

DESCRIPTION

The EV2605DQ-00A is an evaluation board for the MP2605, a linear, high-performance single cell Li-Ion battery charger.

By integrating high voltage input protection into the charger IC, the MP2605 can tolerate an input surge up to 28V.

The MP2605 features constant current (CC) and constant voltage (CV) charging modes with programmable charge currents (200mA to 1A), Time out control battery full terminated control, thermal protection, battery temperature monitoring, reverse current blocking and trickle charge. The device also provides AC adapter power good and charge status indications to the system.

ELECTRICAL SPECIFICATION

| Parameter | Symbol | Value | Units |
|----------------|-----------|-------|-------|
| Input Voltage | V_{IN} | 5 | V |
| Charge Current | I_{CHG} | 0.8 | A |

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
- Timer off control
- Fully Assembled and Tested

APPLICATIONS

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

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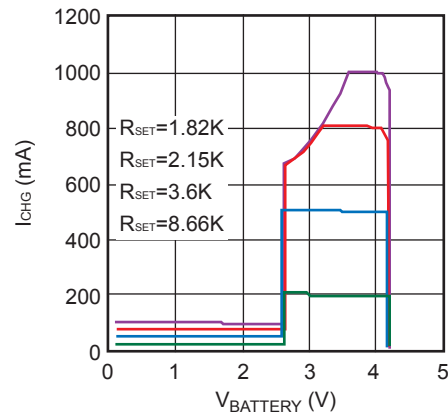
EV2605DQ-00A EVALUATION BOARD



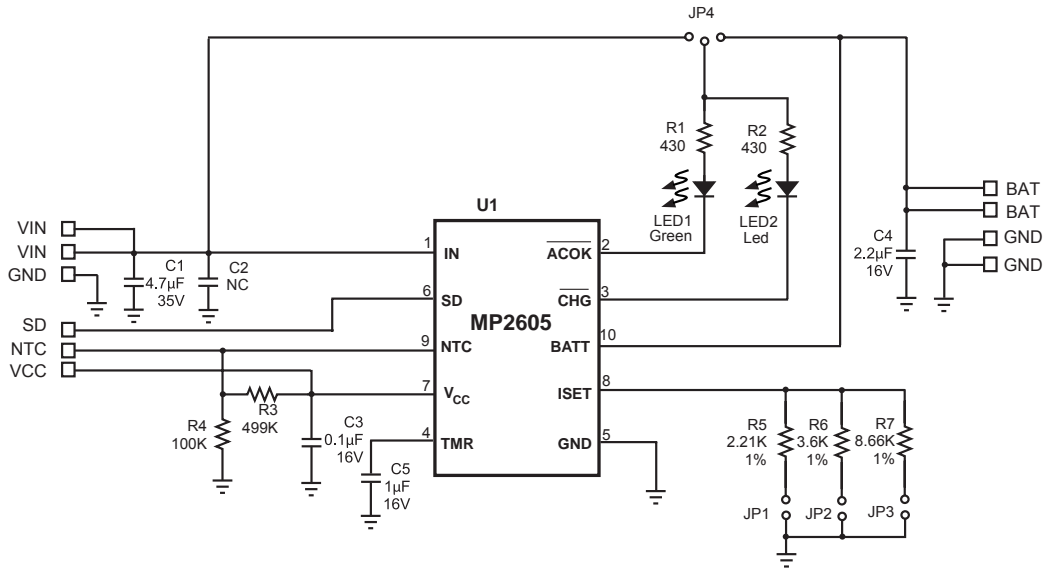
(L x W x H) 2.0" x 1.9" x 0.5"
(5.0cm x 4.8cm x 1.2cm)

| Board Number | MPS IC Number |
|--------------|---------------|
| EV2605DQ-00A | MP2605DQ |

I-V Charge Curve



EVALUATION BOARD SCHEMATIC



EV2605DQ-00A BILL OF MATERIALS

| Qty | Ref | Value | Description | Package | Manufacturer P/N |
|-----|------------------|-------|----------------------------------|---------|---|
| 1 | C1 | 4.7µF | Ceramic Cap, 35V, X7R | 1210 | Murata: GRM32ER71H475KA88L Holystone: C1210B475M035T |
| 1 | C2 | 1µF | Ceramic Cap, 35V, X7R | 1206 | TDK: C3216X7R1H105K |
| 1 | C3 | 0.1µF | Ceramic Cap, 16V, X7R | 0603 | TDK: C1608X7R1C104K |
| 1 | C4 | 2.2µF | Ceramic Cap, 16V, X7R | 1210 | Murata: GRM32MR71C225MC01L |
| 1 | C5 | 1µF | Ceramic Cap, 16V,±10%,X7R | 805 | TDK C2012X7R1C105K |
| 3 | JP1, JP2, JP3 | | 3x2-Pin Connector Header, 0.100" | | Molex 10-89-1601 |
| 1 | JP4 | | 3-Pin Connector Header, 0.100" | | Sullins: PTC03SAAN |
| 1 | LED1 | | Led Green, Surface Mount | 0603 | Lumex: SML-LX0603GW-TR |
| 1 | LED2 | | Led Red, Surface Mount | 0603 | Lumex: SML-LX0603IW-TR |
| 2 | R1, R2 | 430Ω | Film Resistor, 5% | 0603 | Panasonic: ERJ-3GEYJ431V |
| 1 | R3 | 499kΩ | Film Resistor, 1% | 0603 | Panasonic: ERJ-3EKF4993V |

EV2605DQ-00A BILL OF MATERIALS *(continued)*

| Qty | Ref | Value | Description | Package | Manufacturer P/N |
|-----|-----|----------------|-------------------|---------|------------------------------|
| 1 | R4 | 100k Ω | Film Resistor, 1% | 0603 | Panasonic: ERJ-3EKF1003V |
| 1 | R5 | 2.21k Ω | Film Resistor, 1% | 0603 | Panasonic: ERJ-3EKF211V |
| 1 | R6 | 3.6k Ω | Film Resistor, 1% | 0603 | YAGEO 9C06031A3601FKHFT |
| 1 | R7 | 8.66k Ω | Film Resistor, 1% | 0603 | Panasonic: ERJ-3EKF48661V |
| 1 | U1 | | Linear Charger | QFN10 | MPS: MP2605DQ |

PRINTED CIRCUIT BOARD LAYOUT

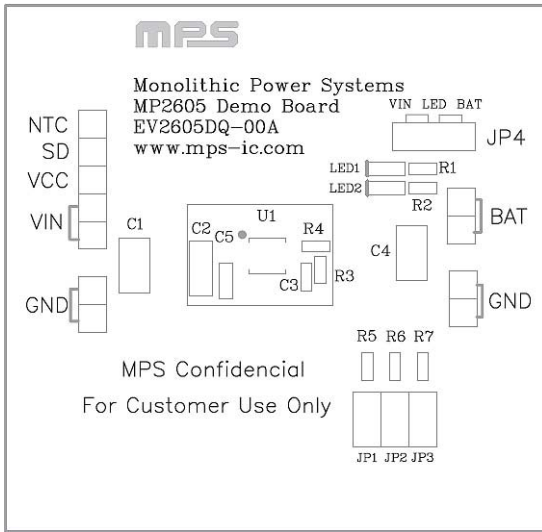


Figure 1—Top Silk Layer

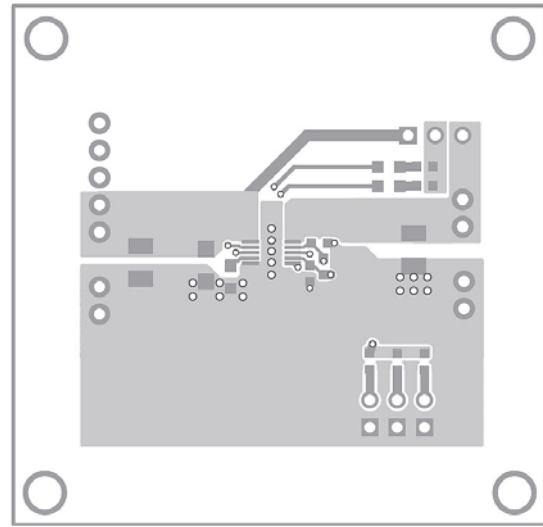


Figure 2—Top Layer

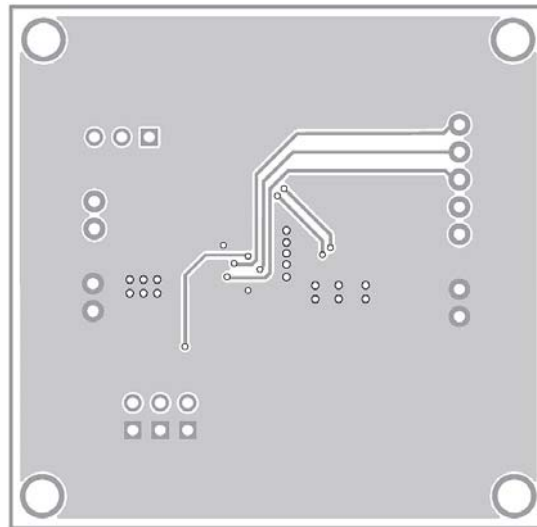


Figure 3—Bottom Layer

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 power indicators. When LED1 is on, the 5V input is present (LED1 is off when the input is disconnected). When LED2 is on, the battery is charging, and when the battery is full or there is no battery connected, LED 2 will turn off.

1. Set the charge current I_{CHG} using the jumpers JP1, JP2 and JP3 per the following table:

| JP1 | JP2 | JP3 | I_{CHG} |
|-----|-----|-----|-----------|
| 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 ($V_{IN}=5V$) and the input ground to the VIN and GND pins, respectively.
4. Set the Timer C5:

$$T(\text{min}) = 196 \times 10^{-6} \times C_5$$

5. Set the LED1 and LED2 input power from the VIN side or BAT side using JP4.

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