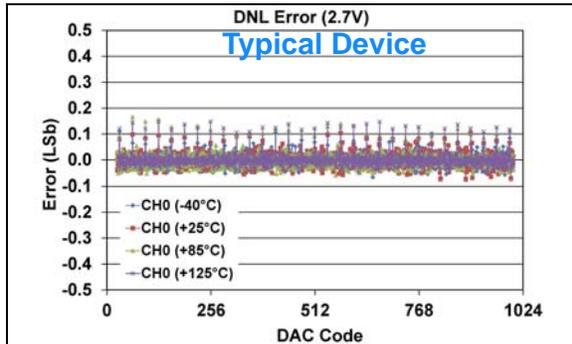


FIGURE 1-359: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(**10-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

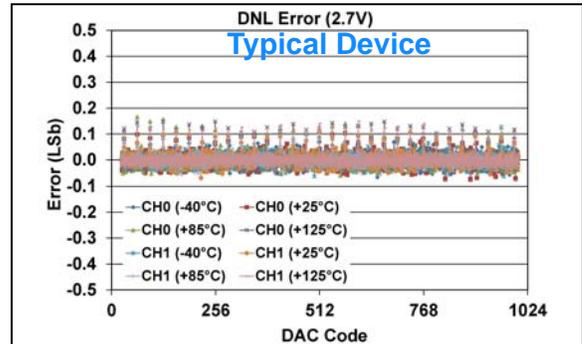


FIGURE 1-362: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(**10-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

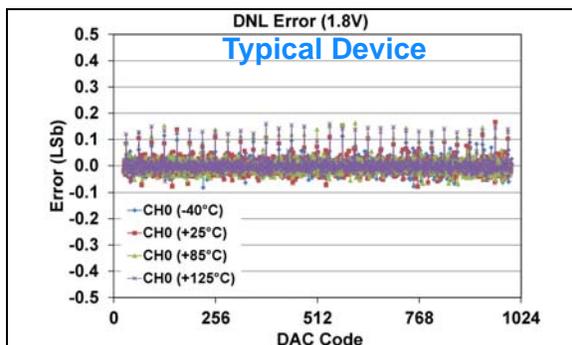


FIGURE 1-360: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(**10-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

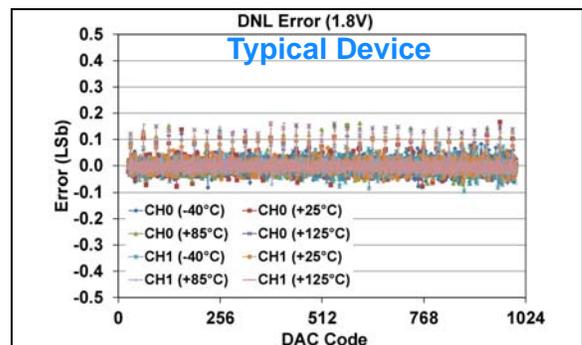


FIGURE 1-363: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(**10-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 1\text{V}$, $Gx = '1'$ (2x)

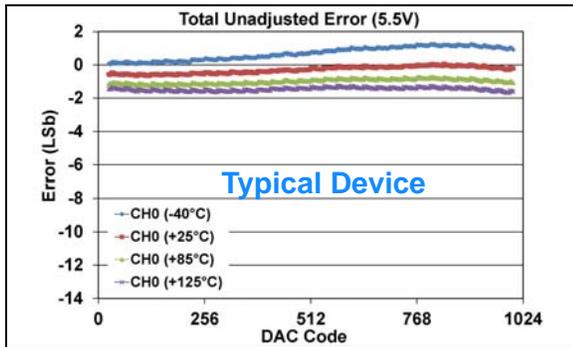


FIGURE 1-364: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

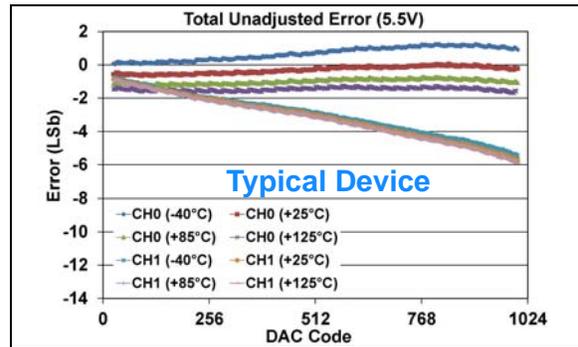


FIGURE 1-367: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

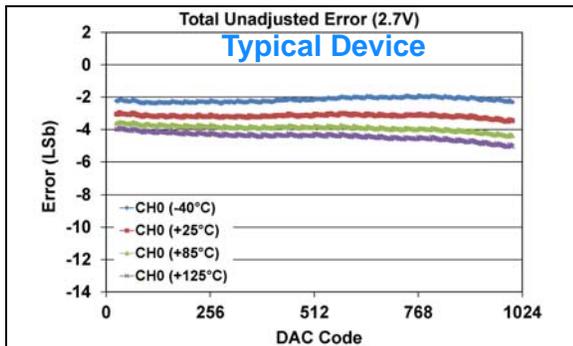


FIGURE 1-365: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

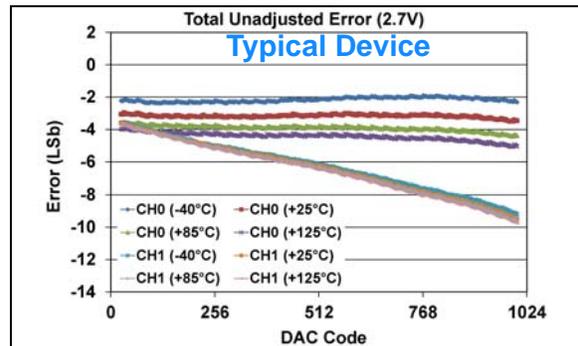


FIGURE 1-368: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

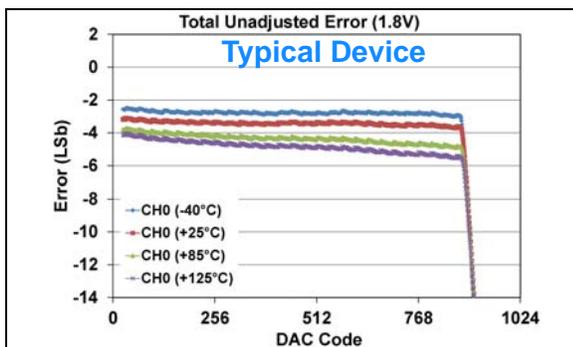


FIGURE 1-366: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)),
(see [Appendix B.5](#) for additional information).

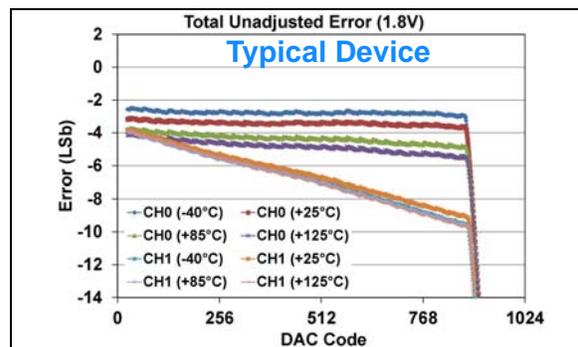


FIGURE 1-369: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)),
(see [Appendix B.5](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 1\text{V}$, $Gx = '1'$ (2x)

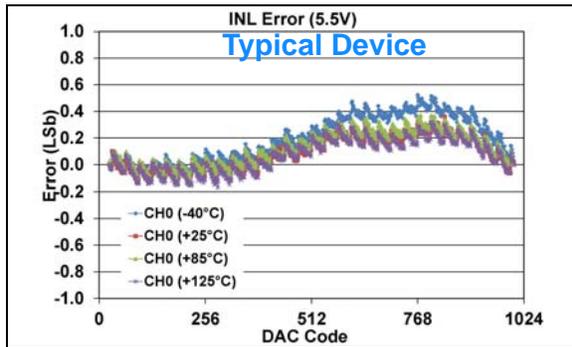


FIGURE 1-370: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - MCP48FXB11) (10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

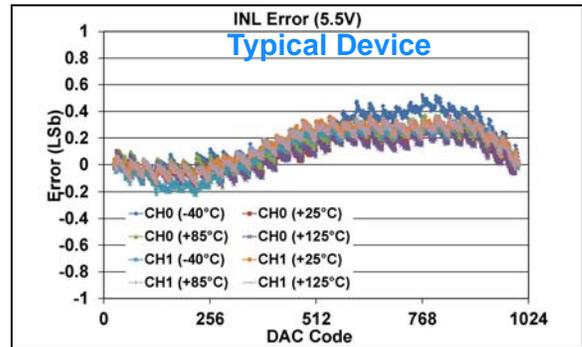


FIGURE 1-373: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - MCP48FXB12) (10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

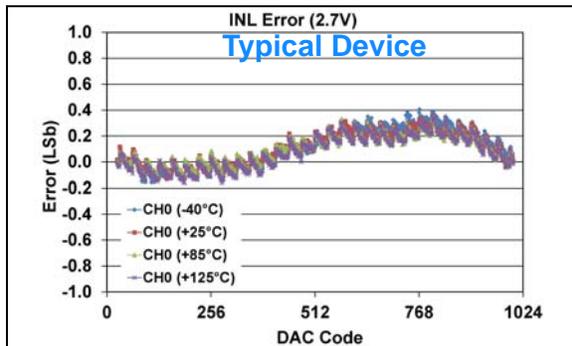


FIGURE 1-371: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - MCP48FXB11) (10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

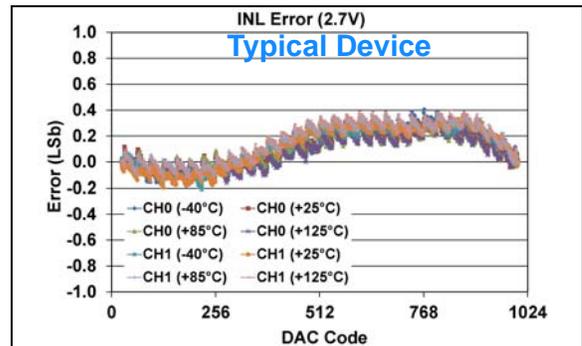


FIGURE 1-374: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - MCP48FXB12) (10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

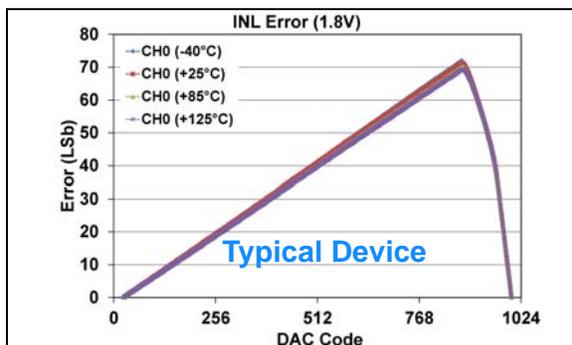


FIGURE 1-372: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - MCP48FXB11) (10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)), (see [Appendix B.5](#) for additional information).

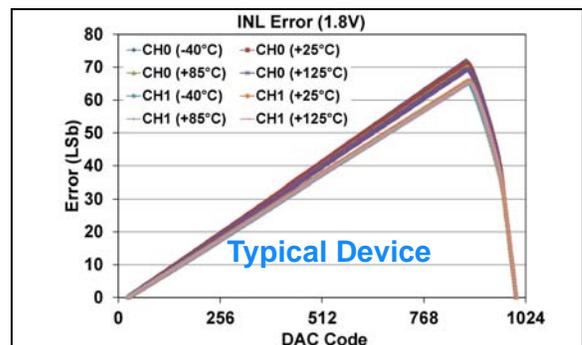


FIGURE 1-375: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - MCP48FXB12) (10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)), (see [Appendix B.5](#) for additional information).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 1\text{V}$, $Gx = '1'$ (2x)

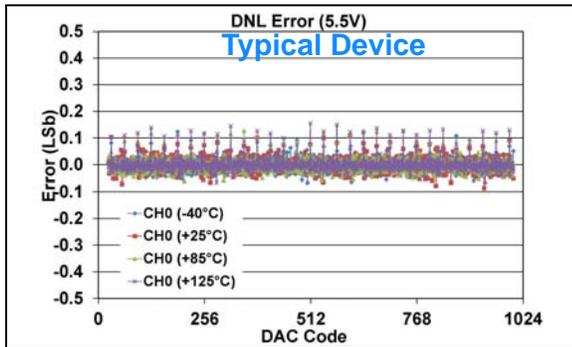


FIGURE 1-376: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - MCP48FXB11) (10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

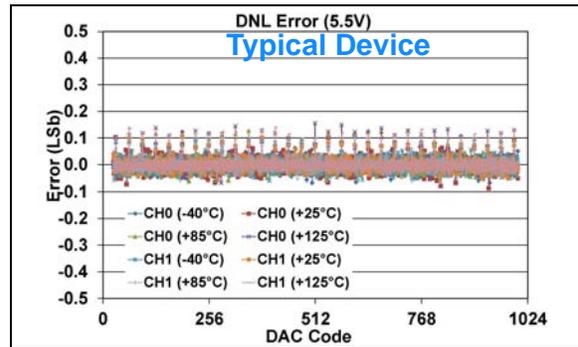


FIGURE 1-379: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - MCP48FXB12) (10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

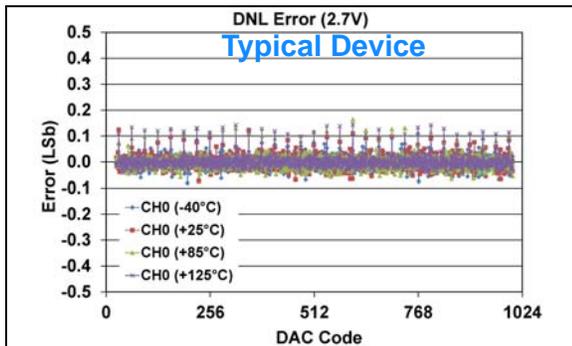


FIGURE 1-377: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - MCP48FXB11) (10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

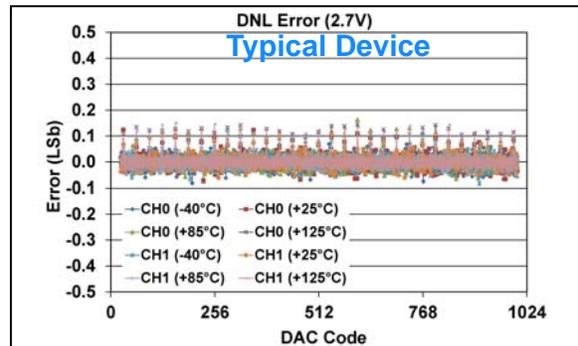


FIGURE 1-380: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - MCP48FXB12) (10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

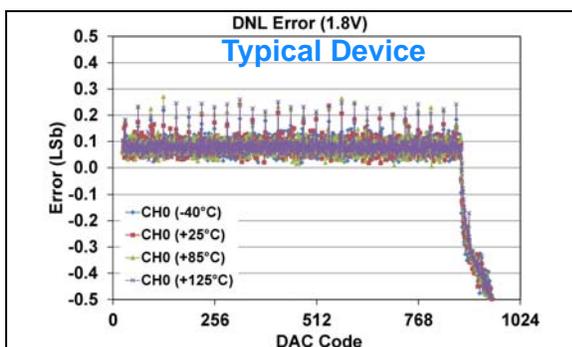


FIGURE 1-378: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - MCP48FXB11) (10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)), (see [Appendix B.5](#) for additional information).

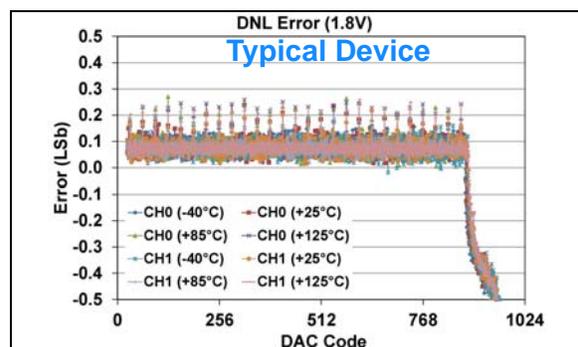


FIGURE 1-381: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - MCP48FXB12) (10-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)), (see [Appendix B.5](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 2.048\text{V}$

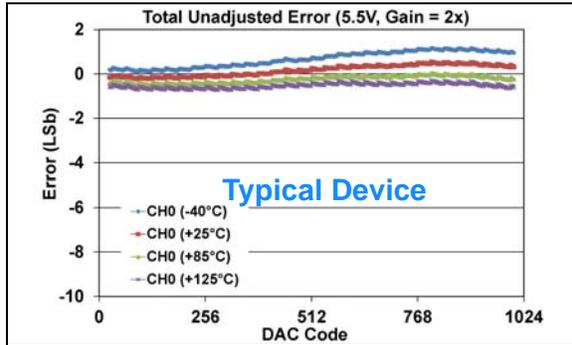


FIGURE 1-382: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

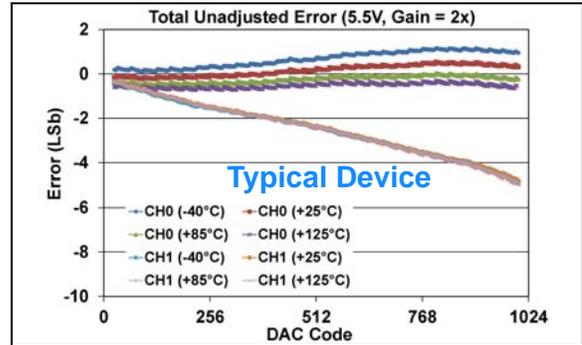


FIGURE 1-385: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

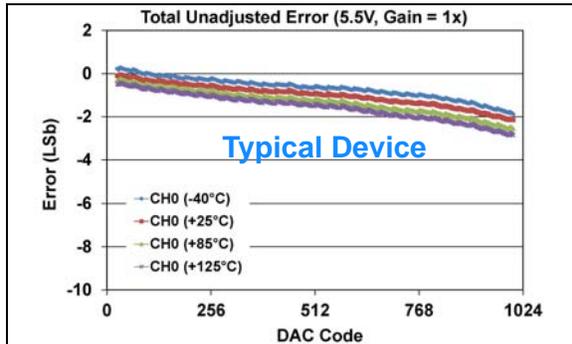


FIGURE 1-383: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

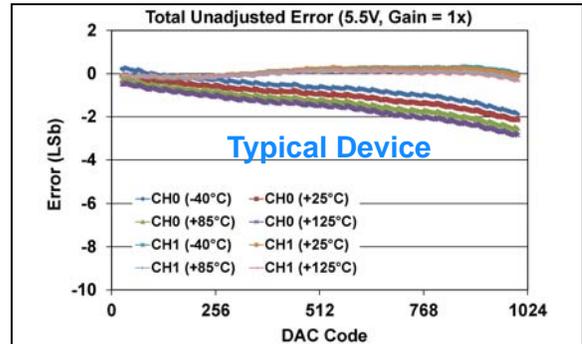


FIGURE 1-386: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

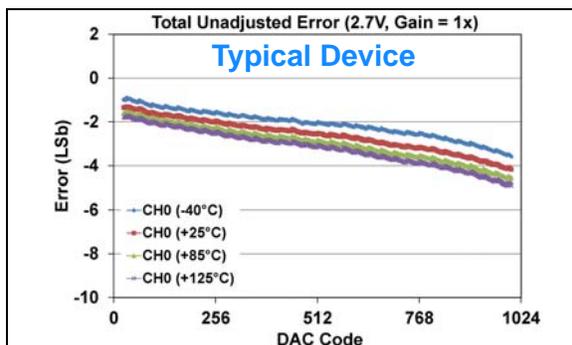


FIGURE 1-384: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

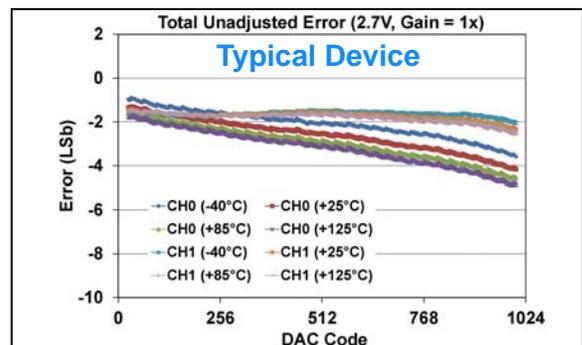


FIGURE 1-387: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 2.048\text{V}$

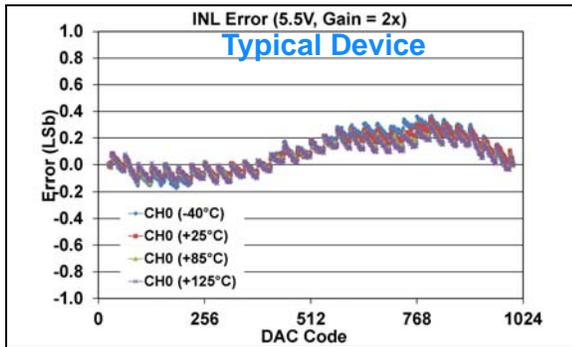


FIGURE 1-388: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

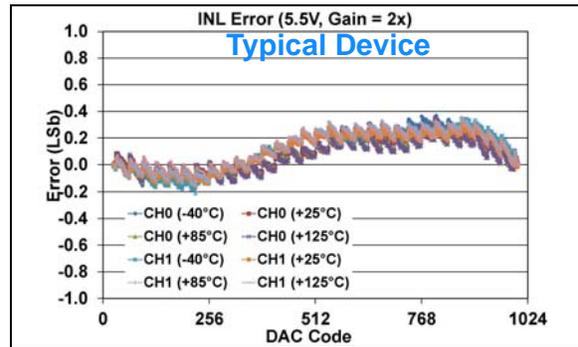


FIGURE 1-391: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

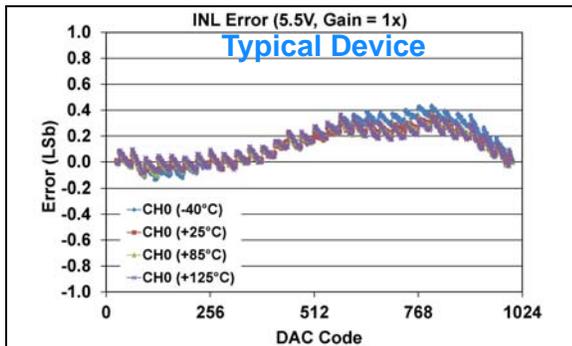


FIGURE 1-389: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

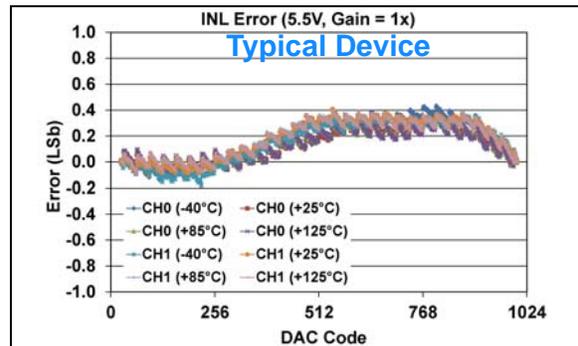


FIGURE 1-392: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

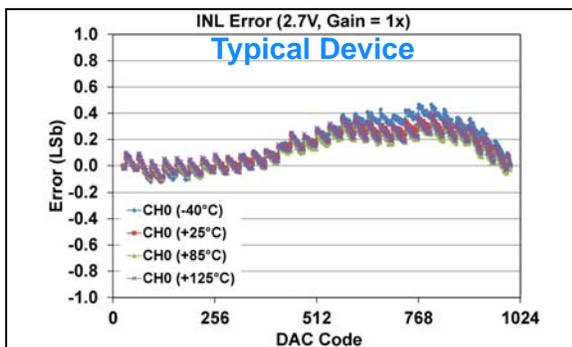


FIGURE 1-390: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

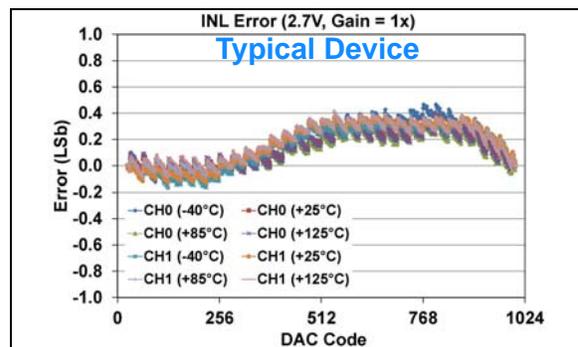


FIGURE 1-393: INL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

10-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 2.048\text{V}$

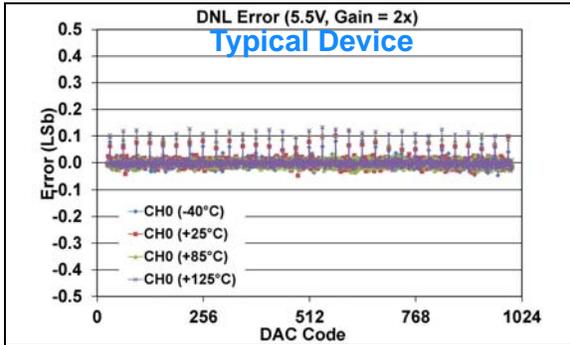


FIGURE 1-394: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x).

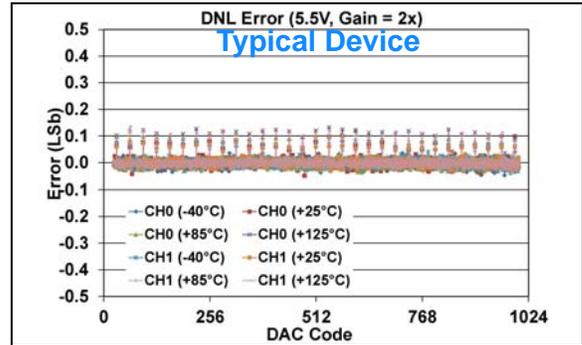


FIGURE 1-397: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x).

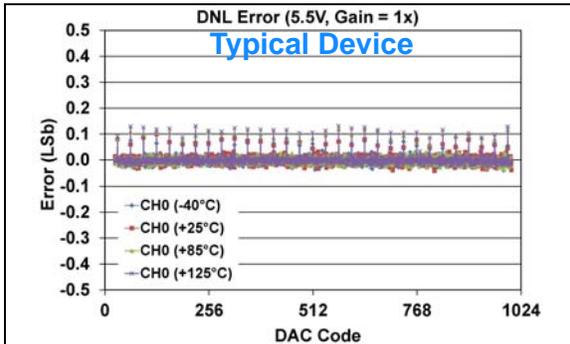


FIGURE 1-395: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x).

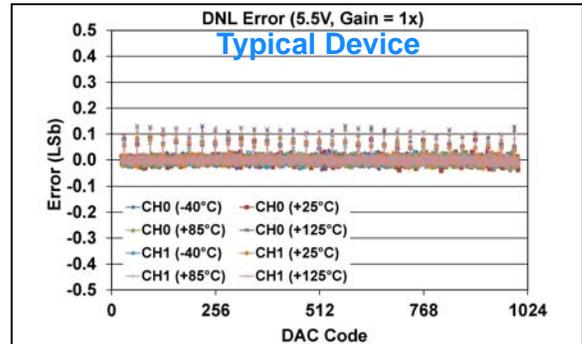


FIGURE 1-398: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x).

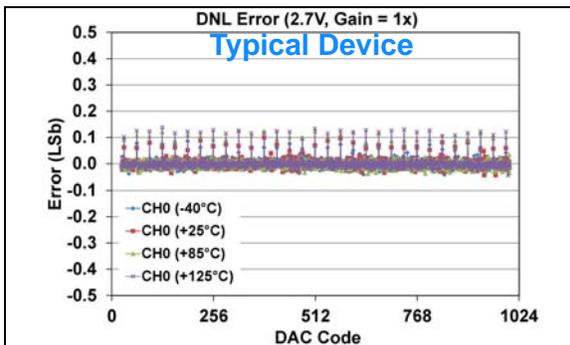


FIGURE 1-396: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Single Channel - **MCP48FXB11**)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x).

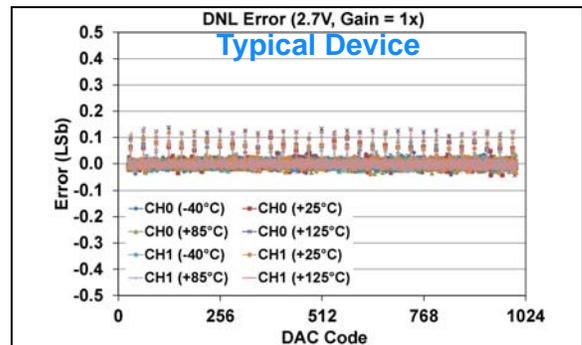


FIGURE 1-399: DNL Error vs. DAC Code, and Temperature (Code 25 - 1000) (Dual Channel - **MCP48FXB12**)
(10-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '00'$ (V_{DD} Mode), $Gx = '0'$ (1x)

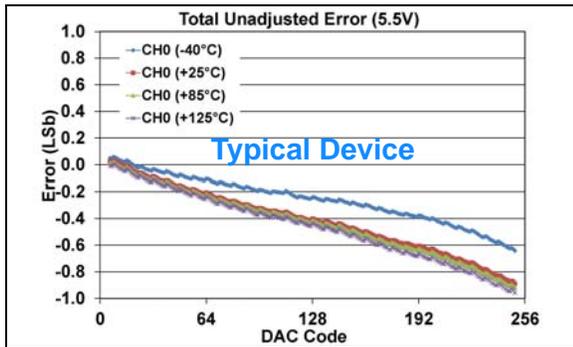


FIGURE 1-400: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB01**)
(8-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

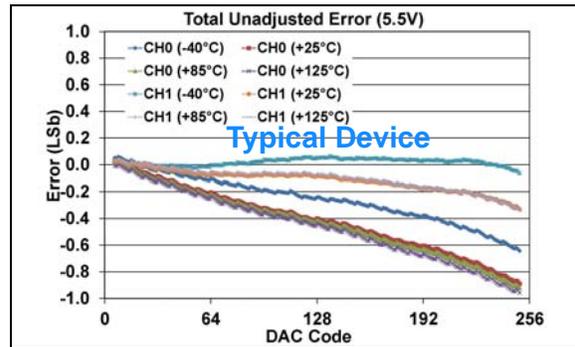


FIGURE 1-403: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB02**)
(8-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

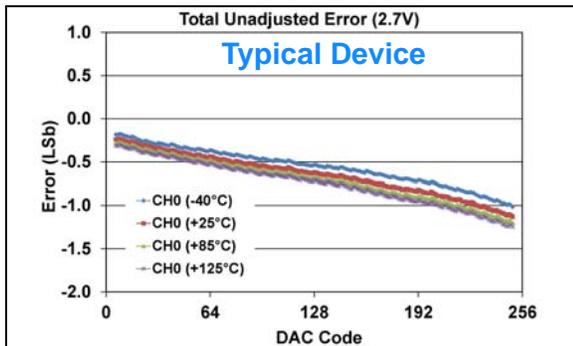


FIGURE 1-401: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB01**)
(8-bit: $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

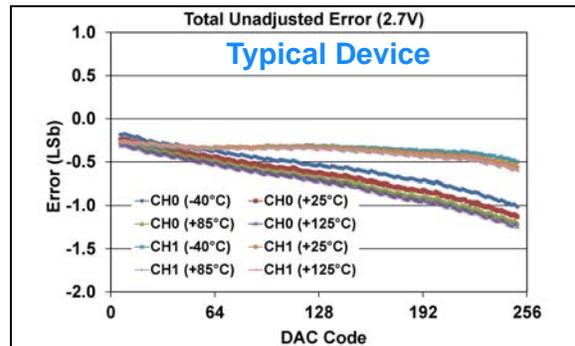


FIGURE 1-404: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB02**)
(8-bit: $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

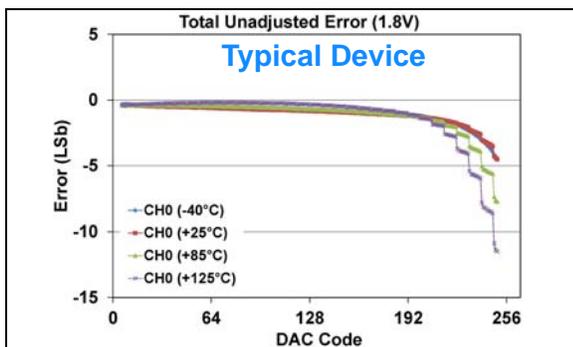


FIGURE 1-402: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB01**)
(8-bit: $V_{DD} = 1.8\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)),
(see [Appendix B.1](#) for additional information).

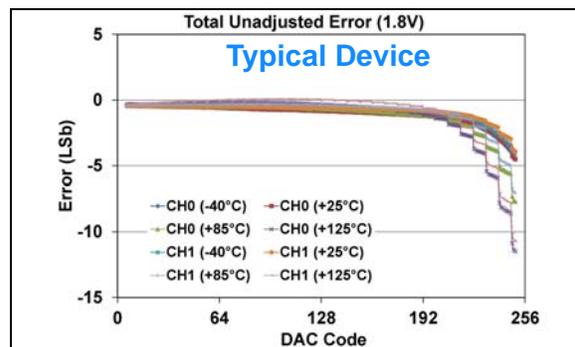


FIGURE 1-405: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB02**)
(8-bit: $V_{DD} = 1.8\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)),
(see [Appendix B.1](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '00'$ (V_{DD} Mode), $Gx = '0'$ (1x)

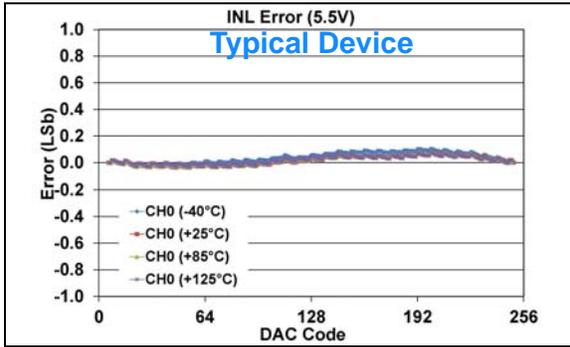


FIGURE 1-406: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - MCP48FXB01) (**8-bit:** $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

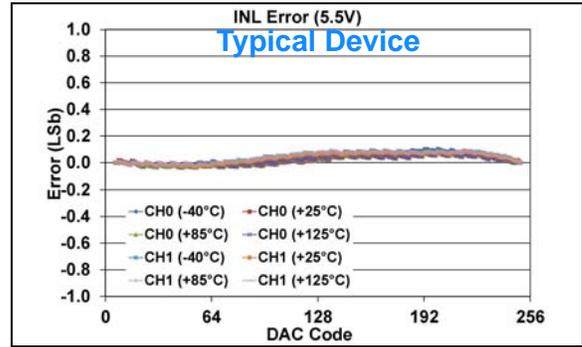


FIGURE 1-409: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - MCP48FXB02) (**8-bit:** $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

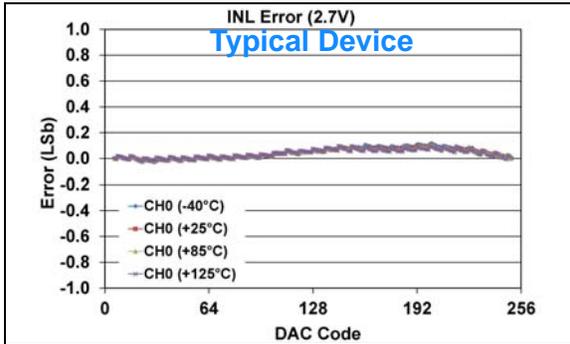


FIGURE 1-407: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - MCP48FXB01) (**8-bit:** $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

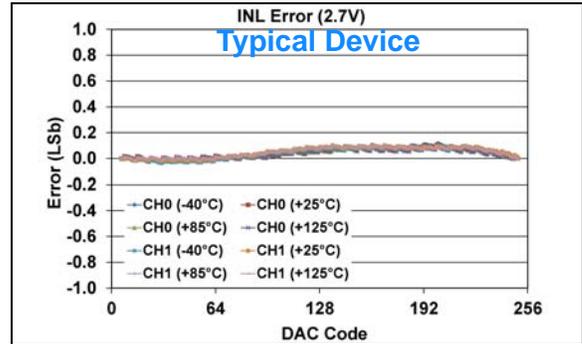


FIGURE 1-410: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - MCP48FXB02) (**8-bit:** $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

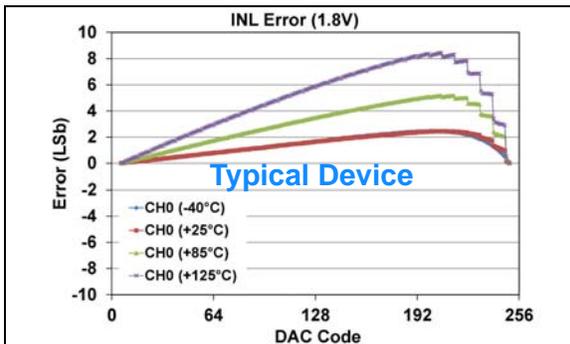


FIGURE 1-408: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - MCP48FXB01) (**8-bit:** $V_{DD} = 1.8\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)), (see [Appendix B.1](#) for additional information).

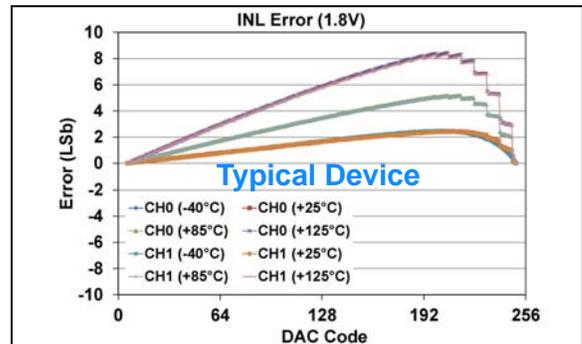


FIGURE 1-411: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - MCP48FXB02) (**8-bit:** $V_{DD} = 1.8\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)), (see [Appendix B.1](#) for additional information).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '00'$ (V_{DD} Mode), $Gx = '0'$ (1x)

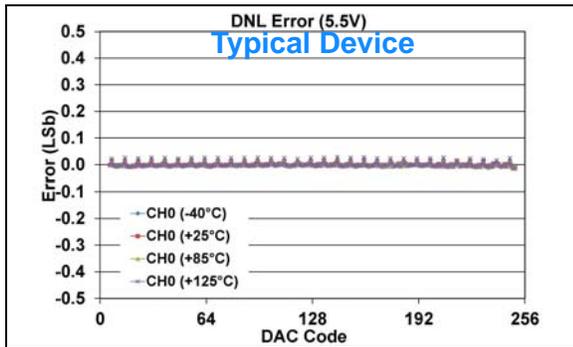


FIGURE 1-412: DNL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Single Channel - **MCP48FXB01**)
(8-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

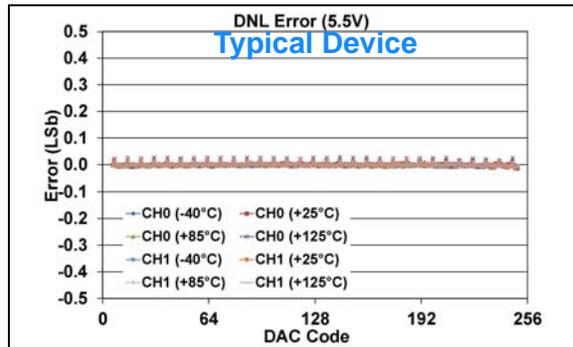


FIGURE 1-415: DNL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Dual Channel - **MCP48FXB02**)
(8-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

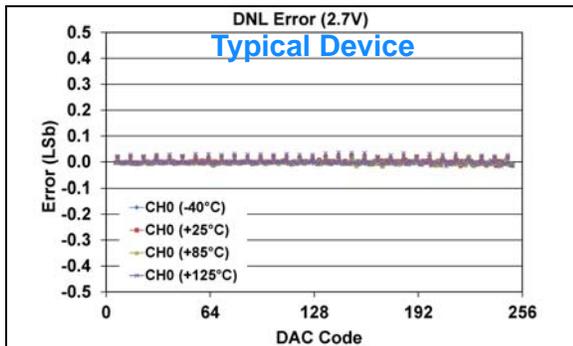


FIGURE 1-413: DNL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Single Channel - **MCP48FXB01**)
(8-bit: $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

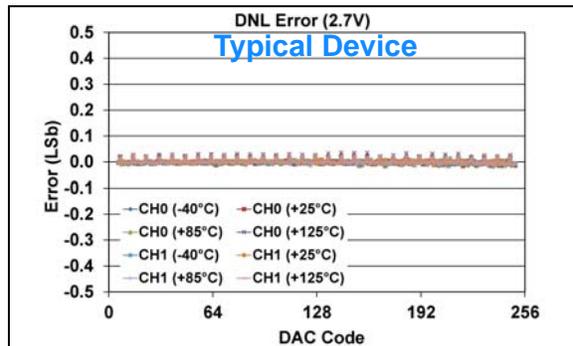


FIGURE 1-416: DNL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Dual Channel - **MCP48FXB02**)
(8-bit: $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)).

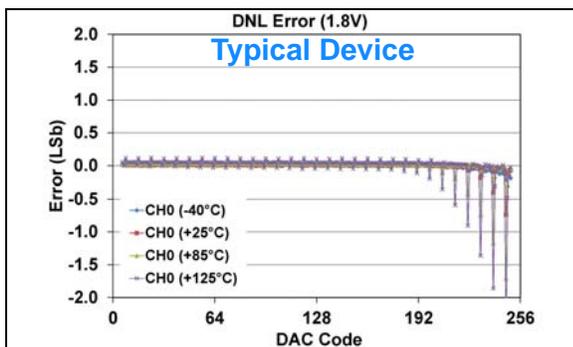


FIGURE 1-414: DNL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Single Channel - **MCP48FXB01**)
(8-bit: $V_{DD} = 1.8\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)),
(see [Appendix B.1](#) for additional information).

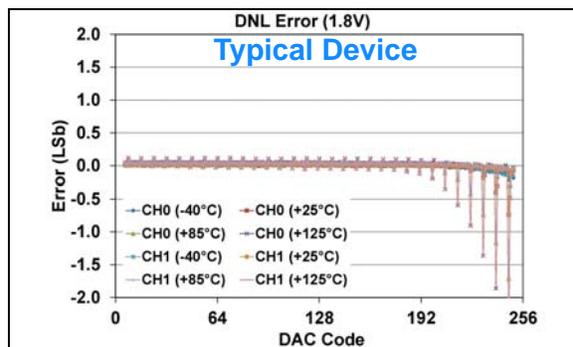


FIGURE 1-417: DNL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Dual Channel - **MCP48FXB02**)
(8-bit: $V_{DD} = 1.8\text{V}$, $VRxB:VRxA = '00'$ (V_{DD}), $Gx = '0'$ (1x)),
(see [Appendix B.1](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '01'$ (Bandgap Mode)

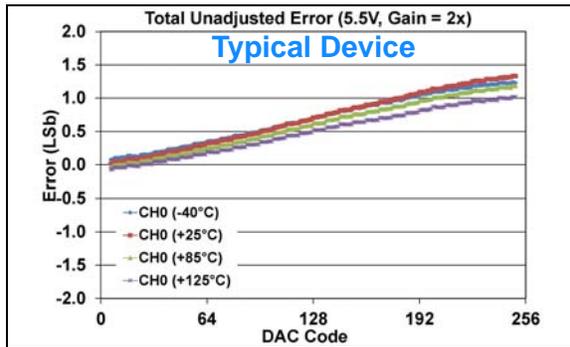


FIGURE 1-418: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB01)
(**8-bit:** $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '1'$ (2x)).

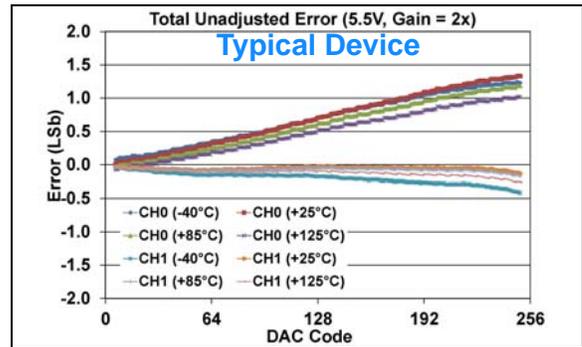


FIGURE 1-421: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB02)
(**8-bit:** $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '1'$ (2x)).

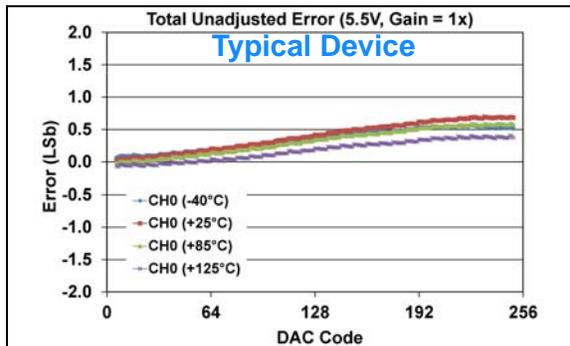


FIGURE 1-419: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB01)
(**8-bit:** $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

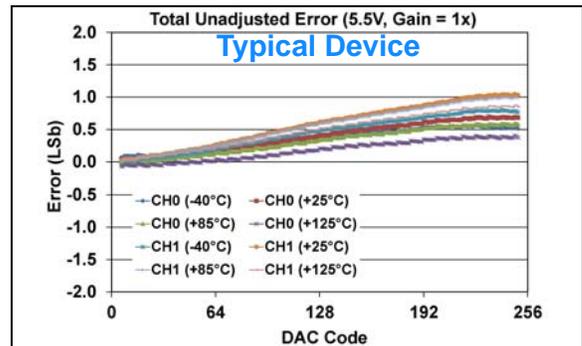


FIGURE 1-422: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB02)
(**8-bit:** $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

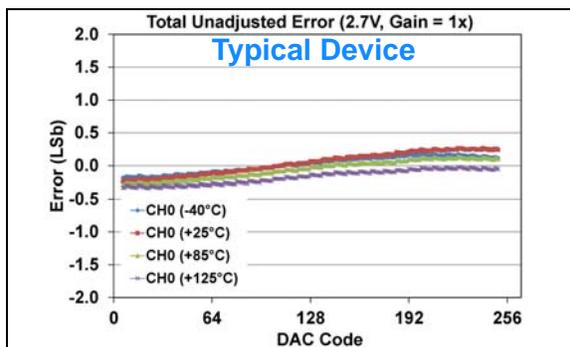


FIGURE 1-420: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB01)
(**8-bit:** $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

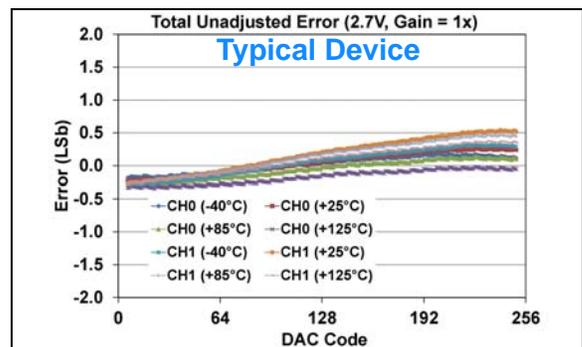


FIGURE 1-423: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB02)
(**8-bit:** $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '01'$ (Bandgap Mode)

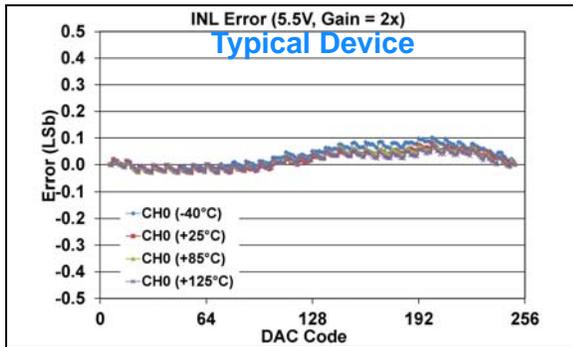


FIGURE 1-424: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**) (8-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '1'$ (2x)).

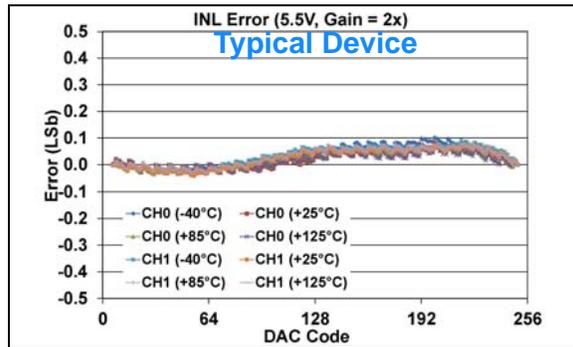


FIGURE 1-427: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**) (8-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '1'$ (2x)).

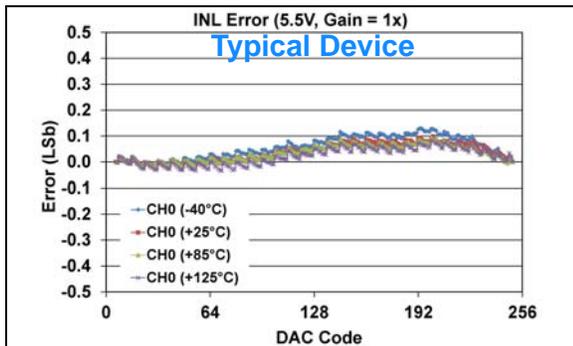


FIGURE 1-425: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**) (8-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

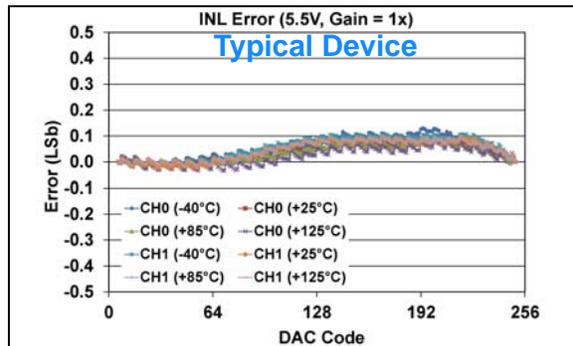


FIGURE 1-428: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**) (8-bit: $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

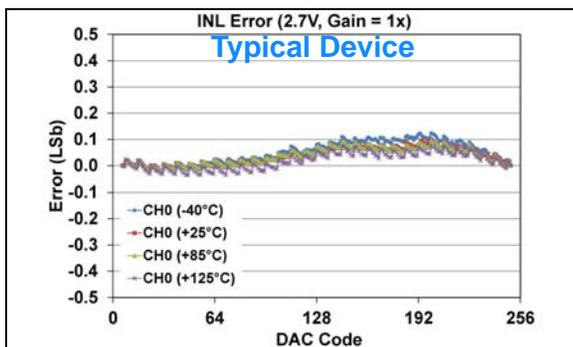


FIGURE 1-426: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**) (8-bit: $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

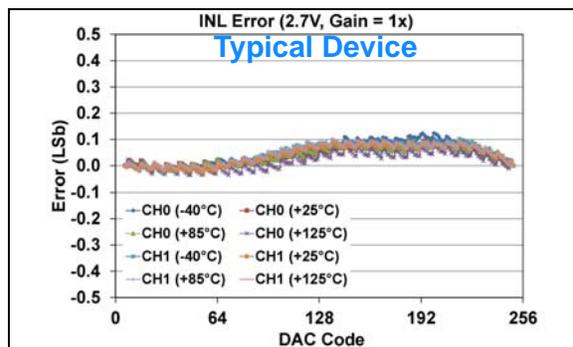


FIGURE 1-429: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**) (8-bit: $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '01'$ (Bandgap Mode)

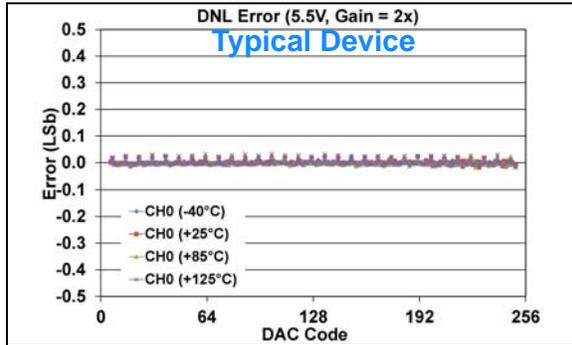


FIGURE 1-430: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**) (**8-bit:** $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '1'$ (2x)).

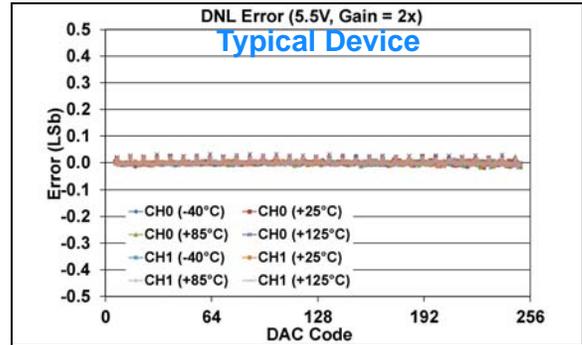


FIGURE 1-433: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**) (**8-bit:** $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '1'$ (2x)).

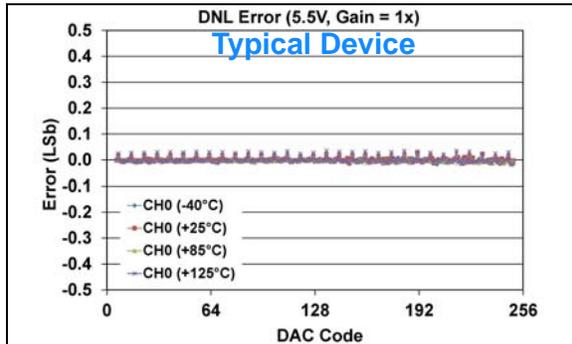


FIGURE 1-431: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**) (**8-bit:** $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

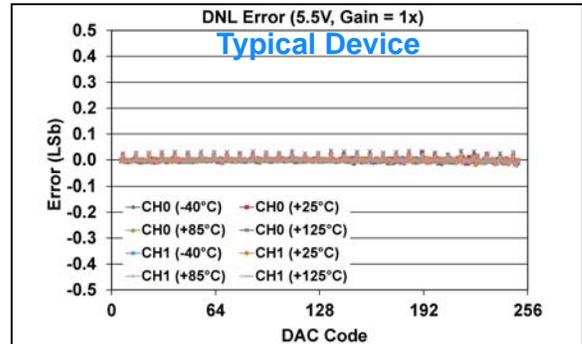


FIGURE 1-434: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**) (**8-bit:** $V_{DD} = 5.5\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

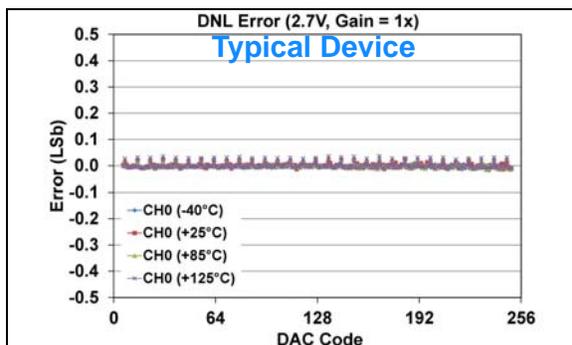


FIGURE 1-432: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**) (**8-bit:** $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

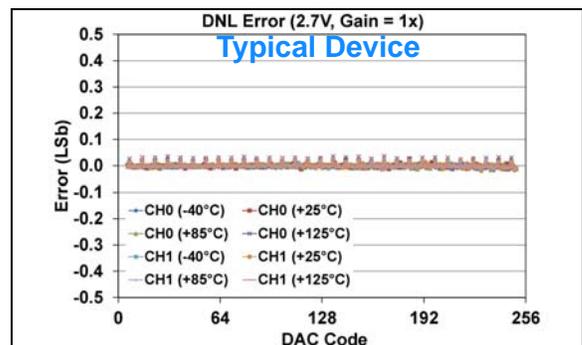


FIGURE 1-435: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**) (**8-bit:** $V_{DD} = 2.7\text{V}$, $VRxB:VRxA = '01'$ (Bandgap), $G_x = '0'$ (1x)).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = V_{DD}$, $Gx = '0'$ (1x)

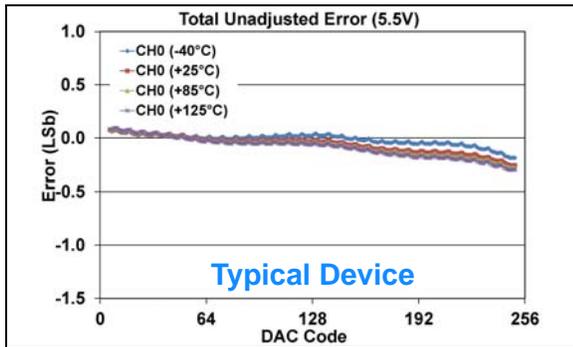


FIGURE 1-436: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB01)

(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

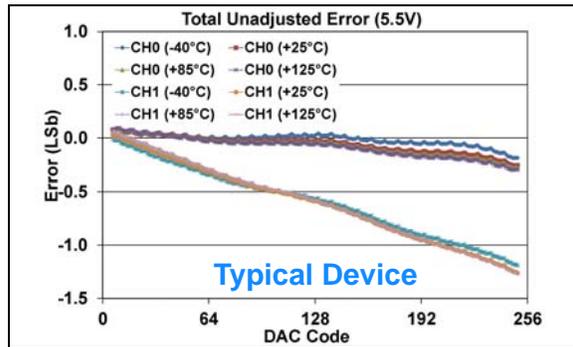


FIGURE 1-439: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB02)

(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

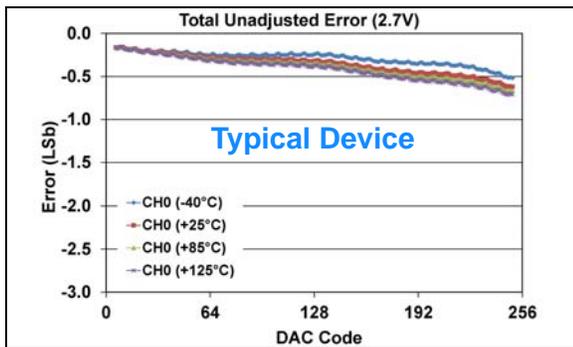


FIGURE 1-437: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB01)

(8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

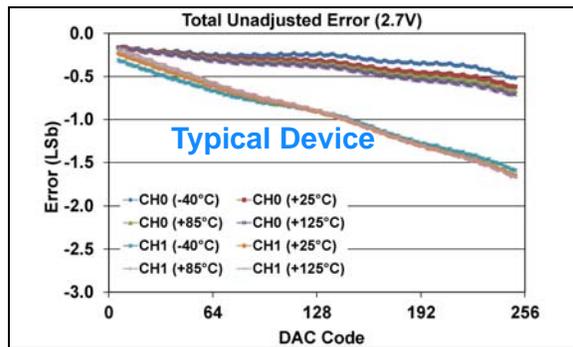


FIGURE 1-440: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB02)

(8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

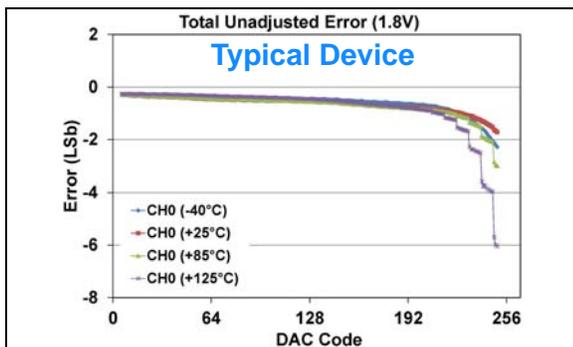


FIGURE 1-438: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB01)

(8-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)), (see Appendix B.2 for additional information).

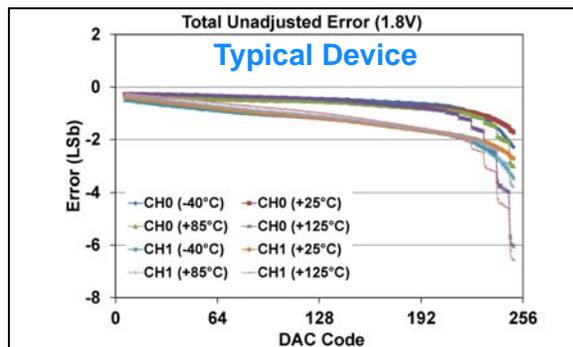


FIGURE 1-441: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB02)

(8-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)), (see Appendix B.2 for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = V_{DD}$, $Gx = '0'$ (1x)

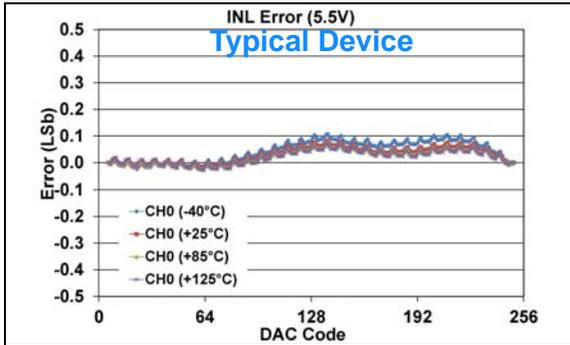


FIGURE 1-442: INL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Single Channel - MCP48FXB01)
(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

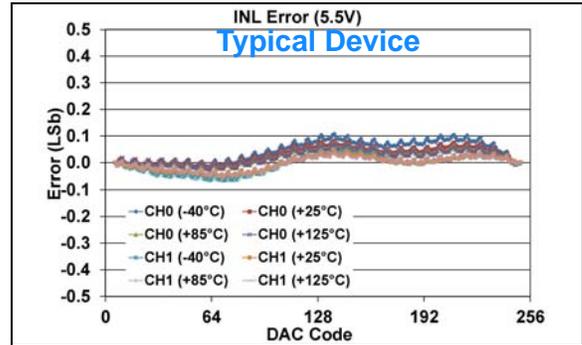


FIGURE 1-445: INL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Dual Channel - MCP48FXB02)
(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

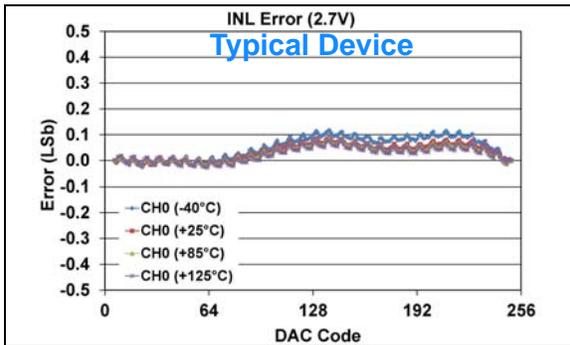


FIGURE 1-443: INL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Single Channel - MCP48FXB01)
(8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

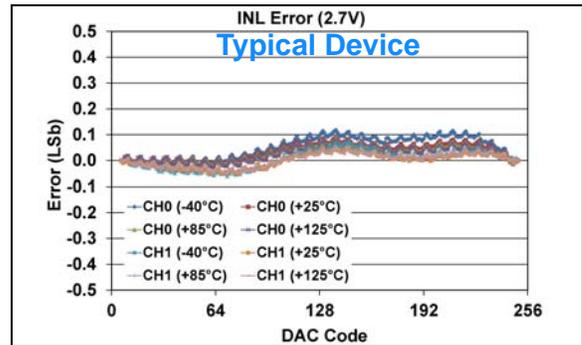


FIGURE 1-446: INL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Dual Channel - MCP48FXB02)
(8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

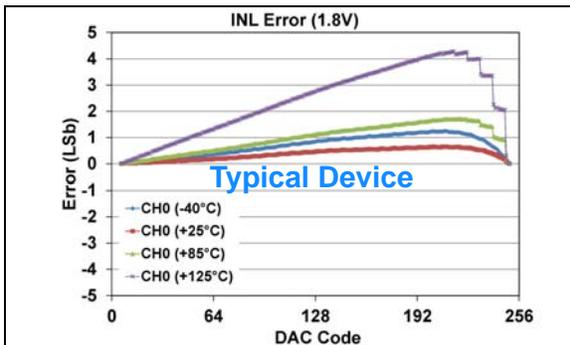


FIGURE 1-444: INL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Single Channel - MCP48FXB01)
(8-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)), (see Appendix B.2 for additional information).

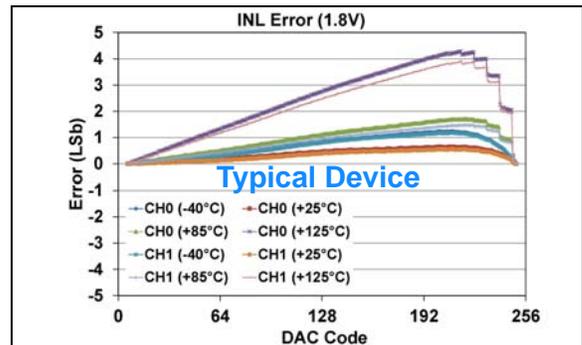


FIGURE 1-447: INL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Dual Channel - MCP48FXB02)
(8-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)), (see Appendix B.2 for additional information).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = V_{DD}$, $Gx = '0'$ (1x)

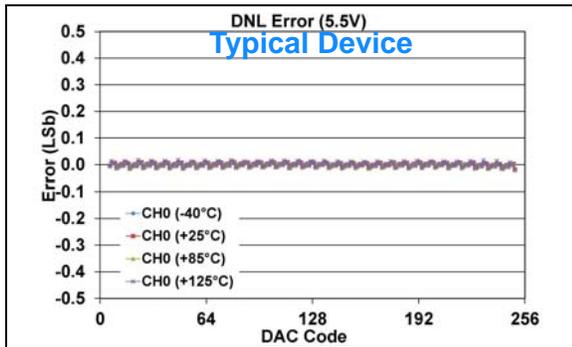


FIGURE 1-448: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**)
(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

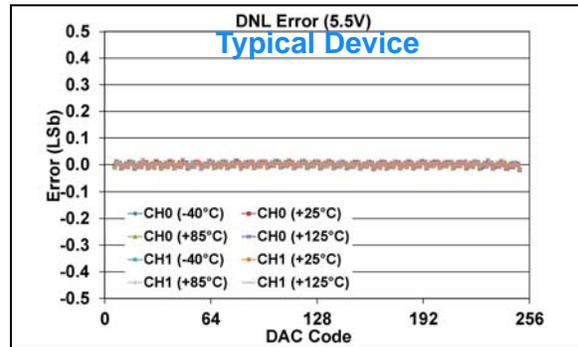


FIGURE 1-451: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**)
(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

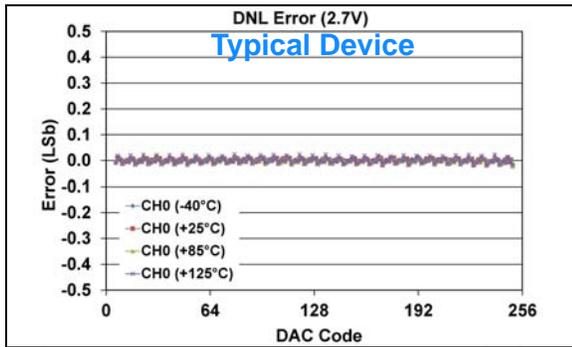


FIGURE 1-449: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**)
(8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

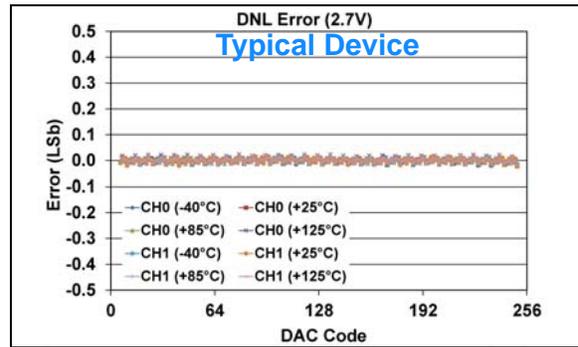


FIGURE 1-452: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**)
(8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

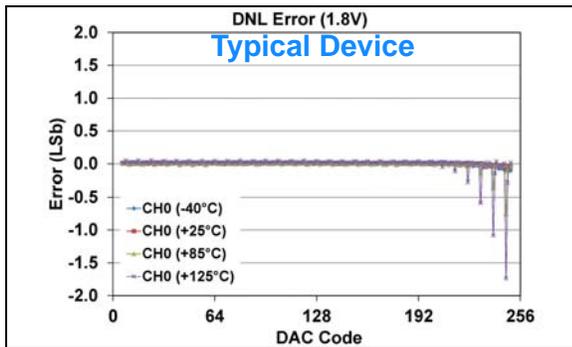


FIGURE 1-450: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**)
(8-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)), (see [Appendix B.2](#) for additional information).

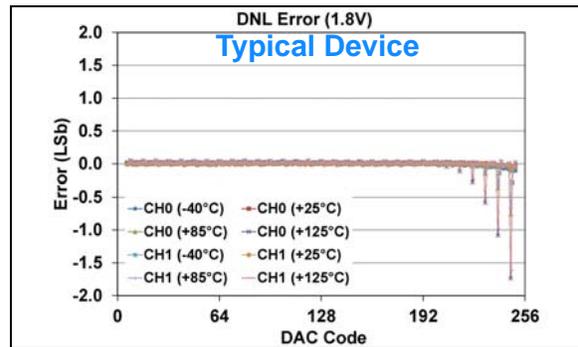


FIGURE 1-453: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**)
(8-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)), (see [Appendix B.2](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 1\text{V}$, $Gx = '0'$ ($1x$)

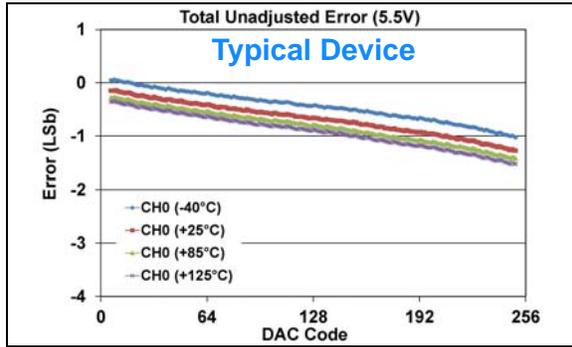


FIGURE 1-454: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB01**)
(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ ($1x$)).

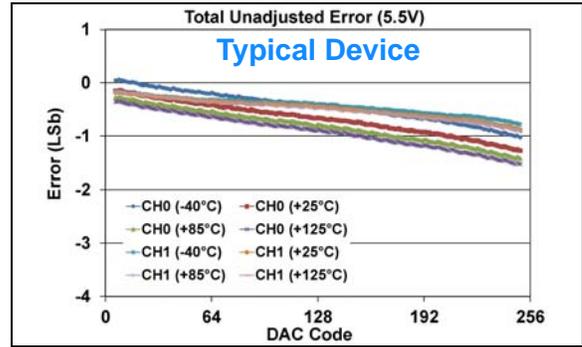


FIGURE 1-457: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB02**)
(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ ($1x$)).

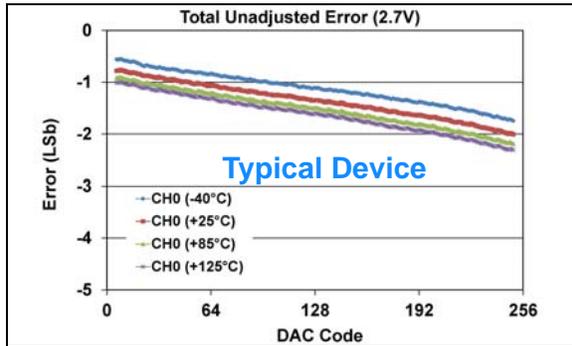


FIGURE 1-455: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB01**)
(8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ ($1x$)).

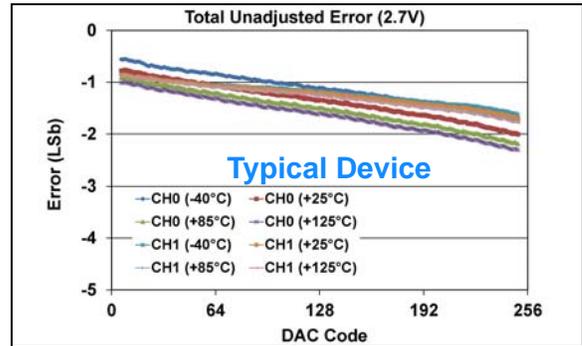


FIGURE 1-458: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB02**)
(8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ ($1x$)).

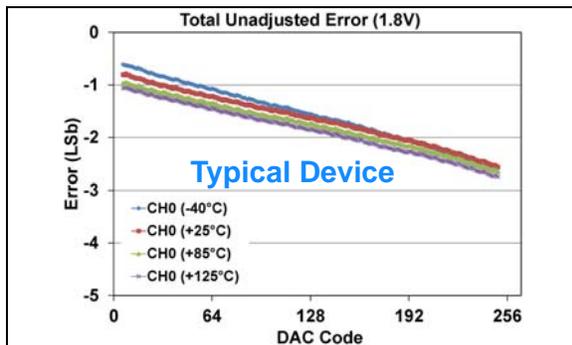


FIGURE 1-456: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB01**)
(8-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ ($1x$)).

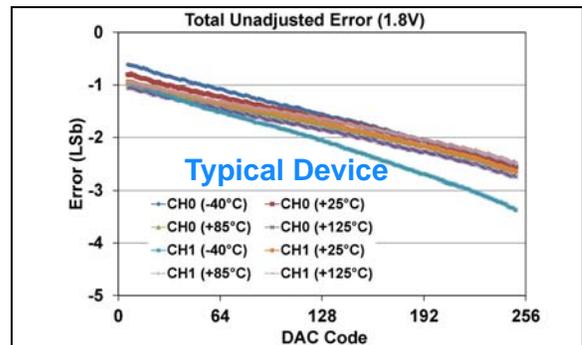


FIGURE 1-459: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB02**)
(8-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ ($1x$)).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 1\text{V}$, $Gx = '0'$ (1x)

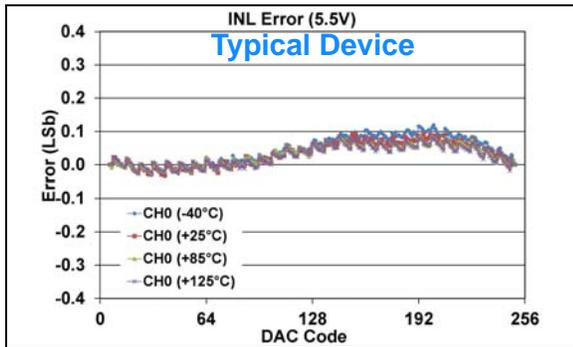


FIGURE 1-460: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**) (8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

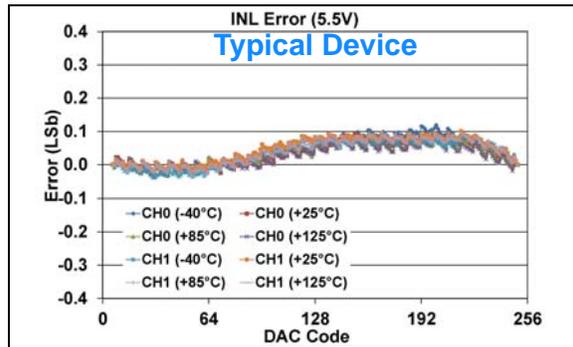


FIGURE 1-463: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**) (8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

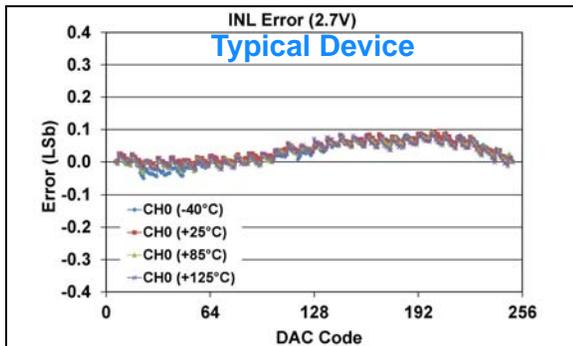


FIGURE 1-461: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**) (8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

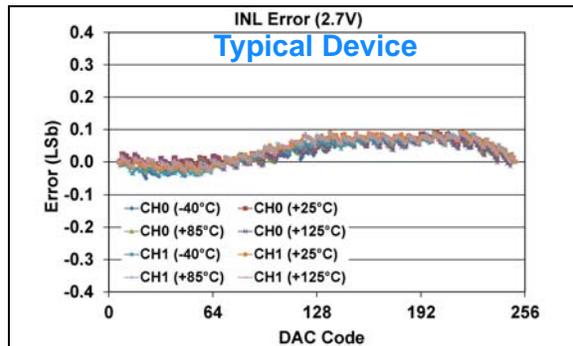


FIGURE 1-464: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**) (8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

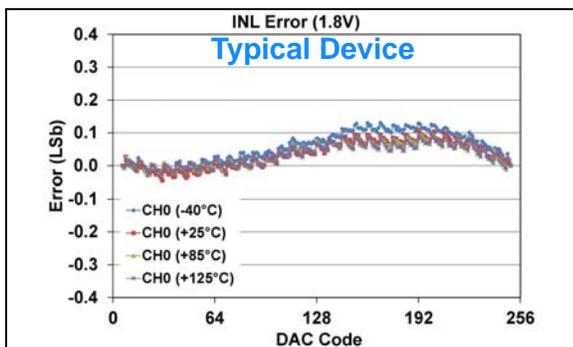


FIGURE 1-462: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**) (8-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

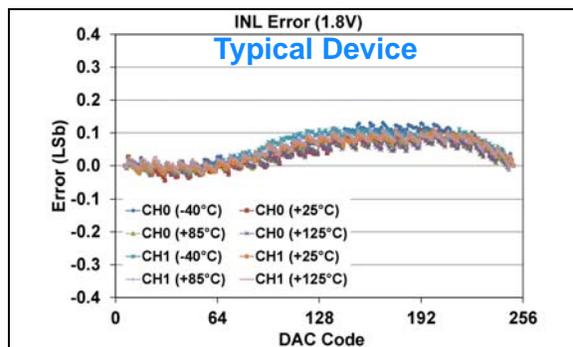


FIGURE 1-465: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**) (8-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 1\text{V}$, $Gx = '0'$ (1x)

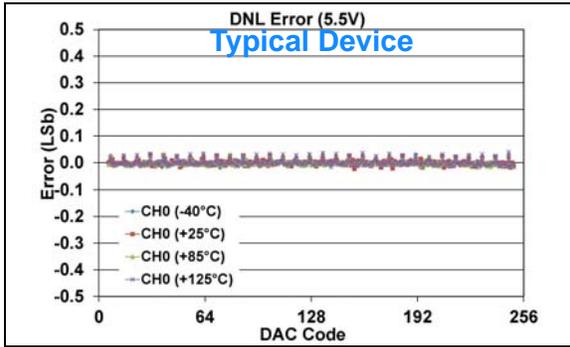


FIGURE 1-466: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**) (**8-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

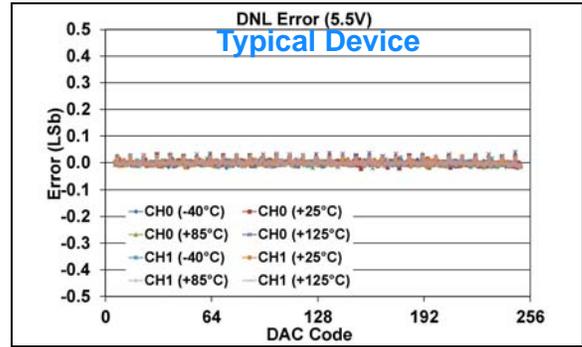


FIGURE 1-469: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**) (**8-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

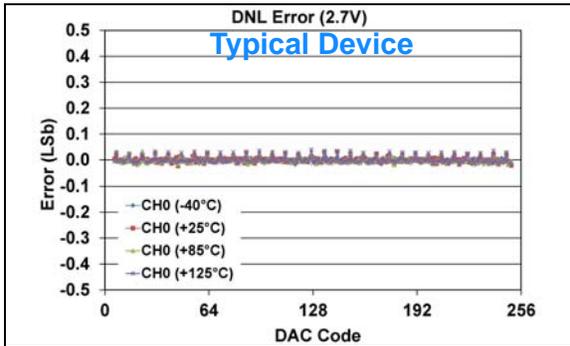


FIGURE 1-467: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**) (**8-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

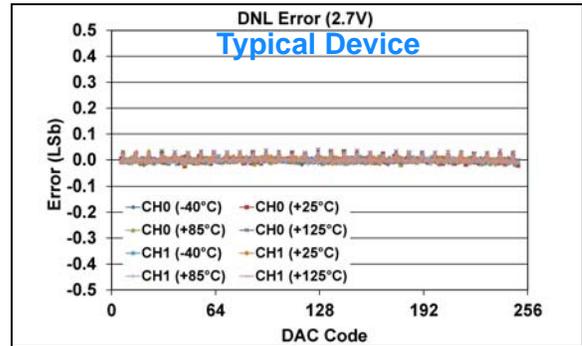


FIGURE 1-470: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**) (**8-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

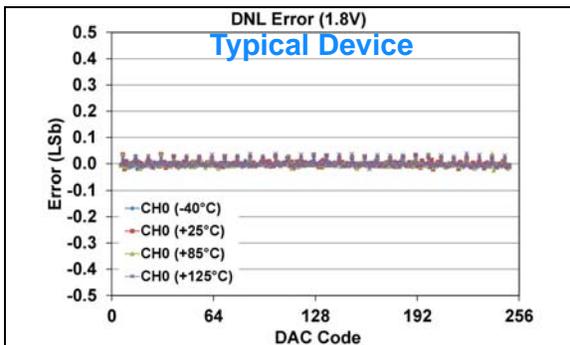


FIGURE 1-468: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**) (**8-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

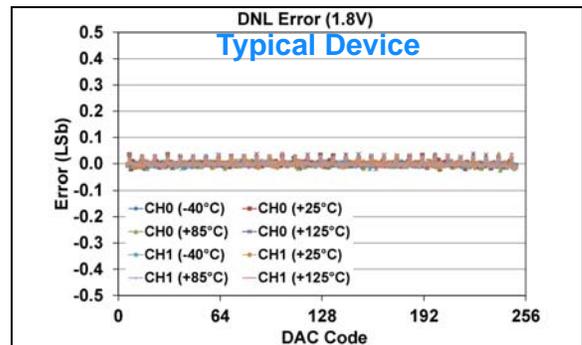


FIGURE 1-471: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**) (**8-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 1\text{V}$, $Gx = '1'$ (2x)

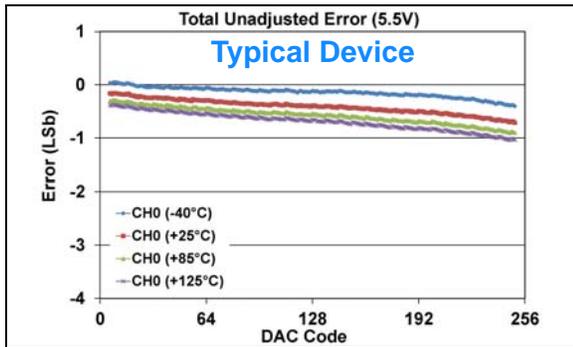


FIGURE 1-472: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB01**)
(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

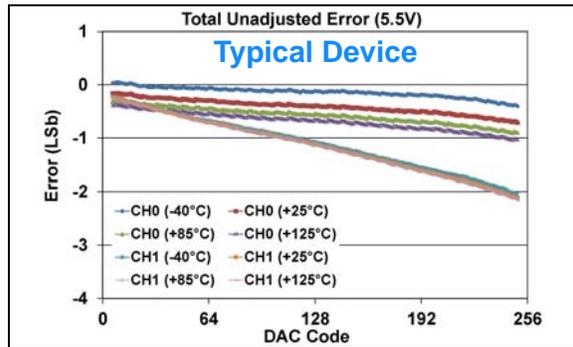


FIGURE 1-475: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB02**)
(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

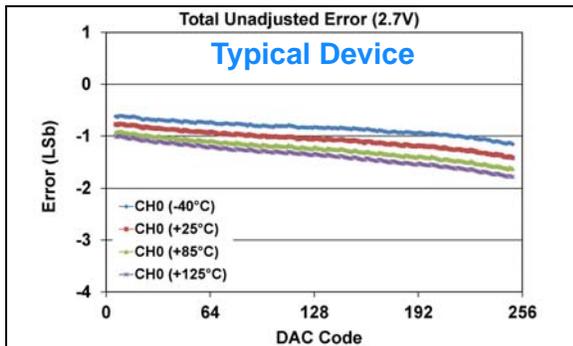


FIGURE 1-473: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB01**)
(8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

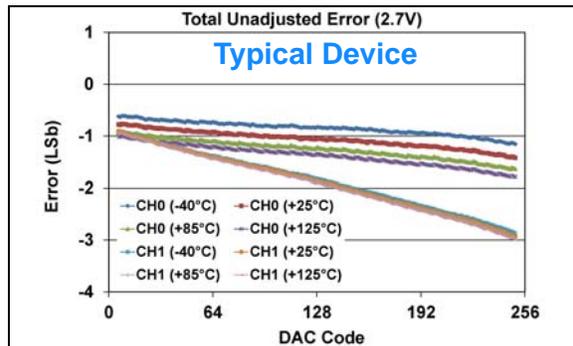


FIGURE 1-476: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB02**)
(8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

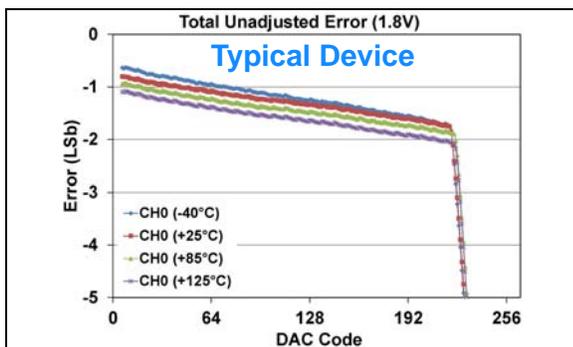


FIGURE 1-474: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB01**)
(8-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)),
(see [Appendix B.3](#) for additional information).

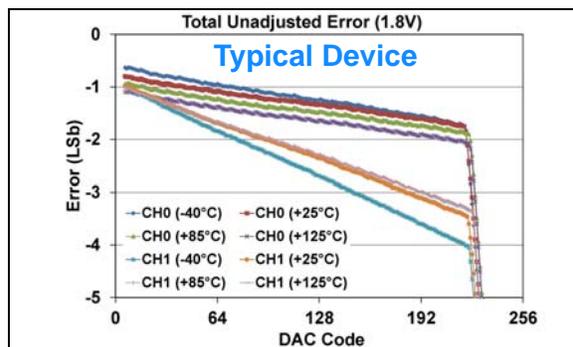


FIGURE 1-477: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB02**)
(8-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)),
(see [Appendix B.3](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 1\text{V}$, $G_x = '1'$ (2x)

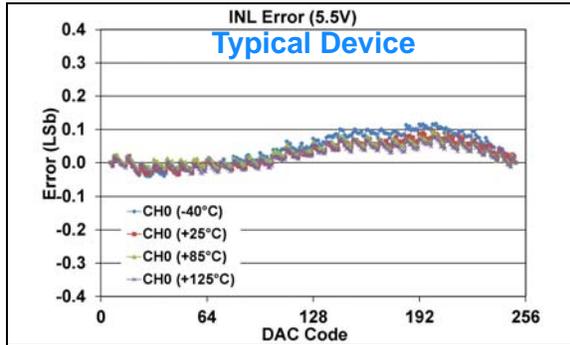


FIGURE 1-478: INL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Single Channel - **MCP48FXB01**)
(**8-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $G_x = '1'$ (2x)).

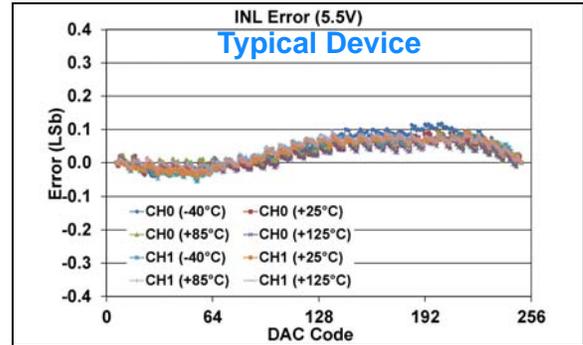


FIGURE 1-481: INL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Dual Channel - **MCP48FXB02**)
(**8-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $G_x = '1'$ (2x)).

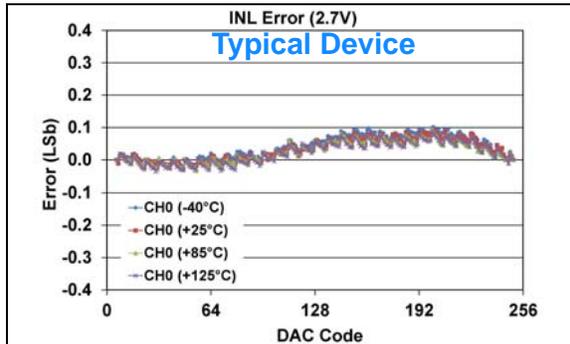


FIGURE 1-479: INL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Single Channel - **MCP48FXB01**)
(**8-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $G_x = '1'$ (2x)).

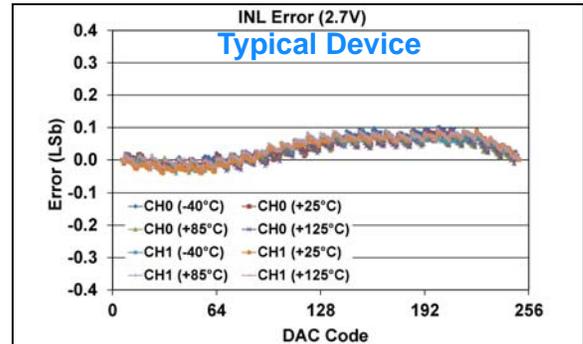


FIGURE 1-482: INL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Dual Channel - **MCP48FXB02**)
(**8-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $G_x = '1'$ (2x)).

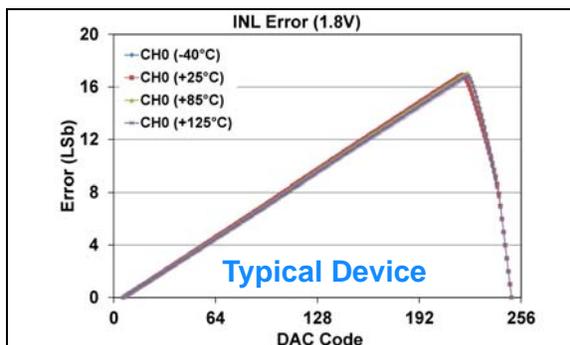


FIGURE 1-480: INL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Single Channel - **MCP48FXB01**)
(**8-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $G_x = '1'$ (2x)),
(see [Appendix B.3](#) for additional information).

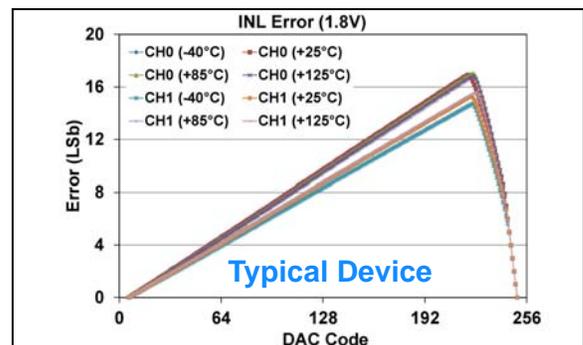


FIGURE 1-483: INL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Dual Channel - **MCP48FXB02**)
(**8-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $G_x = '1'$ (2x)),
(see [Appendix B.3](#) for additional information).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 1\text{V}$, $G_x = '1'$ (2x)

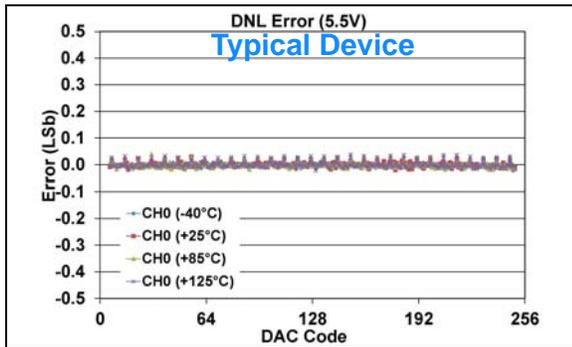


FIGURE 1-484: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**) (8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $G_x = '1'$ (2x)).

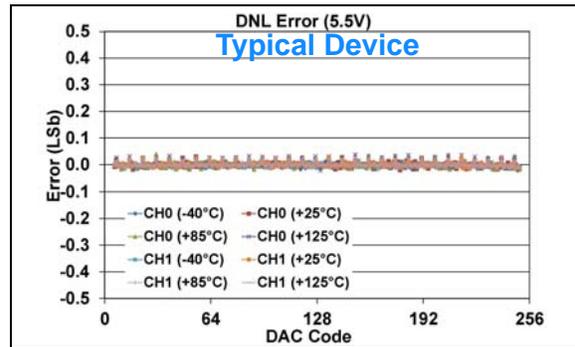


FIGURE 1-487: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**) (8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $G_x = '1'$ (2x)).

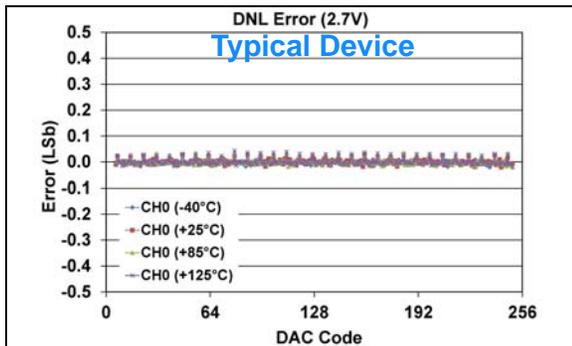


FIGURE 1-485: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**) (8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $G_x = '1'$ (2x)).

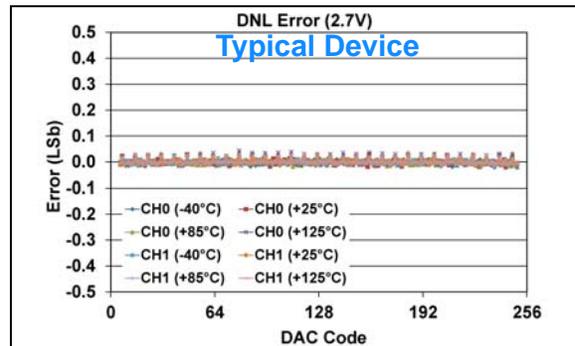


FIGURE 1-488: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**) (8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $G_x = '1'$ (2x)).

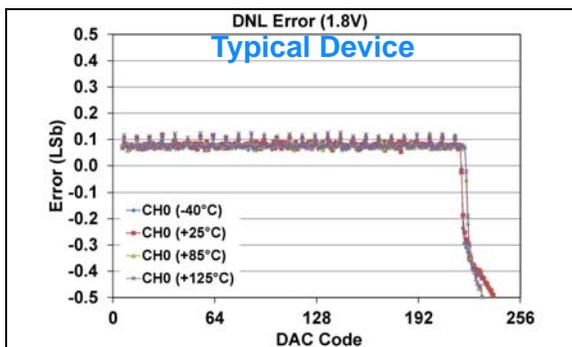


FIGURE 1-486: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**) (8-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $G_x = '1'$ (2x)), (see [Appendix B.3](#) for additional information).

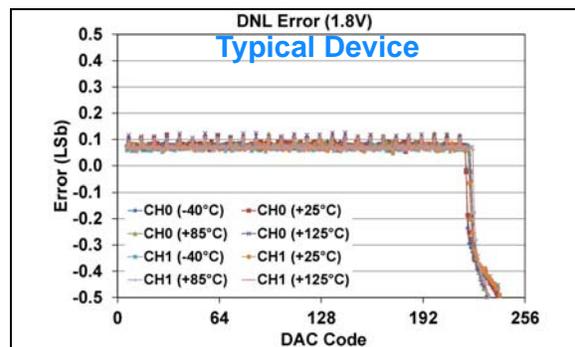


FIGURE 1-489: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**) (8-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $G_x = '1'$ (2x)), (see [Appendix B.3](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 2.048\text{V}$

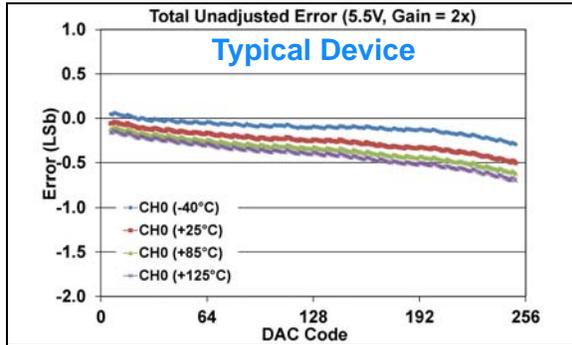


FIGURE 1-490: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB01)
(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

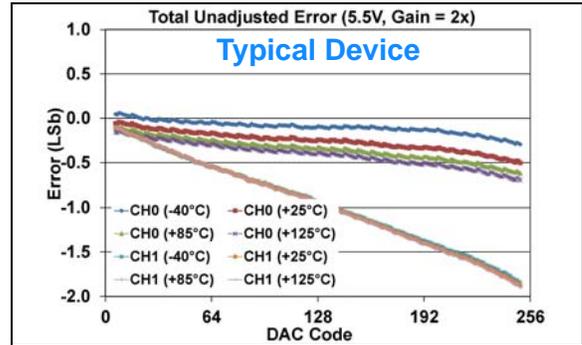


FIGURE 1-493: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB02)
(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

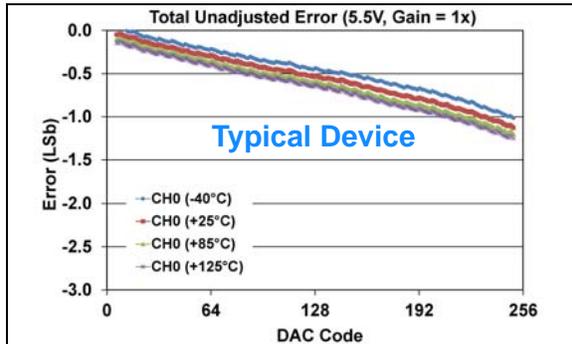


FIGURE 1-491: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB01)
(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

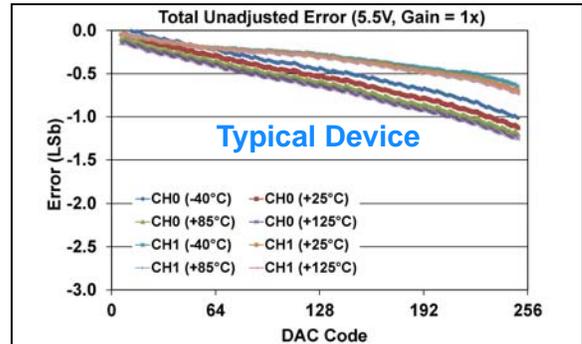


FIGURE 1-494: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB02)
(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

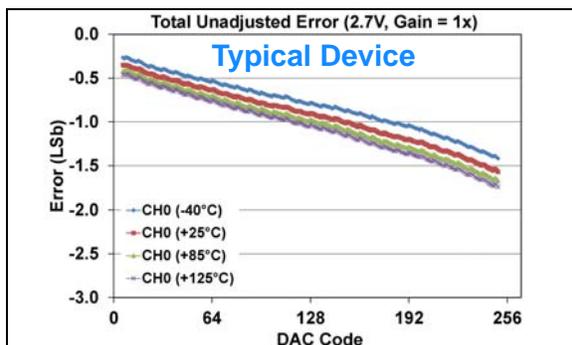


FIGURE 1-492: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB01)
(8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

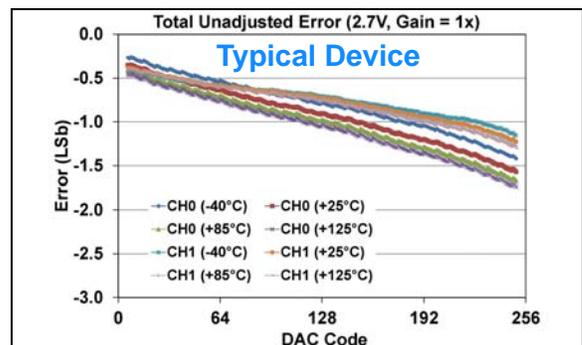


FIGURE 1-495: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB02)
(8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 2.048\text{V}$

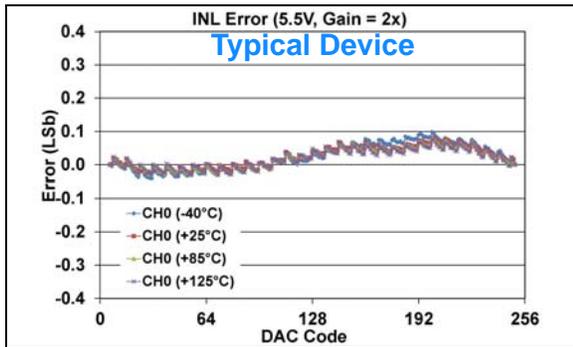


FIGURE 1-496: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**)
(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

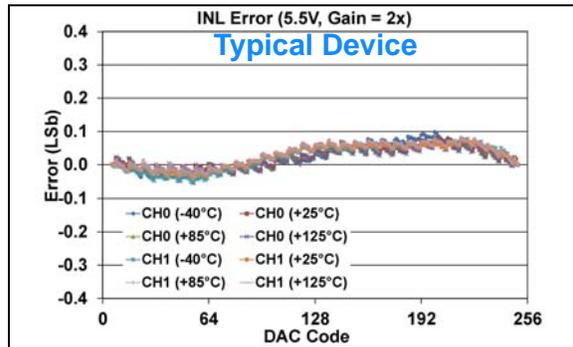


FIGURE 1-499: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**)
(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

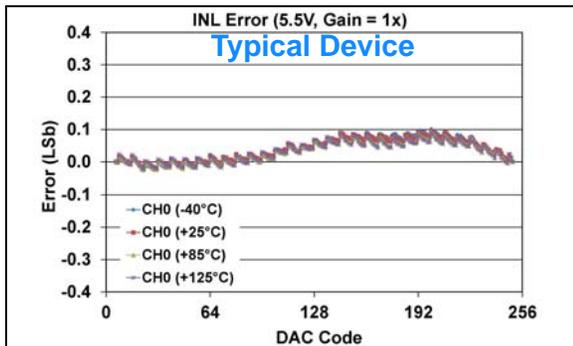


FIGURE 1-497: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**)
(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

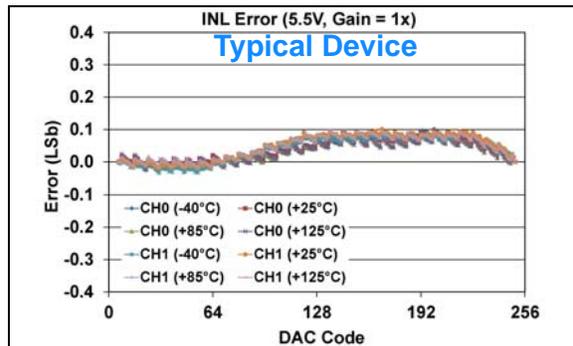


FIGURE 1-500: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**)
(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

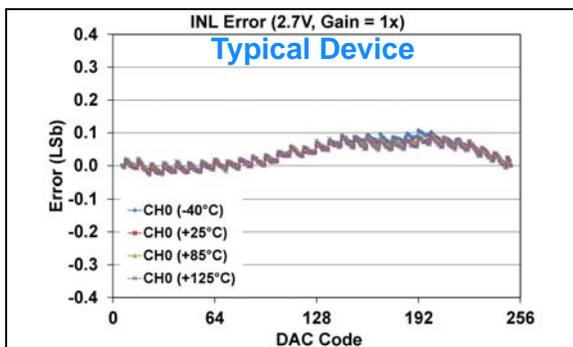


FIGURE 1-498: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**)
(8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

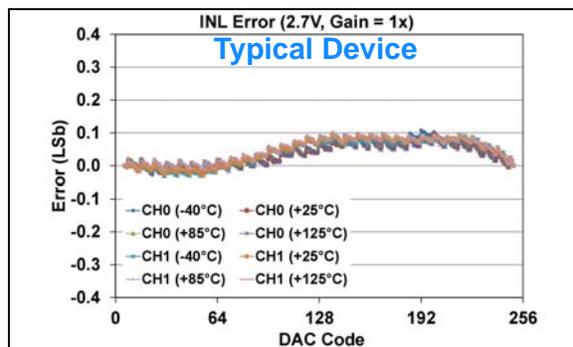


FIGURE 1-501: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**)
(8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '10'$ (V_{REF} Unbuffered Mode), $V_{REF} = 2.048\text{V}$

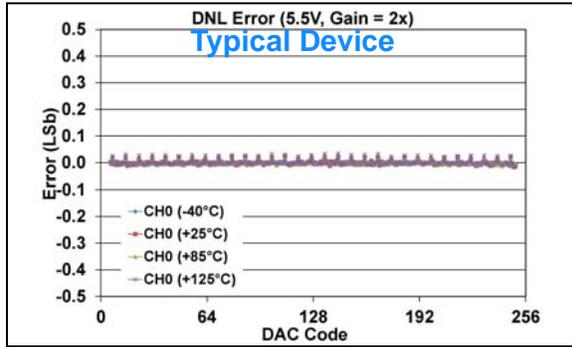


FIGURE 1-502: DNL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Single Channel - **MCP48FXB01**)
(**8-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

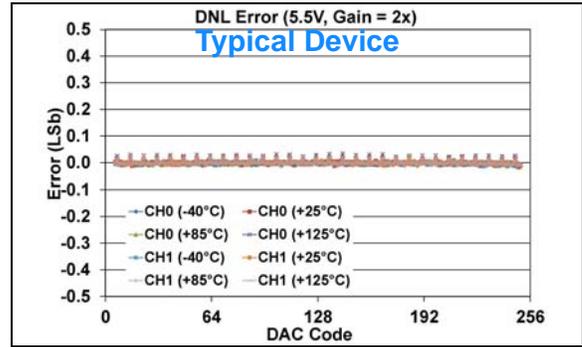


FIGURE 1-505: DNL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Dual Channel - **MCP48FXB02**)
(**8-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '1'$ (2x)).

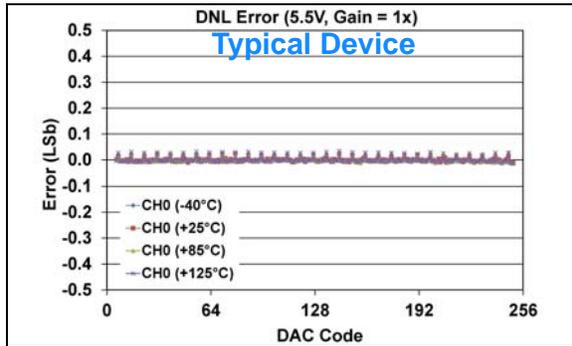


FIGURE 1-503: DNL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Single Channel - **MCP48FXB01**)
(**8-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

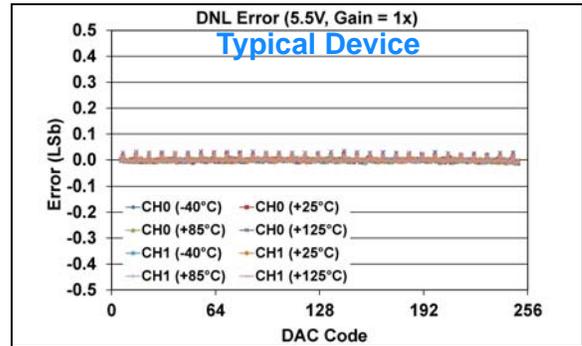


FIGURE 1-506: DNL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Dual Channel - **MCP48FXB02**)
(**8-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

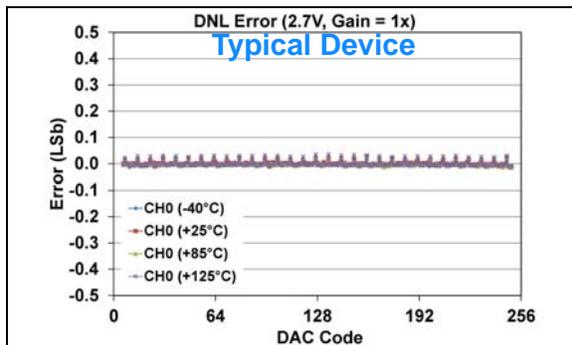


FIGURE 1-504: DNL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Single Channel - **MCP48FXB01**)
(**8-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

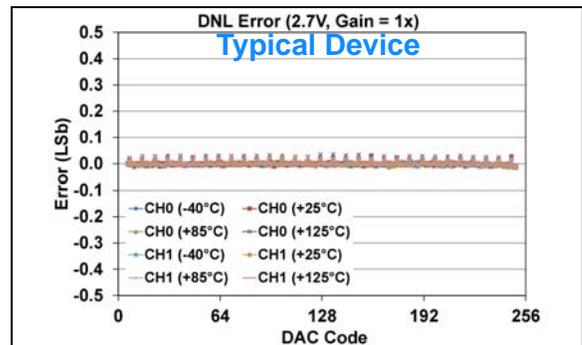


FIGURE 1-507: DNL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Dual Channel - **MCP48FXB02**)
(**8-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '10'$ (V_{REF} Unbuffered), $Gx = '0'$ (1x)).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = V_{DD}$, $Gx = '0'$ (1x)

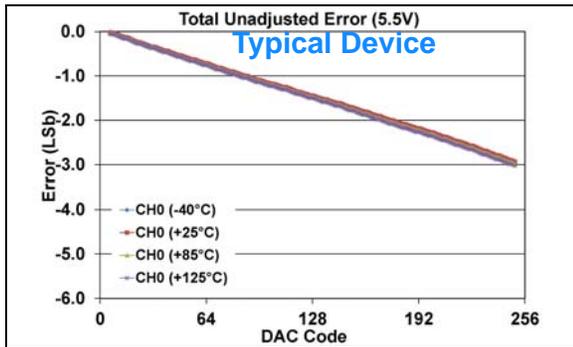


FIGURE 1-508: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB01**)

(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

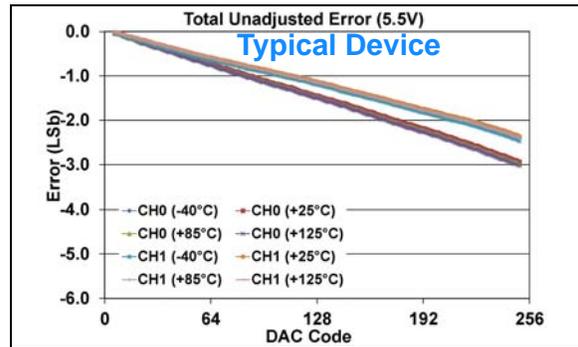


FIGURE 1-511: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB02**)

(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

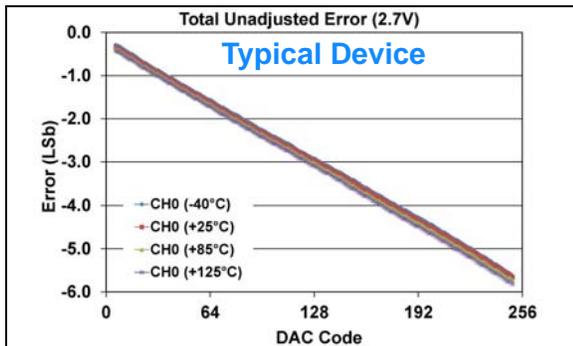


FIGURE 1-509: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB01**)

(8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

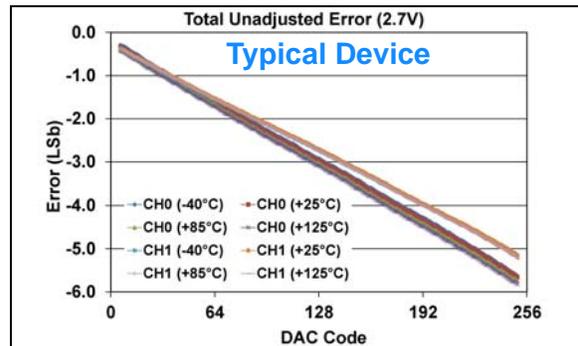


FIGURE 1-512: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB02**)

(8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

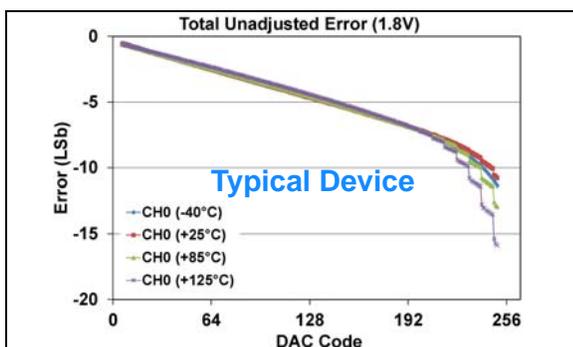


FIGURE 1-510: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB01**)

(8-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)), (see [Appendix B.4](#) for additional information).

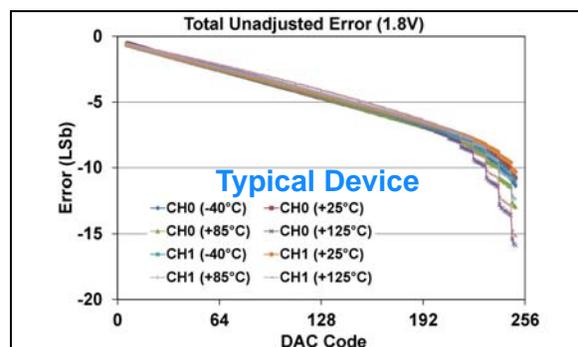


FIGURE 1-513: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB02**)

(8-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)), (see [Appendix B.4](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = V_{DD}$, $Gx = '0'$ (1x)

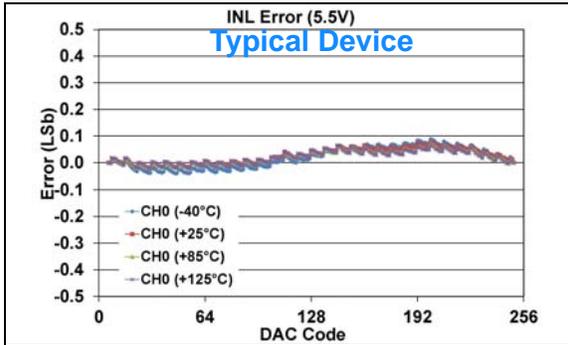


FIGURE 1-514: INL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Single Channel - **MCP48FXB01**)
(**8-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

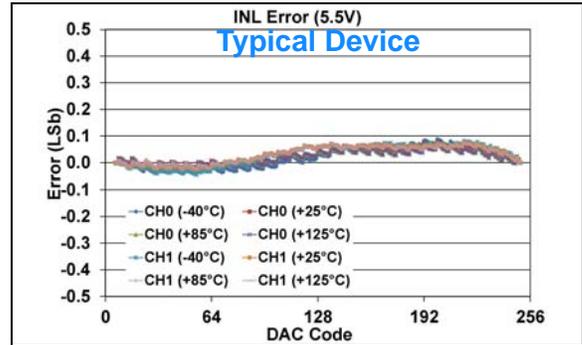


FIGURE 1-517: INL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Dual Channel - **MCP48FXB02**)
(**8-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

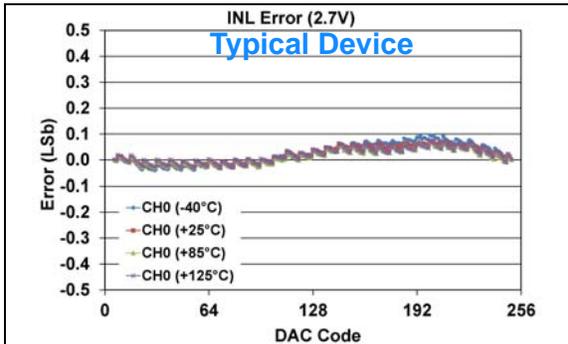


FIGURE 1-515: INL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Single Channel - **MCP48FXB01**)
(**8-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

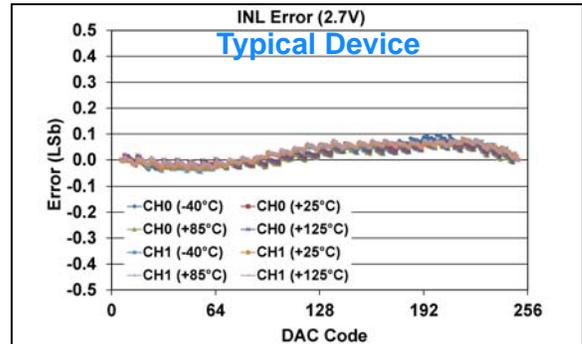


FIGURE 1-518: INL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Dual Channel - **MCP48FXB02**)
(**8-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

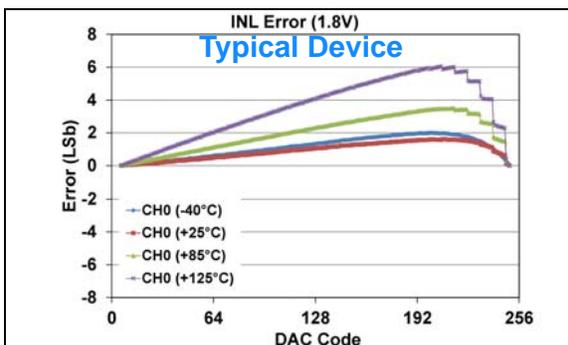


FIGURE 1-516: INL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Single Channel - **MCP48FXB01**)
(**8-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)),
(see [Appendix B.4](#) for additional information).

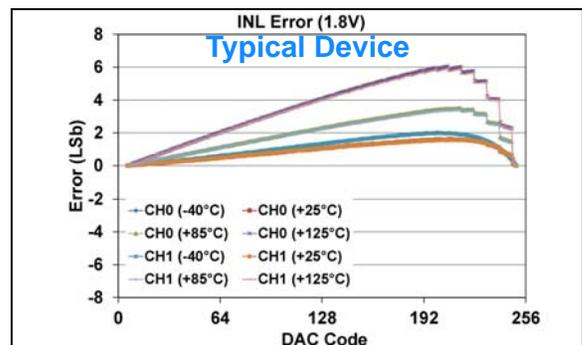


FIGURE 1-519: INL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Dual Channel - **MCP48FXB02**)
(**8-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)),
(see [Appendix B.4](#) for additional information).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = V_{DD}$, $Gx = '0'$ (1x)

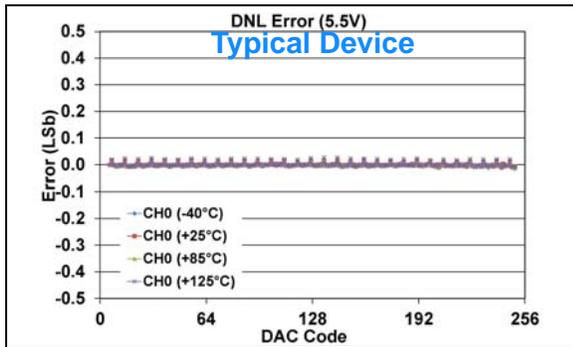


FIGURE 1-520: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**)
(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

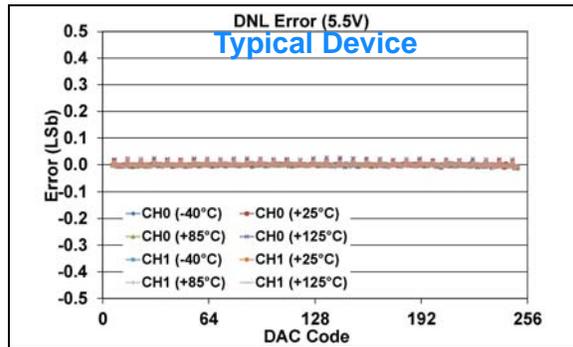


FIGURE 1-523: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**)
(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

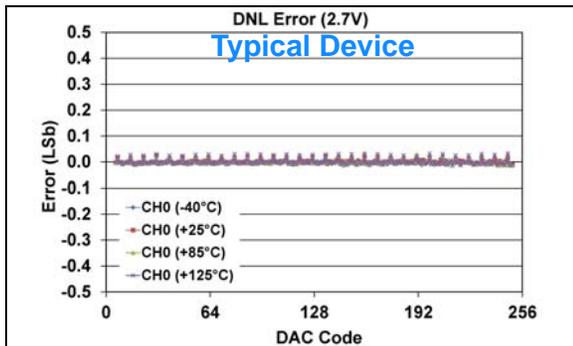


FIGURE 1-521: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**)
(8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

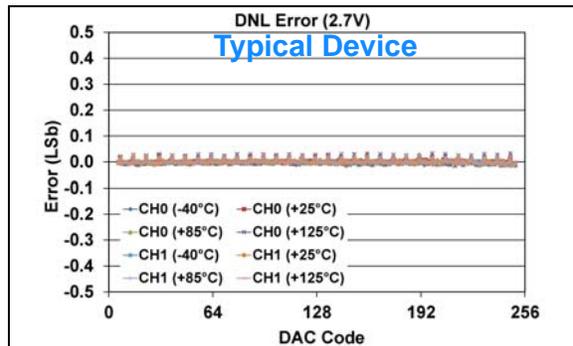


FIGURE 1-524: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**)
(8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

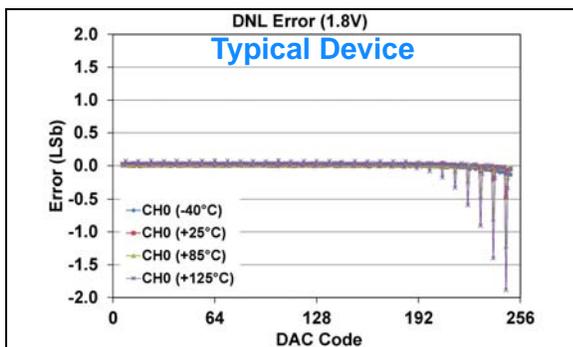


FIGURE 1-522: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**)
(8-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)), (see [Appendix B.4](#) for additional information).

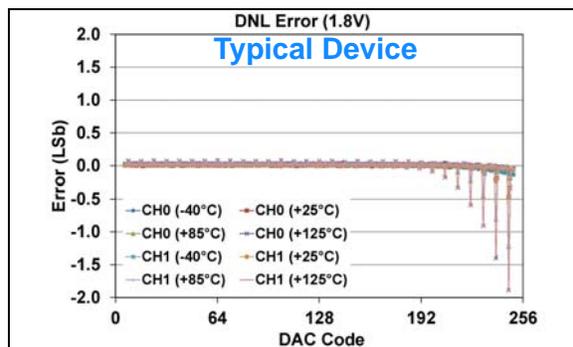


FIGURE 1-525: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**)
(8-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = V_{DD}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)), (see [Appendix B.4](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 1\text{V}$, $Gx = '0'$ (1x)

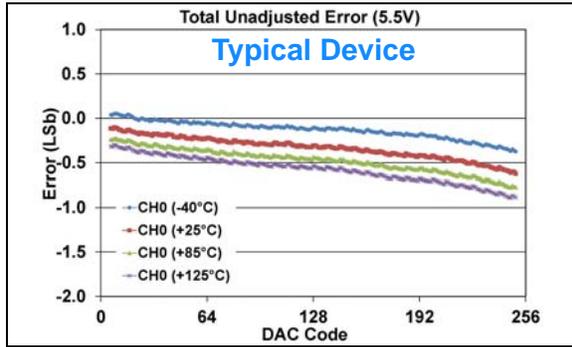


FIGURE 1-526: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB01)
(**8-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

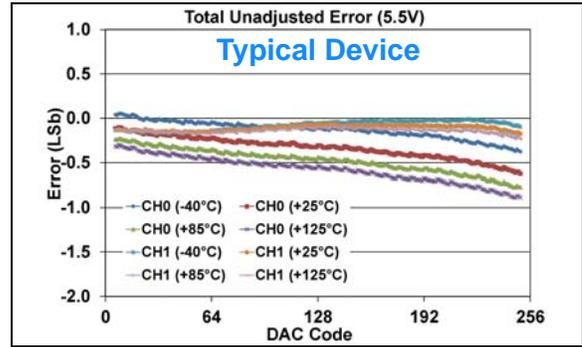


FIGURE 1-529: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB02)
(**8-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

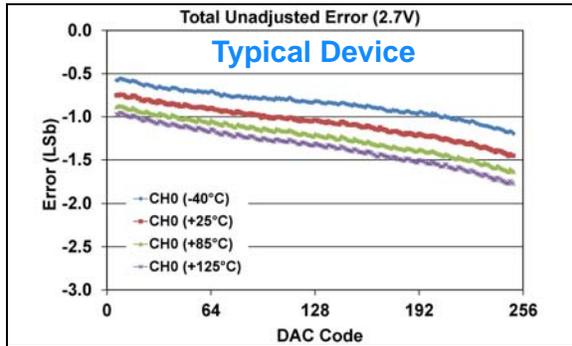


FIGURE 1-527: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB01)
(**8-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

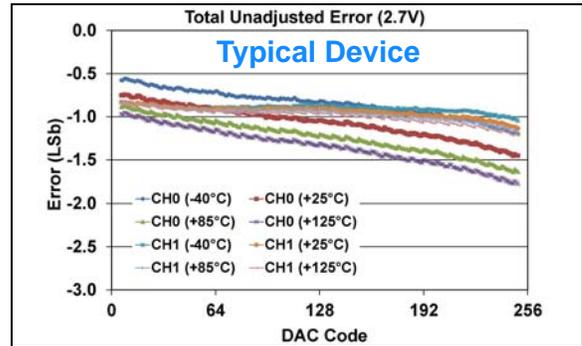


FIGURE 1-530: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB02)
(**8-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

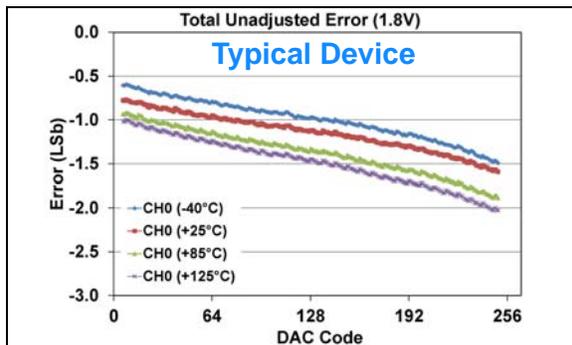


FIGURE 1-528: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB01)
(**8-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

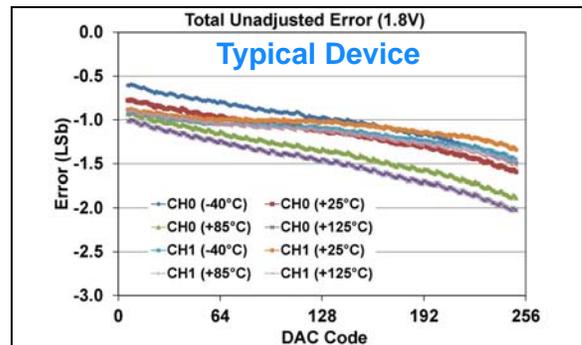


FIGURE 1-531: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB02)
(**8-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 1\text{V}$, $Gx = '0'$ (1x)

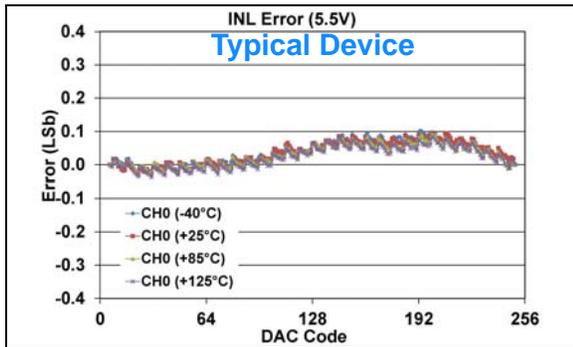


FIGURE 1-532: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**) (8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

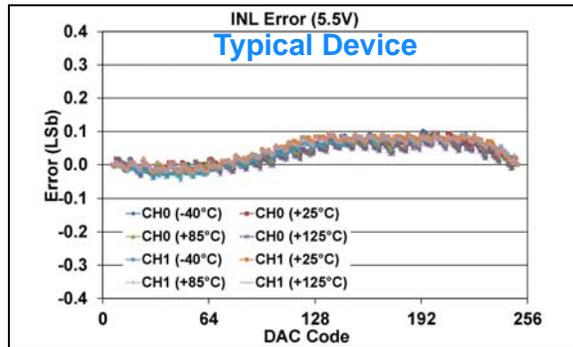


FIGURE 1-535: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**) (8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

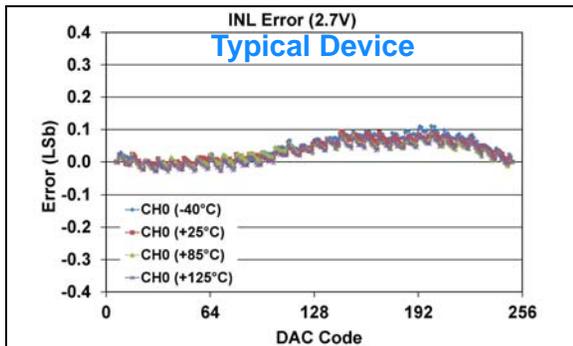


FIGURE 1-533: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**) (8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

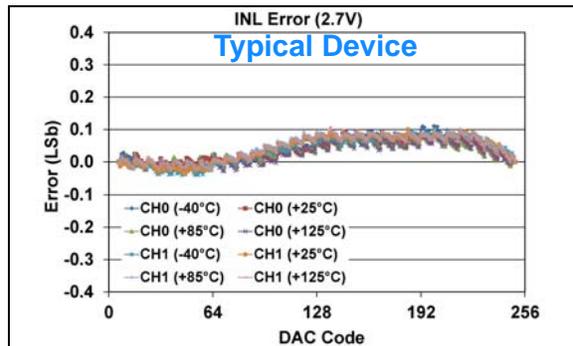


FIGURE 1-536: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**) (8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

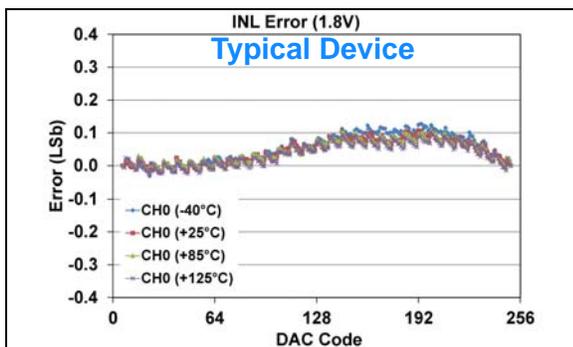


FIGURE 1-534: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**) (8-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

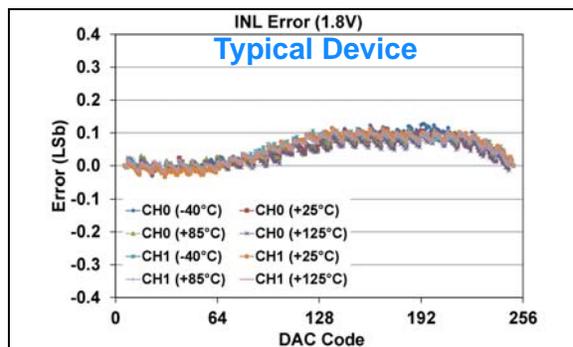


FIGURE 1-537: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**) (8-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 1\text{V}$, $Gx = '0'$ (1x)

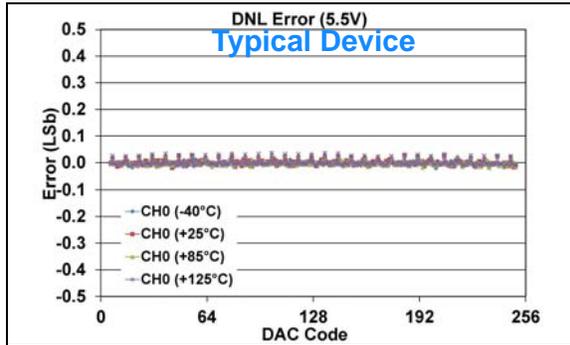


FIGURE 1-538: DNL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Single Channel - **MCP48FXB01**)
(**8-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

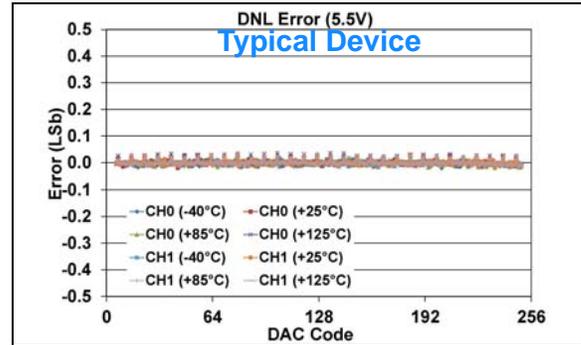


FIGURE 1-541: DNL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Dual Channel - **MCP48FXB02**)
(**8-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

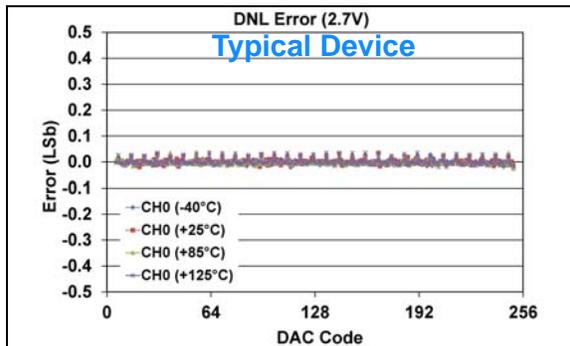


FIGURE 1-539: DNL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Single Channel - **MCP48FXB01**)
(**8-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

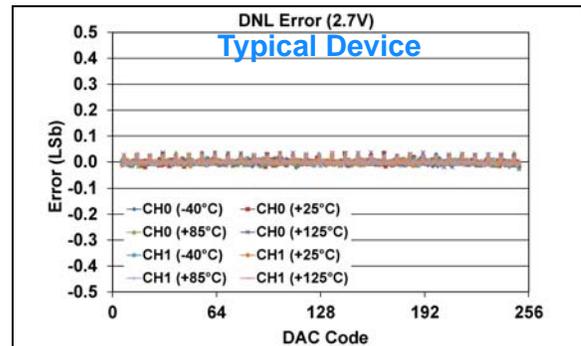


FIGURE 1-542: DNL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Dual Channel - **MCP48FXB02**)
(**8-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

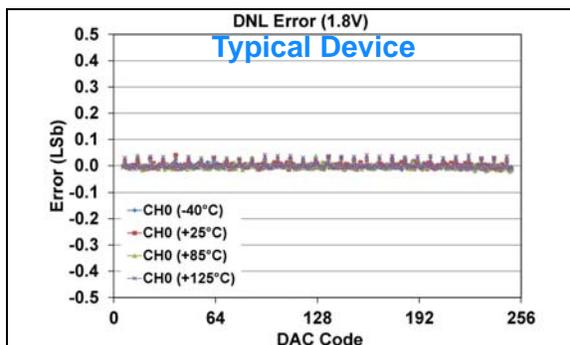


FIGURE 1-540: DNL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Single Channel - **MCP48FXB01**)
(**8-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

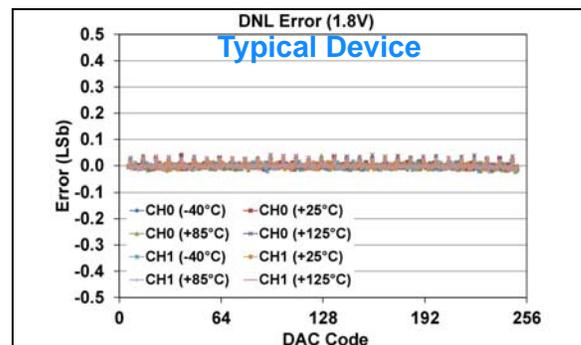


FIGURE 1-543: DNL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Dual Channel - **MCP48FXB02**)
(**8-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 1\text{V}$, $Gx = '1'$ (2x)

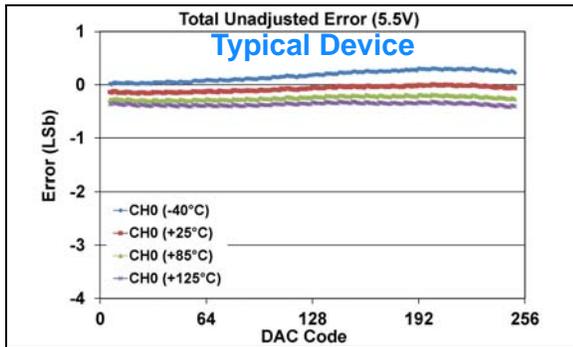


FIGURE 1-544: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB01**)
(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

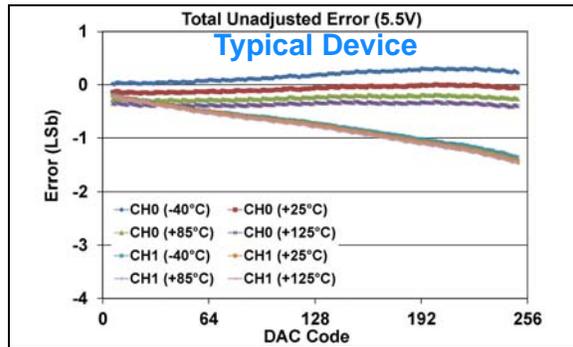


FIGURE 1-547: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB02**)
(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

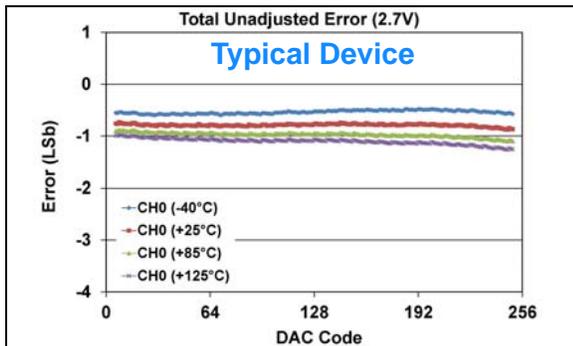


FIGURE 1-545: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB01**)
(8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

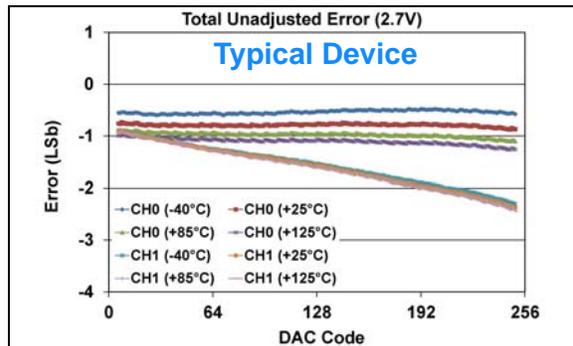


FIGURE 1-548: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB02**)
(8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

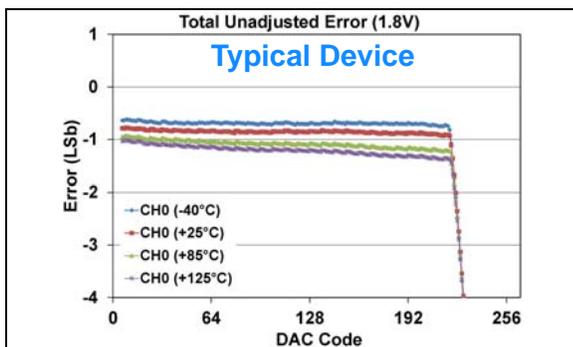


FIGURE 1-546: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - **MCP48FXB01**)
(8-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)),
(see [Appendix B.5](#) for additional information).

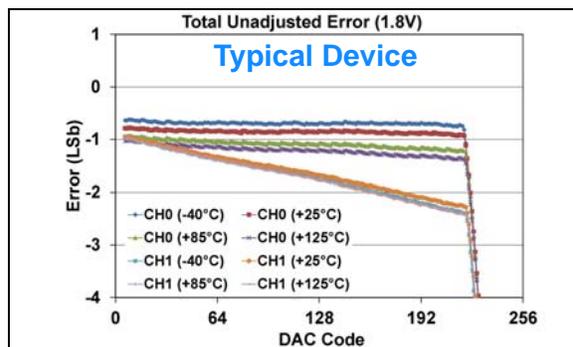


FIGURE 1-549: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - **MCP48FXB02**)
(8-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)),
(see [Appendix B.5](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 1\text{V}$, $Gx = '1'$ (2x)

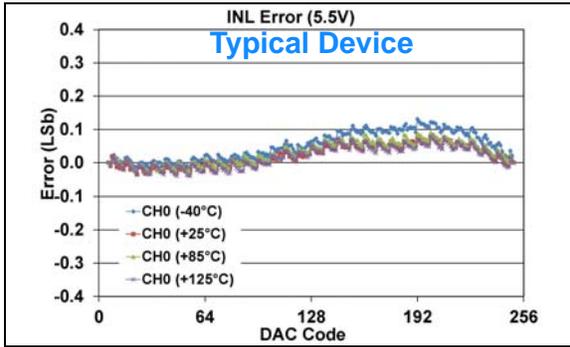


FIGURE 1-550: INL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Single Channel - **MCP48FXB01**)
(**8-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

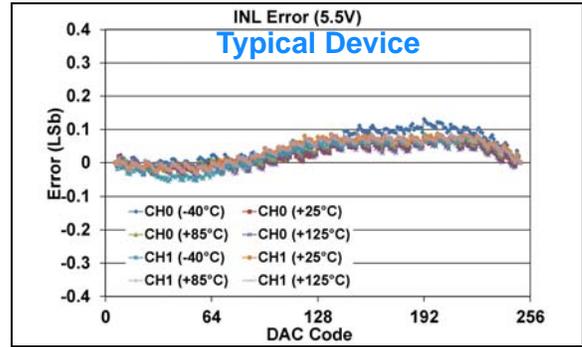


FIGURE 1-553: INL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Dual Channel - **MCP48FXB02**)
(**8-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

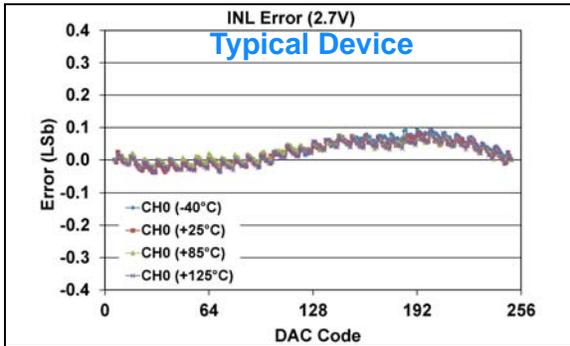


FIGURE 1-551: INL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Single Channel - **MCP48FXB01**)
(**8-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

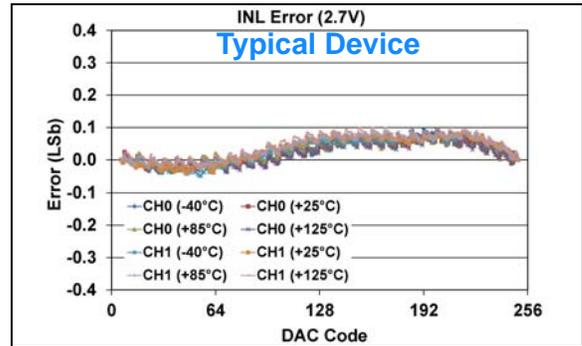


FIGURE 1-554: INL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Dual Channel - **MCP48FXB02**)
(**8-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

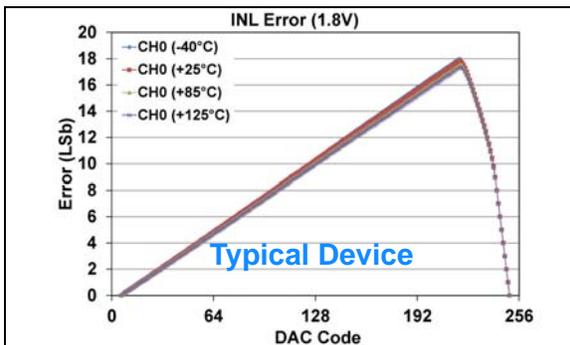


FIGURE 1-552: INL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Single Channel - **MCP48FXB01**)
(**8-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)),
(see [Appendix B.5](#) for additional information).

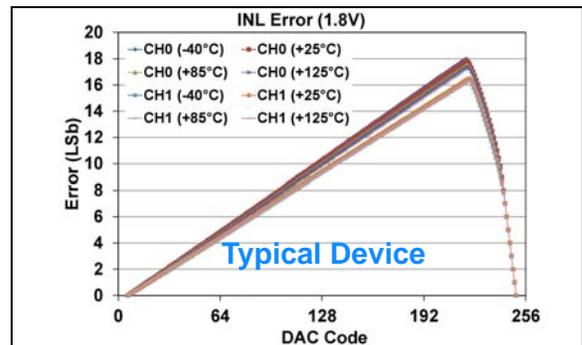


FIGURE 1-555: INL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Dual Channel - **MCP48FXB02**)
(**8-bit:** $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)),
(see [Appendix B.5](#) for additional information).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 1\text{V}$, $Gx = '1'$ (2x)

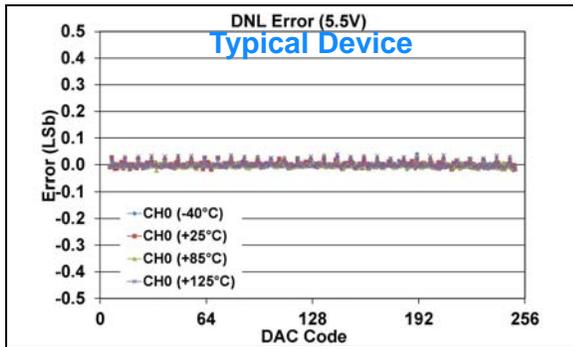


FIGURE 1-556: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**) (8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

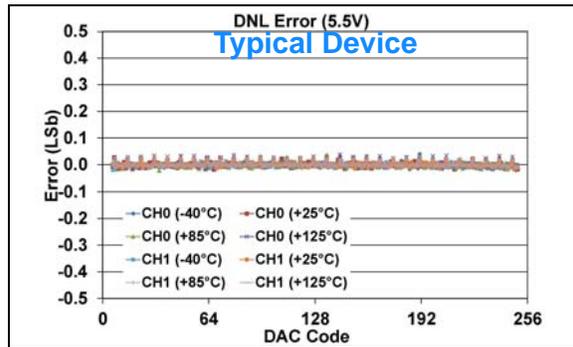


FIGURE 1-559: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**) (8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

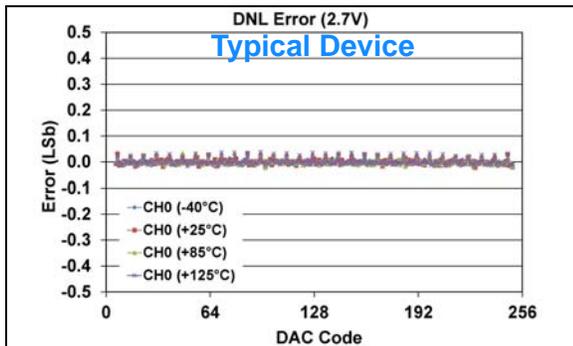


FIGURE 1-557: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**) (8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

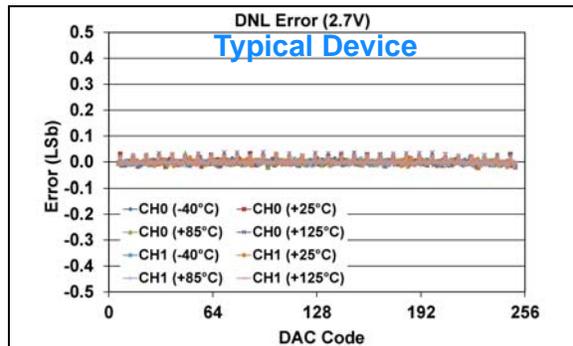


FIGURE 1-560: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**) (8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

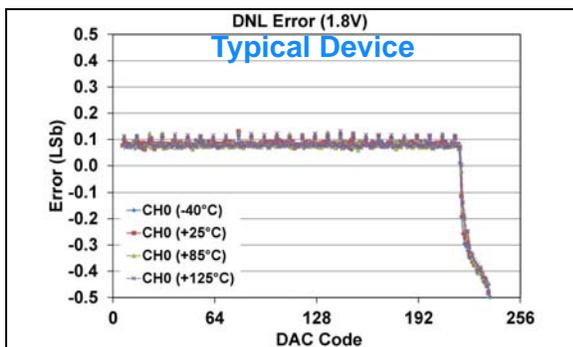


FIGURE 1-558: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**) (8-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)), (see [Appendix B.5](#) for additional information).

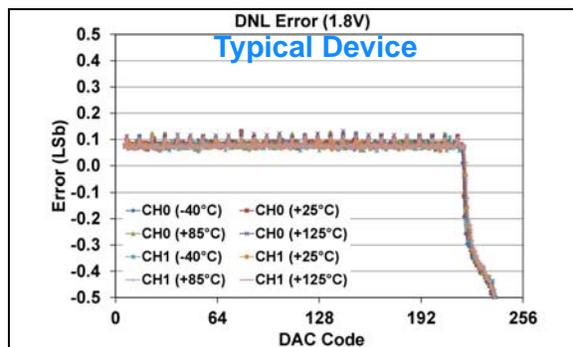


FIGURE 1-561: DNL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**) (8-bit: $V_{DD} = 1.8\text{V}$, $V_{REF} = 1\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)), (see [Appendix B.5](#) for additional information).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 2.048\text{V}$

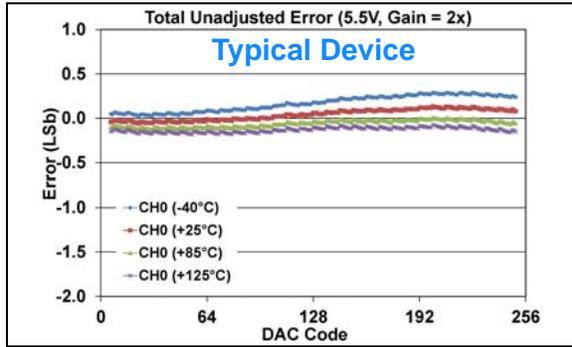


FIGURE 1-562: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB01)
(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

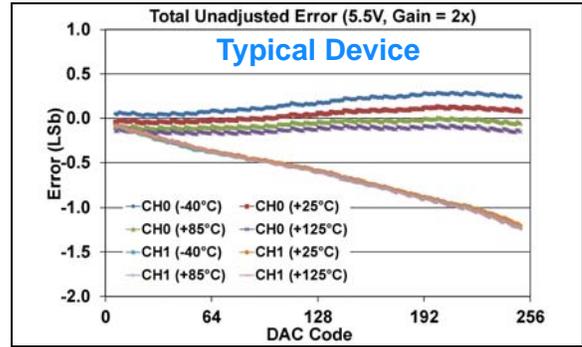


FIGURE 1-565: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB02)
(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

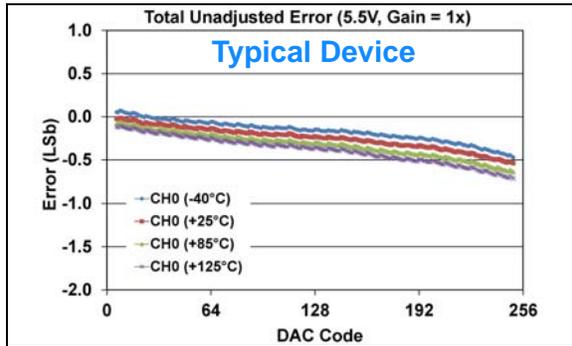


FIGURE 1-563: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB01)
(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

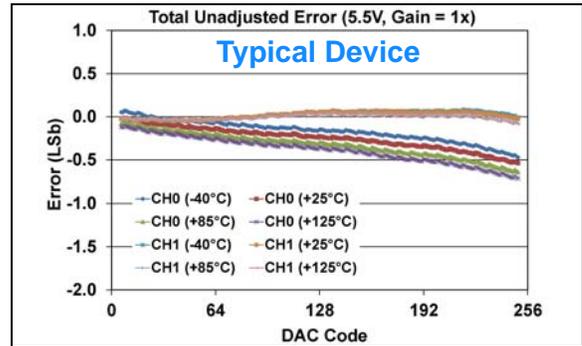


FIGURE 1-566: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB02)
(8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

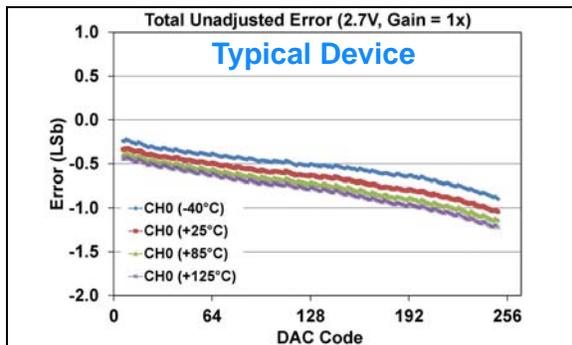


FIGURE 1-564: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Single Channel - MCP48FXB01)
(8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

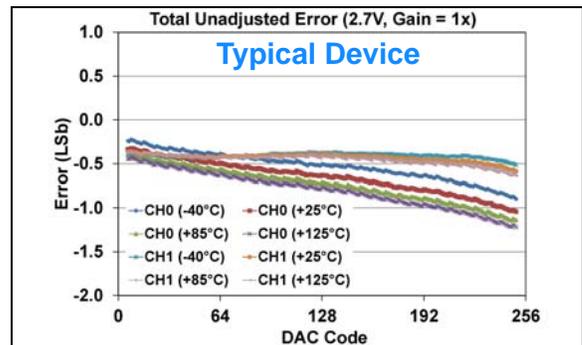


FIGURE 1-567: Total Unadjusted Error (V_{OUT}) vs. DAC Code, and Temperature (Dual Channel - MCP48FXB02)
(8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

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Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 2.048\text{V}$

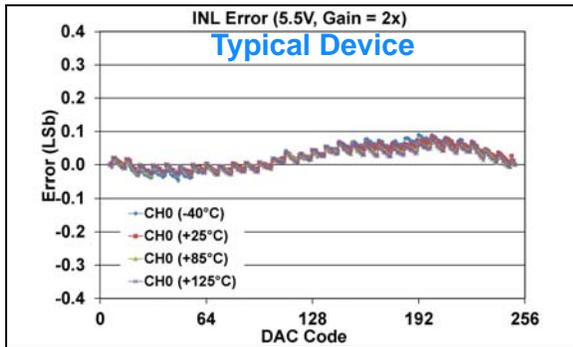


FIGURE 1-568: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**) (8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

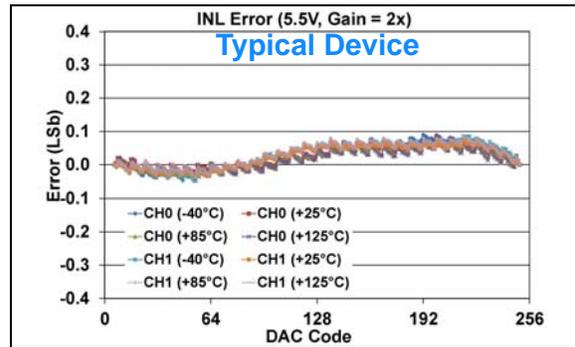


FIGURE 1-571: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**) (8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

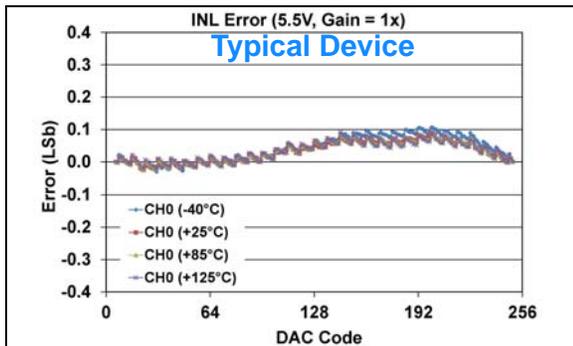


FIGURE 1-569: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**) (8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

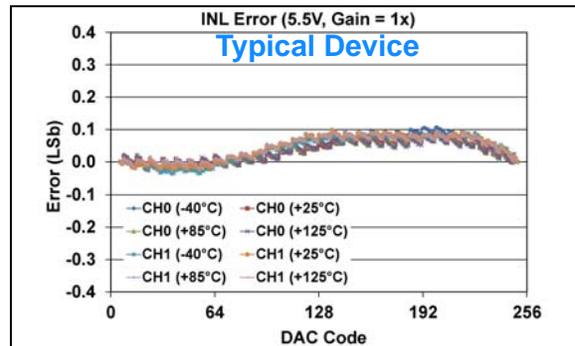


FIGURE 1-572: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**) (8-bit: $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

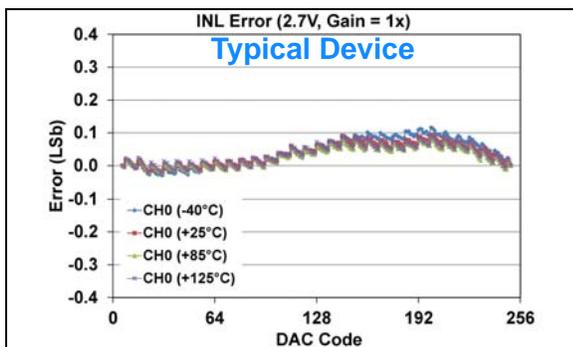


FIGURE 1-570: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Single Channel - **MCP48FXB01**) (8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

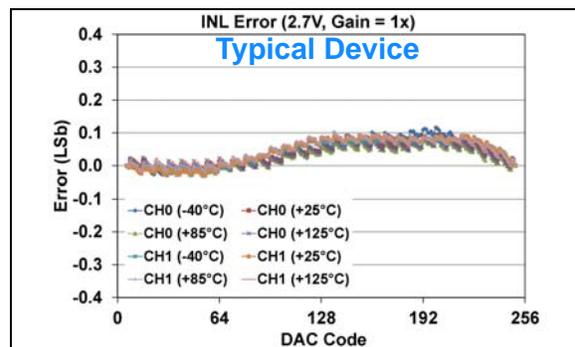


FIGURE 1-573: INL Error vs. DAC Code, and Temperature (Code 6 - 250) (Dual Channel - **MCP48FXB02**) (8-bit: $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

Note: Unless otherwise indicated, $T_A = +25^\circ\text{C}$, $V_{DD} = 5.5\text{V}$.

8-bit: $VRxB:VRxA = '11'$ (V_{REF} Buffered Mode), $V_{REF} = 2.048\text{V}$

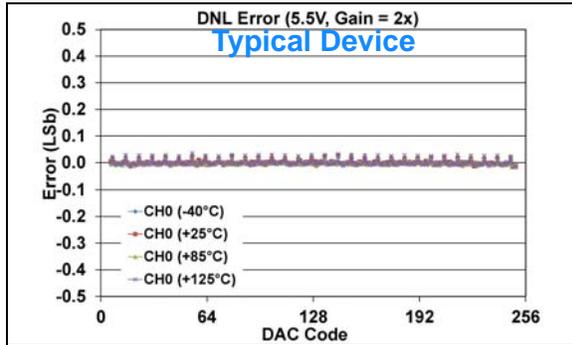


FIGURE 1-574: DNL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Single Channel - **MCP48FXB01**)
(**8-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

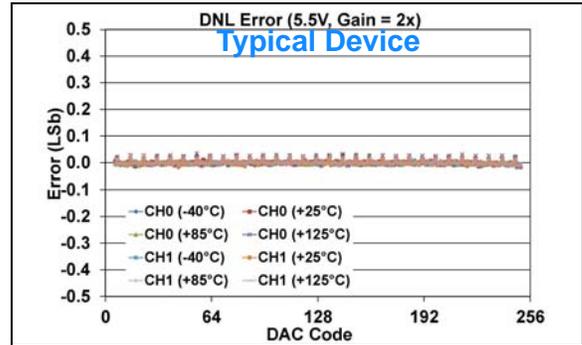


FIGURE 1-577: DNL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Dual Channel - **MCP48FXB02**)
(**8-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '1'$ (2x)).

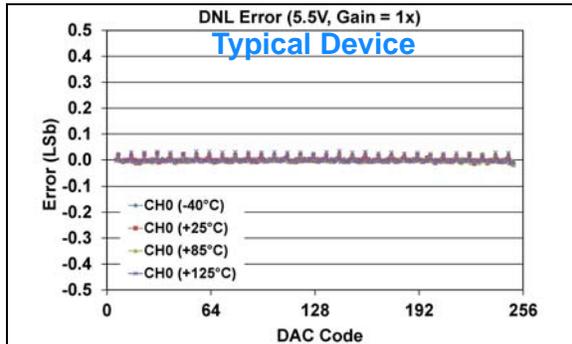


FIGURE 1-575: DNL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Single Channel - **MCP48FXB01**)
(**8-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

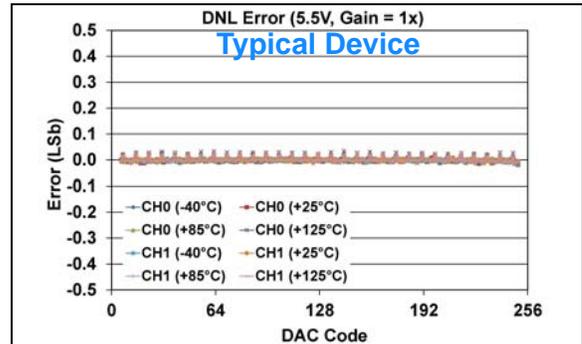


FIGURE 1-578: DNL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Dual Channel - **MCP48FXB02**)
(**8-bit:** $V_{DD} = 5.5\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

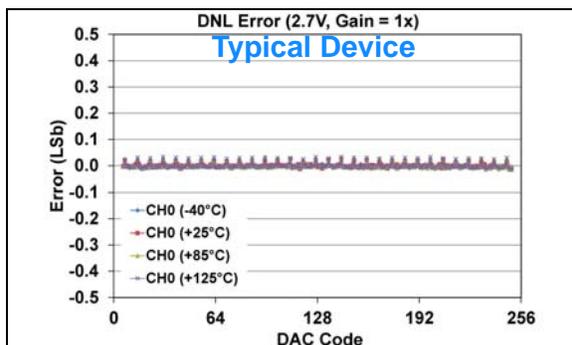


FIGURE 1-576: DNL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Single Channel - **MCP48FXB01**)
(**8-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

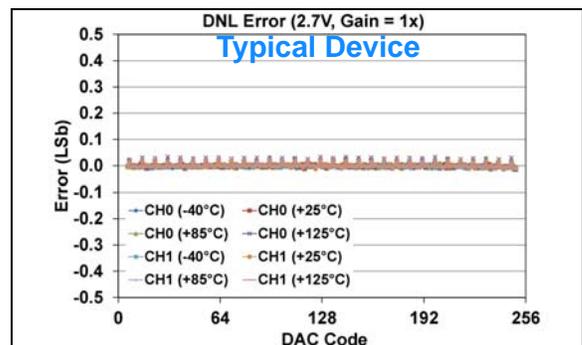


FIGURE 1-579: DNL Error vs. DAC Code, and Temperature (Code 6 - 250)
(Dual Channel - **MCP48FXB02**)
(**8-bit:** $V_{DD} = 2.7\text{V}$, $V_{REF} = 2.048\text{V}$, $VRxB:VRxA = '11'$ (V_{REF} Buffered), $Gx = '0'$ (1x)).

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NOTES:

APPENDIX A: REVISION HISTORY

Revision A (September 2015)

- Original Release of this Document.

APPENDIX B: CHARACTERIZATION GRAPH PERFORMANCE INSIGHTS

This Appendix discusses some of the device's operational performance reflected in the supplied device performance graphs.

The device's performance is calibrated in a single configuration. This factory calibration is in the V_{DD} mode ($VRxB:VRxA = '00'$) at 5V.

An example of this is the observed device performance differences between V_{DD} mode, V_{REF} Unbuffered mode with $V_{REF} = V_{DD}$, and V_{REF} Buffered mode with $V_{REF} = V_{DD}$. In an ideal implementation, the performance would be identical. Due to device circuit implementation differences, there are performance differences that occur. Looking at the Total Unadjusted Error graphs for each mode gives an indication of where the output buffer is no longer operating in the linear region. If this occurs before code 4000, the INL and DNL graphs will reflect this nonlinearity. INL data would be good if calculations were based on an upper code value that is in the linear range.

<p>Note: If output nonlinearity occurs before DAC code 4000, which is indicated by the Total Unadjusted Error curve changing from a straight line, the INL and DNL graphs will reflect this in their graphs as well.</p>

B.1 V_{DD} Mode at $V_{DD} = 1.8V$

At low device voltages (such as 1.8V), the output buffer's performance is degraded. That is, for high DAC register codes, the output voltage is no longer linear. This is shown in the Total Unadjusted Error graph.

Since INL is determined by the measured voltages at code 100 and code 4000, with code 4000 having significant error, the INL graph also reflects that error. If the INL for this data set is calculated with a high code still in the linear region, INL would look similar to the graph at 2.7V.

The device's DNL is also affected once the output buffer is no longer in its linear range.

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B.2 V_{REF} Unbuffered Mode with $V_{REF} = V_{DD}$ and a Gain of 1x at $V_{DD} = 1.8V$

At low device voltages (such as 1.8V), the output buffer's performance is degraded. That is, for high DAC register codes, the output voltage is no longer linear. This is shown in the Total Unadjusted Error graph.

Since INL is determined by the measured voltages at code 100 and code 4000, with code 4000 having significant error, the INL graph also reflects that error. If the INL for this data set is calculated with a high code still in the linear region, INL would look similar to the graph at 2.7V.

The device's DNL is also affected once the output buffer is no longer in its linear range.

B.3 V_{REF} Unbuffered Mode with $V_{REF} = 1V$ and a Gain of 2x at $V_{DD} = 1.8V$

With a V_{REF} of 1V and a Gain of 2x, theoretically, the output would go to 2V. But since V_{DD} is at 1.8V, the output is "clipped". This clipping impacts the graphs for Total Unadjusted Error, INL and DNL. If the INL for this data set is calculated with an upper point that was in the linear region (lower than code 4000), the INL graph would look similar to the 1.8V graph where Gain was set to 1x (in the calculated code range).

B.4 V_{REF} Buffered Mode with $V_{REF} = V_{DD}$ and a Gain of 1x at $V_{DD} = 1.8V$

Due to the V_{REF} input voltage being equal to the device V_{DD} voltage, the V_{REF} input buffer is saturated and the voltage on the resistor ladder is lower than either the V_{DD} mode or the V_{REF} Unbuffered mode.

At low device voltages (such as 1.8V), the output buffer's performance is degraded. That is, for high DAC register codes, the output voltage is no longer linear. This is shown in the Total Unadjusted Error graph.

Due to this decline in the voltage on the resistor ladder, the following occurs:

- Total Unadjusted Error is worse than V_{DD} mode
- The output buffer saturates at a higher code than V_{DD} mode

Since INL is determined by the measured voltages at code 100 and code 4000, with code 4000 having significant error, the INL graph also reflects that error. If the INL for this data set is calculated with a high code still in the linear region, INL would look similar to the graph at 2.7V.

The device's DNL is also affected once the output buffer is no longer in its linear range.

If the widest DAC code range for better INL performance is required, then evaluate this device configuration, but in most cases the V_{DD} mode ($VRxB:VRxA = '00'$) is the suggested device configuration.

B.5 V_{REF} Buffered Mode with $V_{REF} = 1V$ and a Gain of 2x at $V_{DD} = 1.8V$

With a V_{REF} of 1V and a Gain of 2x, theoretically, the output would go to 2V. But since V_{DD} is at 1.8V, the output is "clipped". This clipping impacts the graphs for Total Unadjusted Error, INL and DNL. If the INL for this data set is calculated with an upper point that was in the linear region (lower than code 4000), the INL graph would look similar to the 1.8V graph where Gain was set to 1x (in the calculated code range).

Note the following details of the code protection feature on Microchip devices:

- Microchip products meet the specification contained in their particular Microchip Data Sheet.
- Microchip believes that its family of products is one of the most secure families of its kind on the market today, when used in the intended manner and under normal conditions.
- There are dishonest and possibly illegal methods used to breach the code protection feature. All of these methods, to our knowledge, require using the Microchip products in a manner outside the operating specifications contained in Microchip's Data Sheets. Most likely, the person doing so is engaged in theft of intellectual property.
- Microchip is willing to work with the customer who is concerned about the integrity of their code.
- Neither Microchip nor any other semiconductor manufacturer can guarantee the security of their code. Code protection does not mean that we are guaranteeing the product as “unbreakable.”

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