SWITCH-MODE TWO CELL LI-ION BATTERY CHARGER

DESCRIPTION

The JTMA8512 is a monolithic switching charger for 2-series Li-ion cells battery, It achieves up to 2A charge current with voltage mode PWM step- down (buck) switching architecture.JTMA8512 regulates the battery voltage and charge current with CV(constant voltage) and CC(constant current) loops. Fault condition includes thermal shutdown、time out and output short. Other safety features include battery temperature monitoring and charge status indication. The JTMA8512 is available in 14-pin TSSOP package.

APPLICATIONS

- Handheld Products
- Portable Equipment
- Distributed Power Systems
- Portable DVD Players
- Notebook
- Chargers for 2-cell Lion Batteries

FEATURES

- 100% Maximum Duty Cycle
- 0.5% Charge Voltage Accuracy
- Low 10uA Reverse Battery Drain Current
- Programmable Charge Current Up To 2A
- Fixed 400kHz Frequency
- Build-in Battery Detection
- Suitable For 2-Cell Li-Ion Batteries
- Automatic Battery Recharge
- Soft Start
- Battery Temperature Monitoring
- Thermal Shutdown And Protection
- Status Indication
- 18V Maximum Input Voltage Rating
- Ambient Temperature Range: -20℃～70℃
- 14-Lead TSSOP Package Available

TYPICAL APPLICATION

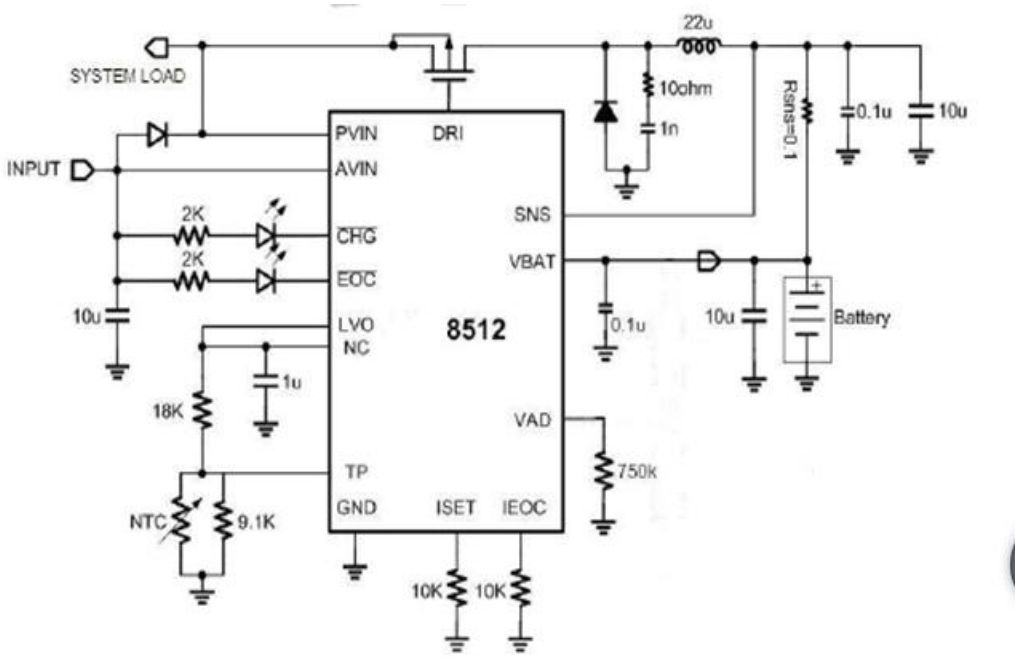

Figure1.JTMA8512 Typical Application

These devices have limited built-in ESD protection. The leads should be shorted together or the device placed in conductive foam during storage or handling to prevent electrostatic damage to the MOS gates.

ORDER INFORMATION

PART NUMBER	PACKAGE	TOP MARKING	TEMPERATURE
JTMA8512A	TSSOP-14	JTMA8512EA	-20℃～70℃

ABSOLUTE MAXIMUM RATING

- Supply Voltage……18V
- Gate Voltage……(VIN-8) to VIN
- BAT,SNS……-0.3V to 12V
- $\overline{CHG}$,$\overline{EOC}$,TP……-0.3V to 3.3V
- ISET,IEOC,LVO……-0.3V to 3.3V
- Operation Temperature Range……-20℃～70℃
- Storage Temperature……-60℃～125℃
- Lead Temperature…… 260℃
- HBM ESD Level..... 2000V

RECOMMENDED OPERATION CONDITIONS

	MIN	NOM	MAX	UNIT
Supply voltage, PVIN and AVIN	9(1)		16(2)	V
Operation Temperature	-20		70	℃

(1) JTMA8512 continues to operate until the supply voltage drop to about 5.5V, but it works abnormally, the status of $\overline{CHG}$ and $\overline{EOC}$ are not right.

(2) The switch noise voltage spikes should not exceed the absolute maximum rating on PVIN and AVIN.

PIN CONFIGURATION

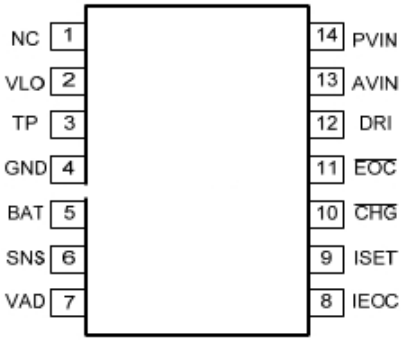

Figure2. JTMA8512 Pin Configuration

TABLE 1: PIN FUNCTIONS

PIN#	NAME	I/O	DESCRIPTION		
1	NC		NC, connected to LVO		
2	LVO	O	Internal linear regulator 3.2V reference output. Bypass to GND with a 1uF ceramic capacitor.		
3	TP	I	Thermistor input. Connect a resistor from this pin to the pin LVO and the Thermistor from this pin to ground.		
4	GND	I	Ground.		
5	BAT	I	Positive battery terminal.		
6	SNS	I	Battery current sense positive input. Connect a resistor Rsns between SNS and VBAT.		
7	VAD	I	PIN for fine tuning of full charge voltage.		
8	IEOC	O	Connect a resistor to ground to set the end-of-charge current.		
9	ISET	O	Connect a resistor to ground to set the CC charge current.		
10	$\overline{CHG}$	O	$\overline{EOC}$	$\overline{CHG}$	DISCRIPTION
			0	0	Charge suspend, no battery exist
			0	1(1)	In charging
11	$\overline{EOC}$	O	1	0	End of charge
			0	50% DUTY	FAULT condition(time out)
			0	50% DUTY	Battery temperature abnormal
12	DRI	O	Gate drive output. Drive output for the external P-channel MOSFET. The voltage at this pin is internally clamped to 8V below supply voltage, allowing a low voltage MOSFET with gate to source breakdown voltage of 8V or less to be used.		
13	AVIN	I	Analog input voltage		
14	PVIN	I	Power input voltage		

(1) “1” means that LED will turn on if connected. Accordingly, “0” means off.