

### DESCRIPTION

The MP26057 is a linear, high performance single cell Li-Ion or Li-Polymer battery charger with on-chip input polarity reverse protection down to -16V. By integrating high voltage input protection into the charger IC, the MP26057 can tolerate an input surge up to 28V.

The device features constant current (CC) and constant voltage (CV) charging modes with programmable charge currents (200mA to 1A), current blocking and trickle charge. The other features include the programmable battery full threshold, termination and auto-recharge. MP26057 provides charger status indication to drive red and green LEDs (tri-color indication). For guaranteed safe operation, the MP26057 limits the die temperature to a preset value when the device is heated up due to limited PCB space. Other safety features are battery temperature monitoring, and programmable timer to prevent prolonged charging a dead battery.

### FEATURES

- Input Surge Up to 28V
- Adapter or USB Input
- Programmable Charge Current: 200mA to 1A
- Proprietary Over-Voltage Protection
- 0.75%  $V_{BATT}$  Accuracy
- Battery Temperature Monitoring
- AC Adapter Power Good Indicator
- Charge Status Indicator
- Battery full terminated control
- Time off control
- Fully assembled and Tested

### APPLICATIONS

- Cell Phones
- MP3 Players
- Smart Phones
- PDAs
- Digital Cameras

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### ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input Voltage	$V_{IN}$	5	V
Charge Current	$I_{CHG}$	0.2-1.0	A

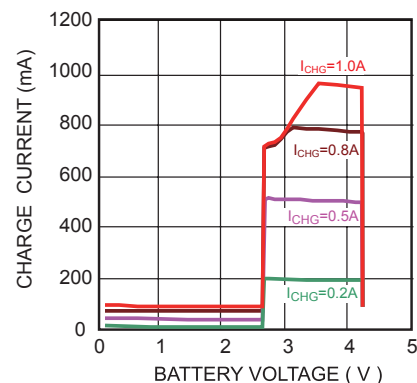
### EV26057DQ-00A EVALUATION BOARD



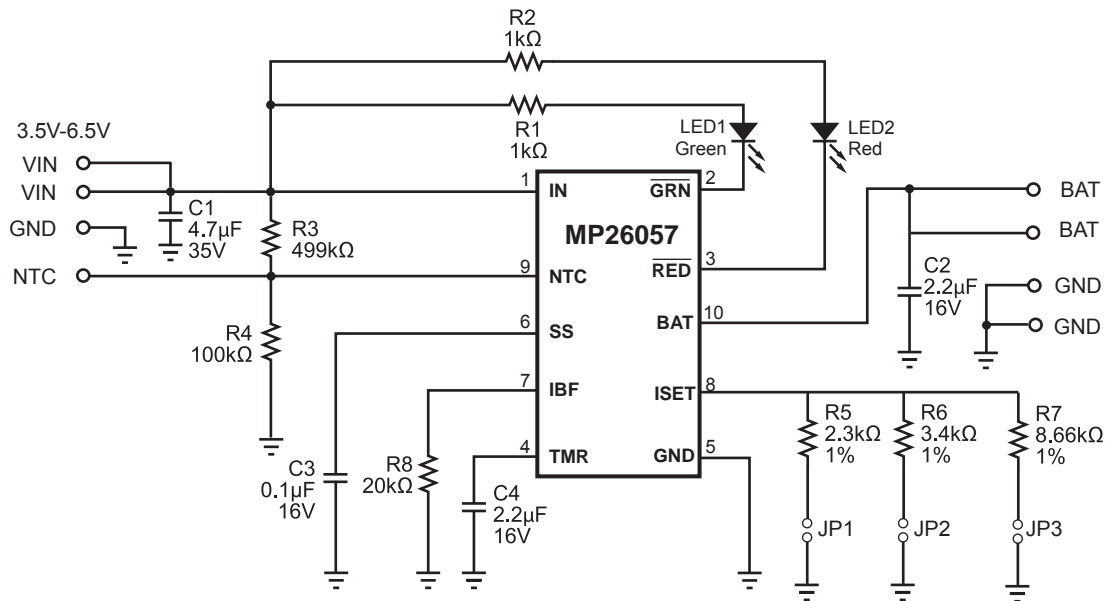
(L x W x H) 2.0" x 1.9" x 0.5"  
5.0cm x 4.8cm x 1.3cm

Board Number	MPS IC Number
EV26057DQ-00A	MP26057DQ

I – V Charge Curve



## EVALUATION BOARD SCHEMATIC



## EV26057DQ-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
1	C1	4.7μF	Ceramic Cap, 35V, X7R	1210	Murata	GRM32ER71H475KA88L
1	C2	2.2μF	Ceramic Cap, 16V, X7R	1206	Murata	GRM316C81C225KA12
1	C3	0.1μF	Ceramic Cap, 16V, X7R	603	TDK	C1608X7R1C104K
1	C4	2.2μF	Ceramic Cap,	805	Murata	GRM219C81C225KA12
1	JP1,2,3		3x2-Pin Connector Header, 0.100"		Molex	10-89-1601
1	LED1		Led Green, Surface Mount	805	Panasonic	LNJ306G5URA
1	LED2		Led Red, Surface Mount	805	Panasonic	LNJ206R5RRX
1	R3	499k	Film Res, 1%	603	Panasonic	ERJ-3EKF4993V
1	R4	100k	Film Res, 1%	603	Panasonic	ERJ-3EKF1003V
2	R1, R2	1K	Film Res, 5%	603	Panasonic	ERJ-3GEYJ102V
1	R5	2.3K	Film Res, 1%	603	Panasonic	ERJ-3EKF2301V
1	R6	3.4K	Film Res, 1%	603	YAGEO	9C06031A3401FKHFT
1	R7	8.66K	Film Res, 1%	603	Panasonic	ERJ-3EKF8661V
1	R8	20K	Film Res, 1%	603	Panasonic	ERJ-3EKF2002V
1	U1		Linear Charger	QFN10	MPS	MP26057DQ

## PRINTED CIRCUIT BOARD LAYOUT

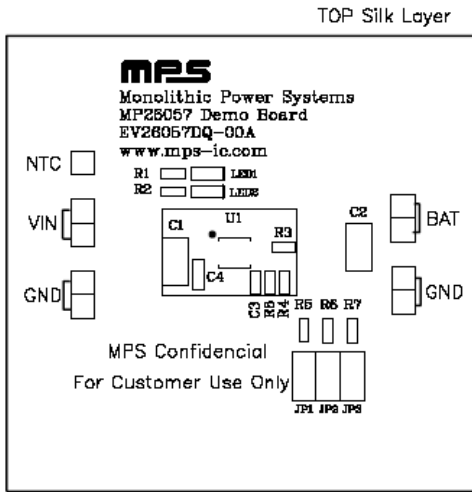


Figure 1—Top Silk Layer

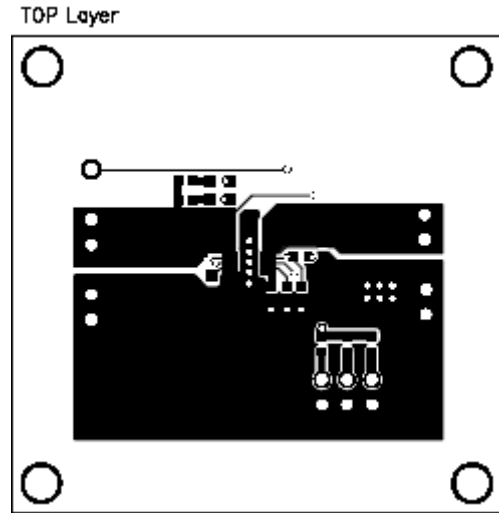


Figure 2—Top Layer

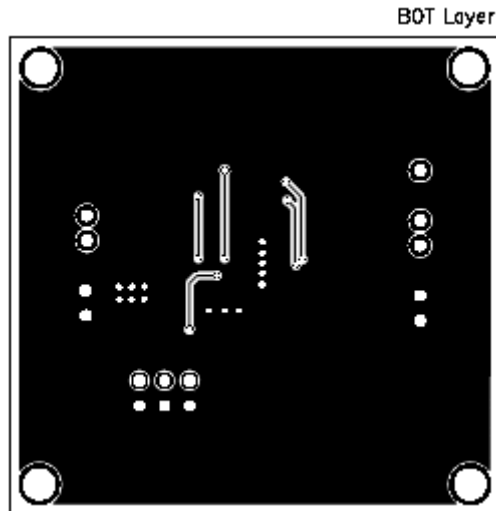


Figure 5—Bottom Layer

## QUICK START GUIDE

The output voltage on this board is preset to 4.2V (for a single cell battery). The board layout accommodates most commonly used capacitors.

The LEDs are charge status indicator are following the table;

LED	Charging	Batt Full & No Battery	VIN>7V	Time Out	Batt Cold
RED	ON	OFF	OFF	FLASHING	OFF
GREEN	OFF	ON	OFF	FLASHING	OFF

1. Set the charge current I<sub>CHG</sub> using the jumpers JP1, JP2, and JP3 per the following table:

JP1	JP2	JP3	I <sub>CHG</sub>
X		X	1000mA
X			800mA
	X	X	700mA
	X		500mA
		X	200mA

Where “X” indicates a connection.

2. Attach the positive and negative ends of the load to the VOUT and GND pins, respectively.
3. Attach the input voltage (VIN=5V) and the input ground to the VIN and GND pins, respectively.
4. Set the battery full threshold I<sub>BF</sub> using R<sub>8</sub>:

$$I_{BF} = \frac{1A \times 1.7k\Omega}{R_8}$$

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