

## DESCRIPTION

The EV2617A-L-00A is an evaluation board for MP2617A, a 3A/1.6MHz 1-cell switching charger with power path management.

MP2617A integrates a synchronous BUCK regulator for powering the system output and charging the battery. For USB mode, the input current limit can be programmed to 450mA and 825mA via the logic pins to cover the USB2.0 and USB3.0. For the adapter input, the input current is also limited to avoid overloading the adapter. The value can be programmed up to 3A.

MP2617A regulates the system voltage for powering the external load and charge the battery simultaneously. When the current limit is hit, the system load is satisfied in priority, the charger will take the leavings to charge the battery. Additionally, the smart power path control will make the charge switch as a connection from battery to the system to supplement power the load if the system requirement increases over the input limited power or the input is removed.

## ELECTRICAL SPECIFICATION

| Parameter              | Symbol         | Value      | Units |
|------------------------|----------------|------------|-------|
| Input Voltage          | $V_{IN}$       | 4.5 to 10  | V     |
| Battery Voltage        | $V_{BATT}$     | 0 to 4.35  | V     |
| SYS Voltage            | $V_{SYS}$      | 3.6 to 4.4 | V     |
| Input Current Limit    | $I_{IN}$ Limit | 2          | A     |
| Charge Current         | $I_{CHG}$      | 2          | A     |
| SYS Current            | $I_{SYS}$      | 0-3        | A     |
| $V_{IN}$ Clamp Voltage | $V_{IN}$ Limit | 4.75       | V     |

## FEATURES

- 4V to 10V Operating Input Voltage
- Smart Power Path Management
- Five Control Loops: Input Current Limit, Input Voltage Limit, Constant Charge Current, Terminal Battery Control and Thermal Fold-Back.
- 1.6MHz Switching Frequency
- Programmable Input Current Limit
- Programmable Charge Current
- Single Inputs for USB and AC adapter
- Cover USB2.0 and USB3.0 Input Specification
- Fully Integrated Power Switches
- No External Blocking Diode and Sense Resistor Required
- Charging Operation Indicator
- Built-in Programmable Charging Timer
- Thermal Limiting Regulation on Chip
- Battery Temperature Monitor

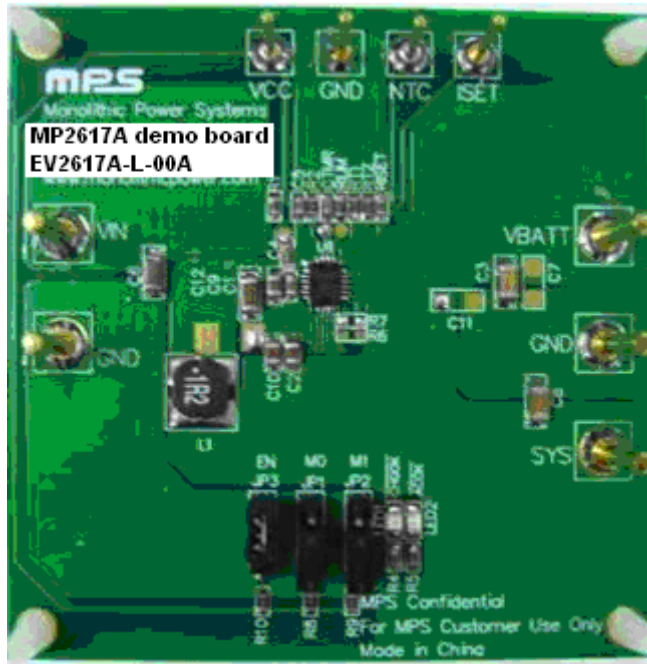
## APPLICATIONS

- Smart Phones
- Portable Hand-Held Terminals
- E-BOOK
- GPS
- TPC
- MIFY

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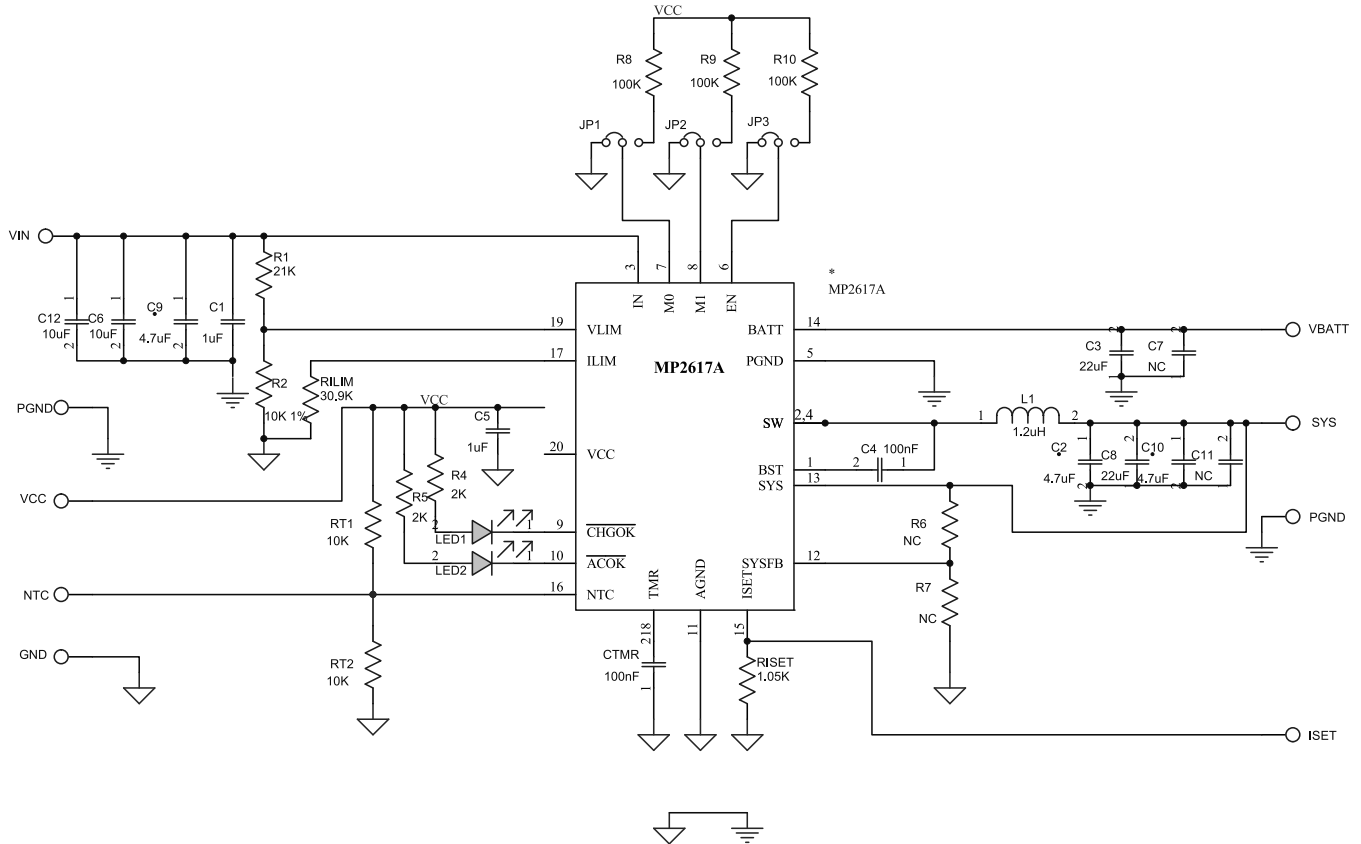
## EV2617A-L-00A EVALUATION BOARD



(L x W x H) 2.48" x 2.48" x 0.063"  
(6.3cm x 6.3cm x 0.16cm)

| Board Number  | MPS IC Number |
|---------------|---------------|
| EV2617A-L-00A | MP2617AGL     |

## EVALUATION BOARD SCHEMATIC



**EV2617A-L-00A BILL OF MATERIALS**

| Qty | Ref                            | Value                 | Description                   | Package | Manufacturer | Manufacturer P/N   |
|-----|--------------------------------|-----------------------|-------------------------------|---------|--------------|--------------------|
| 2   | C1, C5                         | 1 $\mu$ F             | Ceramic Capacitor;<br>25V;X7R | 0603    | muRata       | GRM188R71C105KA12D |
| 3   | C2, C9,<br>C10                 | 4.7 $\mu$ F           | Ceramic Capacitor;<br>25V;X5R | 0805    | muRata       | GRM21BR61C475KA12L |
| 2   | C3, C8                         | 22 $\mu$ F            | Ceramic Capacitor;<br>25V;X7R | 1206    | muRata       | GRM31CR61E226KE15  |
| 2   | C4,<br>CTMR                    | 100nF                 | Ceramic Capacitor;<br>50V;X7R | 0603    | muRata       | GRM188R71H104KA93D |
| 2   | C6, C12                        | 10 $\mu$ F            | Ceramic Capacitor;<br>25V;X5R | 1206    | muRata       | GRM31CR61E106KA12L |
| 2   | C7, C11                        | NC                    |                               |         |              |                    |
| 1   | L1                             | 2.2 $\mu$ H           | Inductor,20mOhm;<br>6.5A      |         | Würth        | 744777002          |
| 1   | LED1                           | BL-<br>HUF35A-<br>TRB | LED;红光;                       | 0805    | BRIGHT LED   | BL-HUF35A-TRB      |
| 1   | LED2                           | BL-<br>HGE35A-<br>TRB | LED;绿色;                       | 0805    | BRIGHT LED   | BL-HGE35A-TRB      |
| 1   | R1                             | 21k                   | Film Resistor;1%;             | 0603    | Yageo        | RC0603FR-0721KL    |
| 1   | R2, RT1,<br>RT2                | 10k                   | Film Resistor;1%;             | 0603    | Yageo        | RC0603FR-0710KL    |
| 2   | R4, R5                         | 2k                    | Film Resistor;1%;             | 0603    | Yageo        | RC0603FR-072KL     |
| 2   | R6, R7                         | NC                    |                               |         |              |                    |
| 3   | R8, R9,<br>R10                 | 100k                  | Film Resistor;5%;             | 0603    | Yageo        | RC0603JR-07100KL   |
| 1   | RILIM                          | 30.9k                 | Film Resistor;1%              | 0603    | Yageo        | RC0603FR-0730K9L   |
| 1   | RISET                          | 1.05k                 | Film Resistor;1%              | 0603    | Yageo        | RC0603FR-071K05L   |
| 1   | U1                             |                       |                               |         | MPS          | MP2617A R7         |
| 5   | VIN,GND,<br>VBATT,V<br>SYS,GND |                       | 2.0 公针                        |         |              |                    |
| 4   | VCC,<br>GND,<br>NTC,<br>ISET   |                       | 1.0 公针                        |         |              |                    |
| 2   | JP1, JP2,<br>JP3               |                       | 2.54mm 排针                     |         |              |                    |

### PRINTED CIRCUIT BOARD LAYOUT

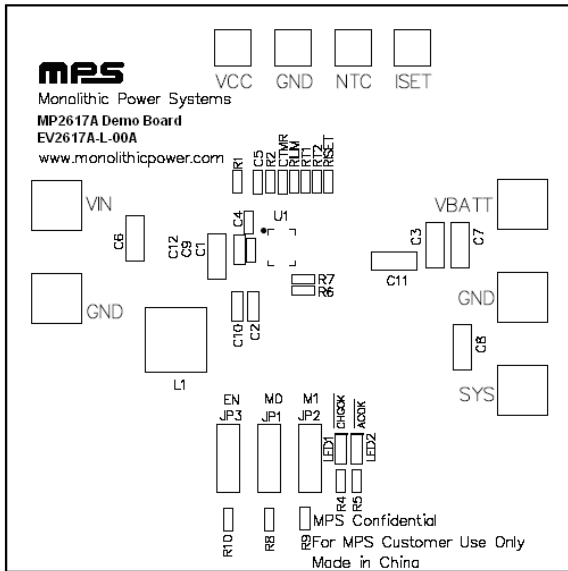


Figure 1— Top Silk Layer

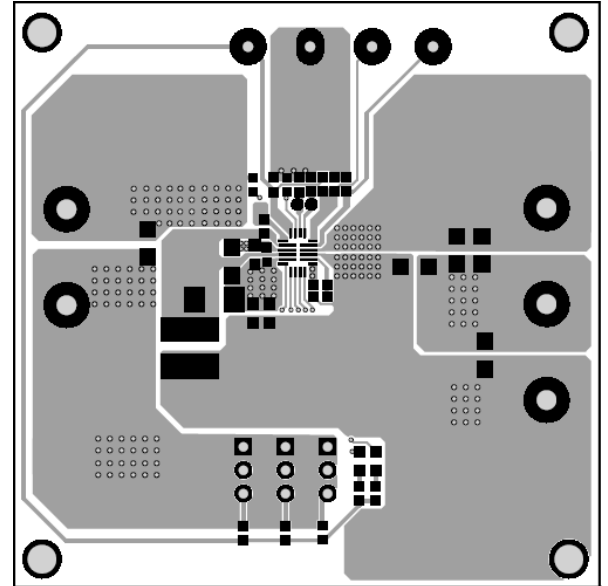


Figure 2—Top Layer

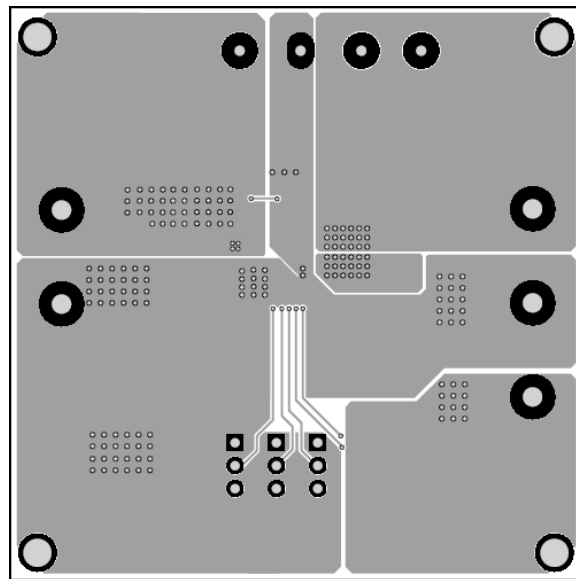


Figure 3—Bottom Layer