

NSDEM11XV6T1, NSDEM11XV6T5

Common Cathode Quad Array Switching Diode

This Common Cathode Epitaxial Planar Quad Diode is designed for use in ultra high speed switching applications. This device is housed in the SOT-563 package which is designed for low power surface mount applications, where board space is at a premium.

Features

- Fast t_{rr}
- Low C_D
- Pb-Free Packages are Available

MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	80	Vdc
Peak Reverse Voltage	V_{RM}	80	Vdc
Forward Current	I_F	100	mA dc
Peak Forward Current	I_{FM}	300	mA dc
Peak Forward Surge Current	I_{FSM} (Note 1)	2.0	A dc

THERMAL CHARACTERISTICS

Characteristic (One Junction Heated)	Symbol	Max	Unit
Total Device Dissipation @ $T_A = 25^\circ\text{C}$	P_D	357 (Note 2)	mW
Derate above 25°C		2.9 (Note 2)	mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	350 (Note 2)	$^\circ\text{C}/\text{W}$
Characteristic (Both Junctions Heated)	Symbol	Max	Unit
Total Device Dissipation @ $T_A = 25^\circ\text{C}$	P_D	500 (Note 2)	mW
Derate above 25°C		4.0 (Note 2)	mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	250 (Note 2)	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

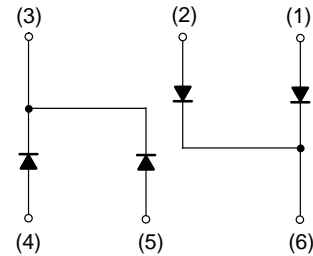
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. $t = 1 \mu\text{s}$
2. FR-4 @ Minimum Pad



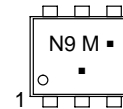
ON Semiconductor®

<http://onsemi.com>



SOT-563
CASE 463A
PLASTIC

MARKING DIAGRAM



N9 = Specific Device Code
M = Date Code
■ = Pb-Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
NSDEM11XV6T1	SOT-563	4000/Tape & Reel
NSDEM11XV6T1G	SOT-563 (Pb-Free)	4000/Tape & Reel
NSDEM11XV6T5	SOT-563	8000/Tape & Reel
NSDEM11XV6T5G	SOT-563 (Pb-Free)	8000/Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

Characteristic	Symbol	Condition	Min	Max	Unit
Reverse Voltage Leakage Current	I_R	$V_R = 70\text{ V}$	–	0.1	μA dc
Forward Voltage	V_F	$I_F = 100\text{ mA}$	–	1.2	Vdc
Reverse Breakdown Voltage	V_R	$I_R = 100\ \mu\text{A}$	80	–	Vdc
Diode Capacitance	C_D	$V_R = 6.0\text{ V}, f = 1.0\text{ MHz}$	–	3.5	pF
Reverse Recovery Time	t_{rr} (Note 3)	$I_F = 5.0\text{ mA}, V_R = 6.0\text{ V}, R_L = 100\ \Omega, I_{rr} = 0.1\ I_R$	–	4.0	ns

3. t_{rr} Test Circuit on following page.

TYPICAL ELECTRICAL CHARACTERISTICS

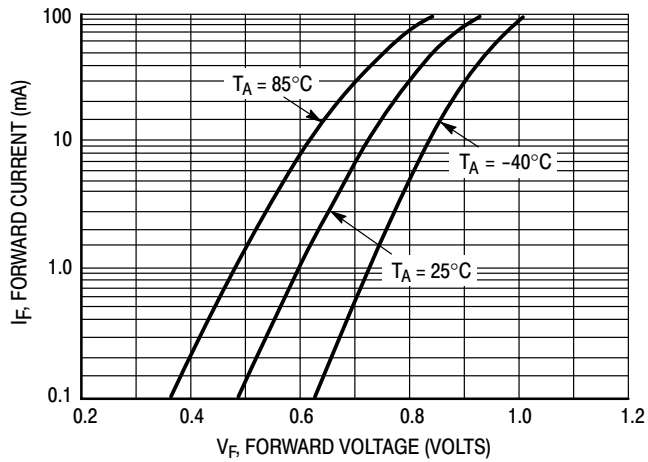


Figure 1. Forward Voltage

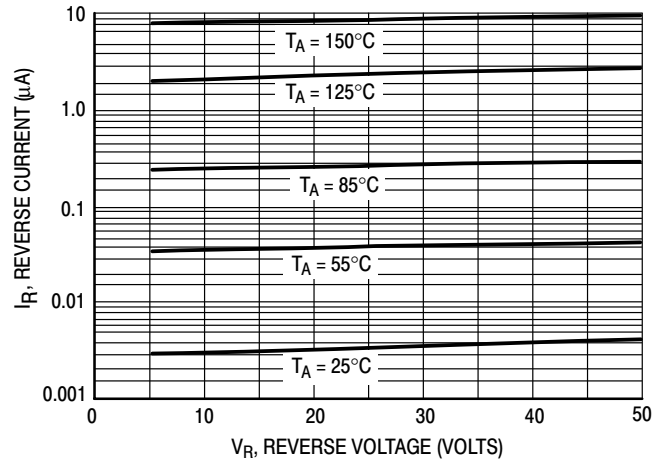


Figure 2. Reverse Current

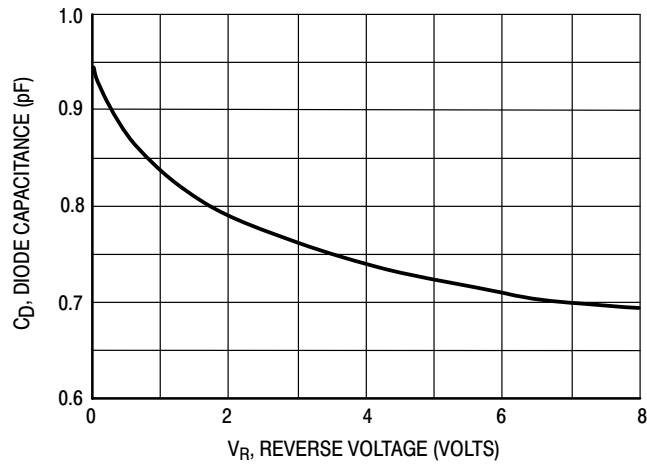
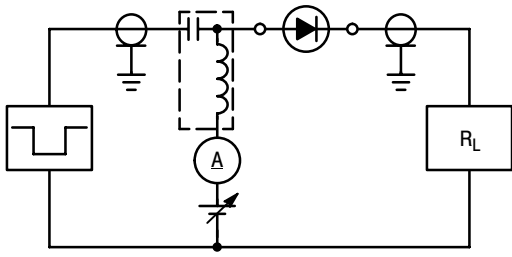
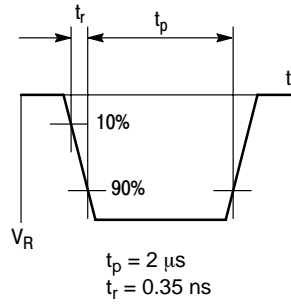


Figure 3. Diode Capacitance

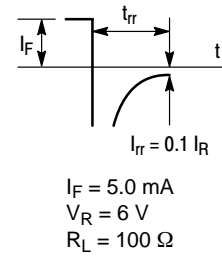
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RECOVERY TIME EQUIVALENT TEST CIRCUIT



INPUT PULSE



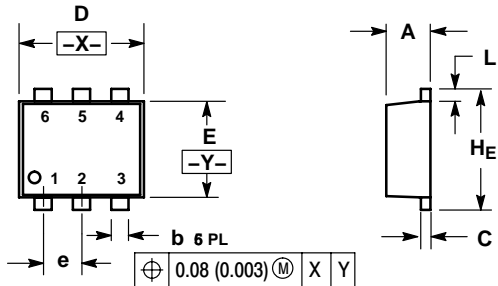
OUTPUT PULSE

Figure 4. Reverse Recovery Time Test Circuit for the NSDEM11XV6T1

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PACKAGE DIMENSIONS

SOT-563, 6 LEAD
CASE 463A-01
ISSUE F

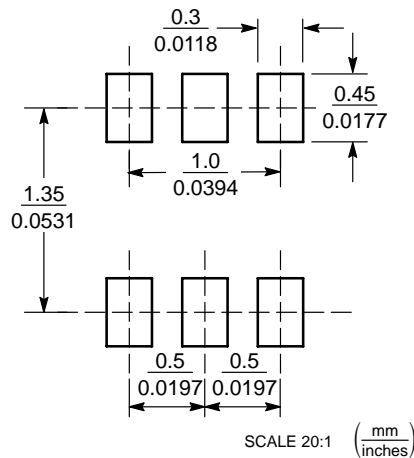


NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.50	0.55	0.60	0.020	0.021	0.023
b	0.17	0.22	0.27	0.007	0.009	0.011
C	0.08	0.12	0.18	0.003	0.005	0.007
D	1.50	1.60	1.70	0.059	0.062	0.066
E	1.10	1.20	1.30	0.043	0.047	0.051
e	0.5 BSC			0.02 BSC		
L	0.10	0.20	0.30	0.004	0.008	0.012
HE	1.50	1.60	1.70	0.059	0.062	0.066

SOLDERING FOOTPRINT*



*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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