



EVAL6924D

EVAL6924D Battery charger system with integrated Power Switch for Li-ION/Li-POLYMER

Data Brief

General description

The L6924D is a fully monolithic battery charger dedicated to single-cell Li-Ion/Polymer battery packs. It is the ideal solution for space-limited applications, like PDAs, handheld equipment, cellular phones, and digital cameras. It is designed with BCD6 technology and integrates all of the power elements (the Power MOSFET, reverse blocking diode and the sense resistor) in a small VFQFPN16 3mm x 3mm package.

When an external voltage regulated wall adapter is used, the L6924D works in Linear Mode, and charges the battery in a Constant Current/Constant Voltage (CC/CV) profile.

Moreover, when a current-limited adapter is used, the device can operate in Quasi-Pulse Mode, dramatically reducing the power dissipation. Regardless of the charging approach, a closed loop thermal control avoids device overheating.

The device has an operating input voltage ranging from 2.5V to 12V and it allows the user to program

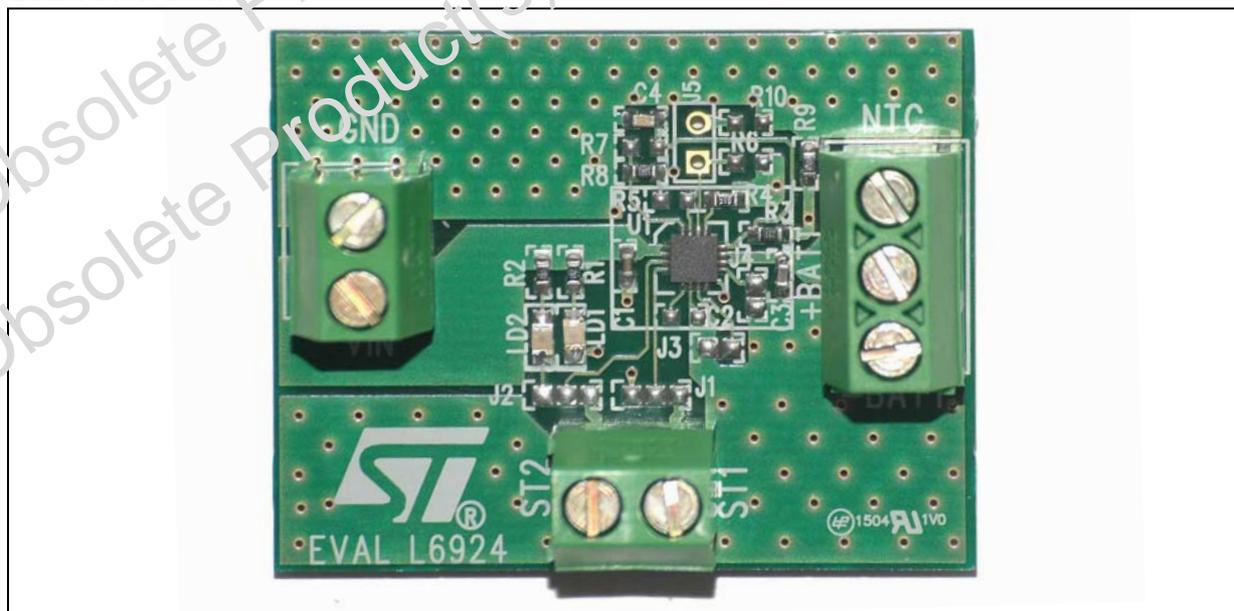
many parameters, such as pre-charge current, fast-charge current, pre-charge voltage threshold, end-of-charge current threshold, and charge timer.

The L6924D offers two open collector outputs for diagnostic purposes, which can be used to either drive two external LEDs or communicate with a host microcontroller. Finally, the L6924D also provides very flexible control of the charge process termination and Gas Gauge capability, as well as other functions, such as checking for battery presence, and monitoring and protecting the battery from unsafe thermal conditions.

The EVAL6924D Evaluation Board integrates the linear battery charger as well as the external components required for a typical application.

The input voltage range can be adjusted between 2.5V and 12V, while the output voltage is selected by $R4$ between 4.1V and 4.2V, depending on the battery type. The fast charge current is set to 500 mA through the 24K $R5$ resistor.

Evaluation board



1 Features

Figure 1. Evaluation board schematic

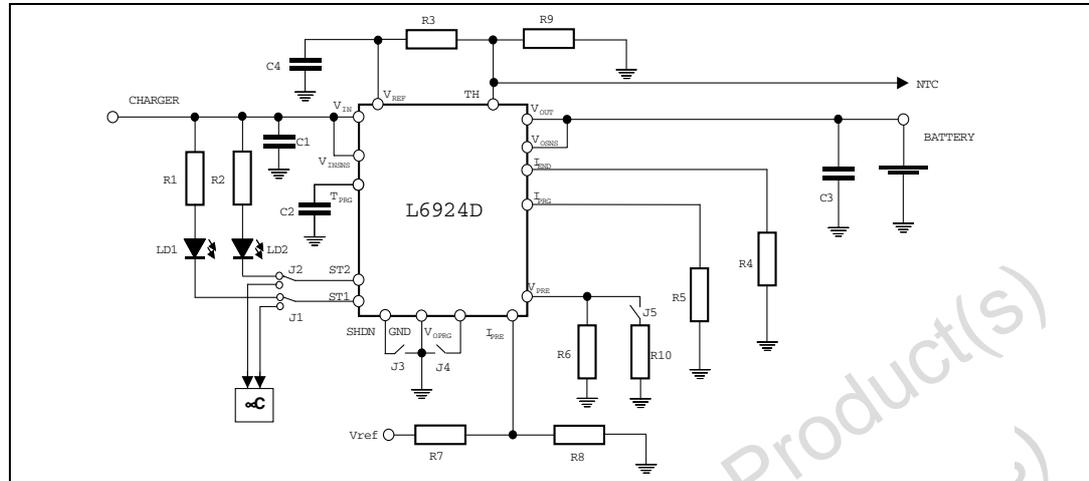
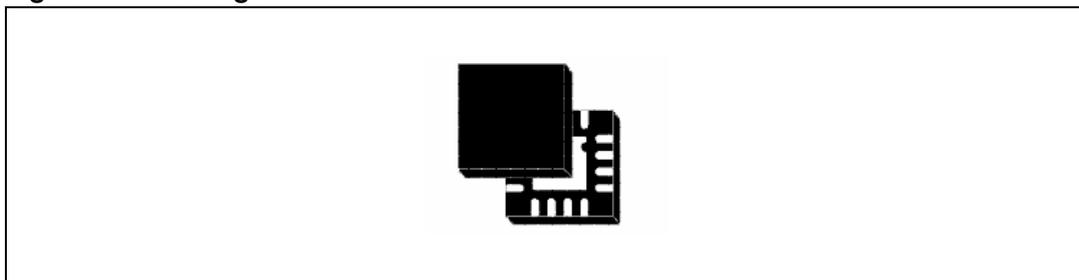


Table 1. Evaluation board part list

Name	Value	Description
R1	1K	Pull up resistor. To be used when the ST1s connected with a LED
R2	1K	Pull up resistor. To be used when the ST1s connected with a LED
R3	1K	Pull up resistor. Connected between V_{REF} and TH pin
R4	3K3	End of charge current resistor. Used to set the termination current and, as a "Gas Gauge" when measuring the voltage across on it.
R5	24K	Fast-charge current resistor. Used to set the charging current
R6	N.M	V_{PRETH} resistor. Used to set programmable pre-charge voltage threshold. If not mounted, the $V_{PRETHDefault}$ equal to 2.8V, is set
R7	N.M	I_{PRETH} resistor. Used to set programmable pre-charge voltage threshold below the default one. If not mounted, the $I_{PRETHDefault}$ is set
R8	68K	I_{PRETH} resistor. Used to set programmable pre-charge current threshold above the default one. If not mounted, the $I_{PRETHDefault}$ is set
R9	470R	If a NTC is not used, a half value of R3 must be mounted to keep the TH voltage in the correct window
R10	N.M	It has the same function of R6. Moreover, if it is replaced with a short-circuit, when J5 is closed, the timer is reset (falling edge)
C1	1 μ F	Input capacitor
C2	10nF	T_{MAX} capacitor. Used to set the maximum charging time
C3	1 μ F	Output capacitor
C4	1 μ F	V_{REF} filter capacitor. Not mounted
LD1	GREEN	ST1 LED

Figure 2. Package - VFQFPN16



2 Revision history

Table 2. Revision history

Date	Revision	Change
21-Nov-2006	1	First issue

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