

### DESCRIPTION

The EV28115DQ-00C is an evaluation board for the MP28115. The MP28115 delivers 4A continuous load current over an operating input voltage 2.7V to 6.0V. The output is adjustable over a range of 0.8V to 0.9xV<sub>IN</sub> by means of an external resistor from FB pin to ground.

The current mode control used in MP28115 provides fast transient response and cycle-by-cycle current limiting. The EV board will go into hiccup mode to protect against over current/short circuit.

This EV board can be turned on or shut down via a remote ON/OFF input that is referenced to ground. This input is compatible with popular logic devices.

This EV board also has power good indicator. The output of POK is pulled to ground when output voltage is under or over 10% of its setting voltage.

### FEATURES

- 4A Output Current
- 2.7V to 6.0V Operating Input Range
- Built-in Soft Start
- Adjustable Output from 0.8V to 0.9xV<sub>IN</sub>
- Fully Assembled and Tested

### APPLICATIONS

- μP/ASIC/DSP/FPGA Core and I/O Supplies
- Printers and LCD TVs
- Network and Telecom Equipment
- Point of Load Regulators

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### ELECTRICAL SPECIFICATIONS

| Parameter      | Symbol           | Value     | Units |
|----------------|------------------|-----------|-------|
| Input Voltage  | V <sub>IN</sub>  | 2.7 – 6.0 | V     |
| Output Voltage | V <sub>OUT</sub> | 1.8       | V     |
| Output Current | I <sub>OUT</sub> | 4         | A     |

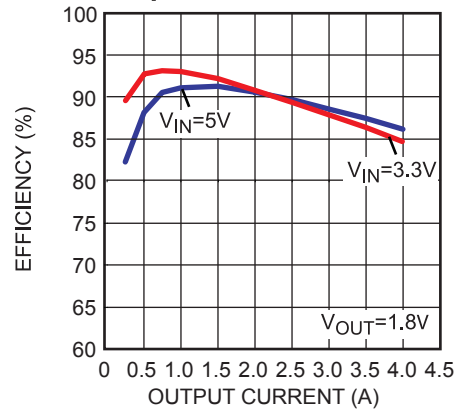
### EV28115DQ-00C EVALUATION BOARD



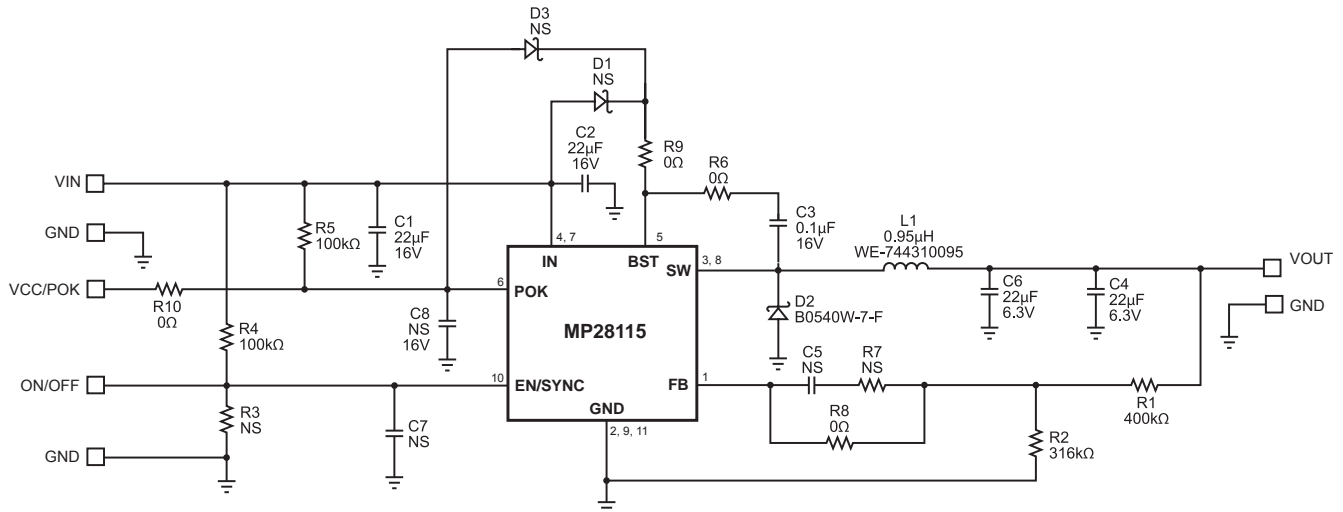
(L x W x H) 2.4" x 2.0" x 0.5"  
(6.1cm x 5.1cm x 1.4 cm)

| Board Number  | MPS IC Number |
|---------------|---------------|
| EV28115DQ-00C | MP28115DQ     |

Efficiency vs. Output Current



## EVALUATION BOARD SCHEMATIC



## EV28115DQ-00C BILL OF MATERIALS

| Qty | Ref             | Value         | Description  | Package     | Manufacturer                  | Manufacturer P/N |
|-----|-----------------|---------------|--|-------------|-------------------------------|------------------|
| 2   | C1, C2          | 22 $\mu$ F    | Ceramic Cap., 16V, X7R   | SMC1210     | Murata                        | GRM32ER71C226K   |
| 1   | C3              | 0.1 $\mu$ F   | Ceramic Cap., 16V, X7R   | SMC0603     | Murata                        | GRM188R71C104K   |
| 2   | C4, C6          | 22 $\mu$ F    | Ceramic Cap., 6.3V, X7R  | SMC1210     | Murata                        | GRM32ER70J226K   |
| 3   | C5, C7, C8      | NS            | Not Stuffed  | SMC0603     |                               |                  |
| 1   | R1              | 400k $\Omega$ | Film Resistor, 1%  | SMR0603     | Yageo                         | RC0603FR-07400KL |
| 1   | R2              | 316k $\Omega$ | Film Resistor, 1%  | SMR0603     | Yageo                         | RC0603FR-07316KL |
| 2   | R4, R5          | 100k $\Omega$ | Film Resistor, 5%  | SMR0603     | Yageo                         | RC0603JR-07100KL |
| 2   | R3, R7          | NS            | Do Not Stuff   | SMR0603     |                               |                  |
| 4   | R6, R8, R9, R10 | 0 $\Omega$    | Film Resistor, 5%  | SMR0603     | Yageo                         | RC0603JR-0700R0L |
| 2   | D1, D3          | NS            | Not Stuffed  | SOD-323     |                               |                  |
| 1   | D2              | 0.5A, 40V     | Schottky Diode   | SOD-123     | Diodes Inc                    | B0540W-7-F       |
| 1   | L1              | 0.95 $\mu$ H  | Inductor, I <sub>SA</sub> =13A, R <sub>DC</sub> =6.4m $\Omega$ | SML 7x7x3mm | Würth Electronics             | WE-744310095     |
| 1   | U1              |               | Step-Down Regulator  | QFN10       | Monolithic Power Systems Inc. | MP28115DQ        |

## PRINTED CIRCUIT BOARD LAYOUT

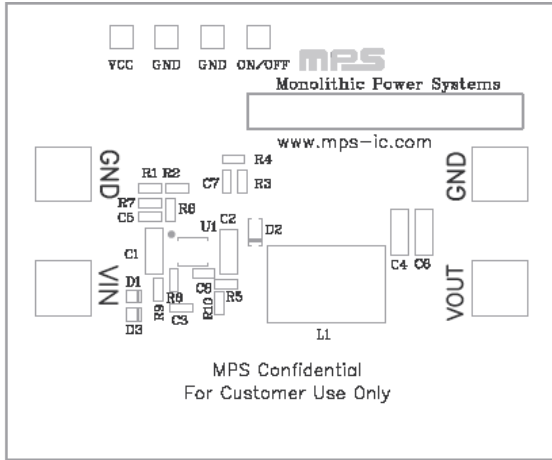


Figure 1—Top Silk Layer

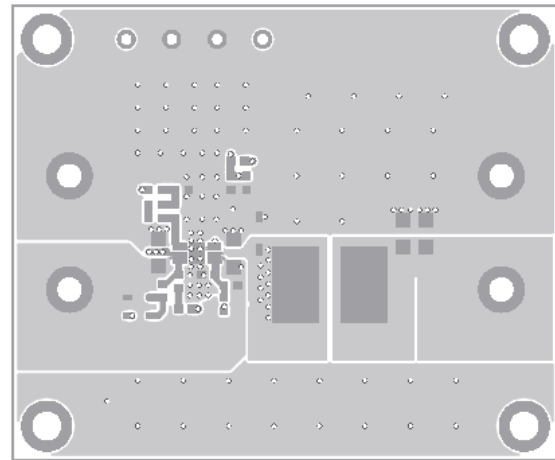


Figure 2—Top Layer

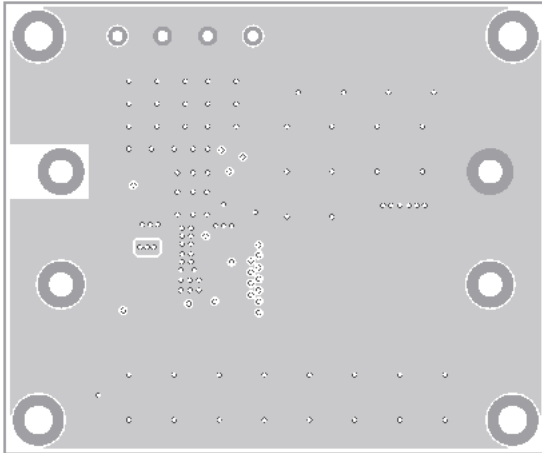


Figure 3—Inner Layer 1

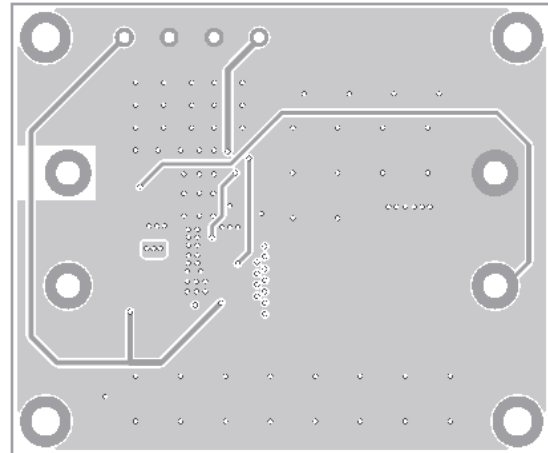


Figure 4—Inner Layer 2

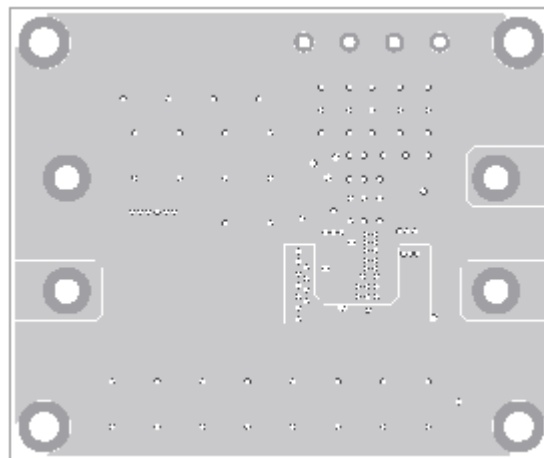


Figure 5—Bottom Layer

## QUICK START GUIDE

1. Connect the positive and negative terminals of the load to the VOUT and GND pins, respectively.
2. Preset the power supply output to 3.3V-6.0V, then turn it off.
3. Connect the positive and negative terminals of the power supply output to the VIN and GND pins, respectively.
4. Turn the power supply on. The EV28115DQ board will automatically startup.
5. To use the Enable function, apply a digital input to the EN pin. Drive EN higher than 1.6V to turn on the regulator, drive EN less than 0.4V to turn it off.
6. Use R1 and R2 to set the output voltage with  $V_{FB} = 0.8V$ . Follow the Application Information section in the device datasheet to select the proper value of R1, R2, inductor and output capacitor values when output voltage is changed.

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