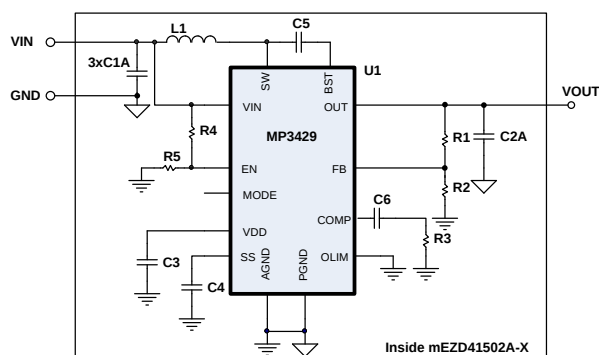




#### mEZ Product Options:

1. Ready-to-Use products
  2. Do-It-Yourself.
- Manufacture assistance is provided



Block Diagram

#### FEATURES

- Up to 13V Input Voltage
- 5V, 12V, 15V Output Options
- 2A Continuous Output Current
- Open Design Files and BOM
- 600kHz Fixed Frequency
- High Efficiency
- Over-Temperature Protection

#### ORDERING INFORMATION

| Part Number  | Input Voltage (V) | Output Voltage (V) | Output Current (A) |
|--------------|-------------------|--------------------|--------------------|
| MEZD41502A-A | 2.7 - 4.2         | 5                  | 2                  |
| MEZD41502A-B | 2.7 - 10          | 12                 | 2                  |
| MEZD41502A-C | 3.4 - 13          | 15                 | 2                  |

#### mEZD4150xA-x FAMILY PRODUCTS

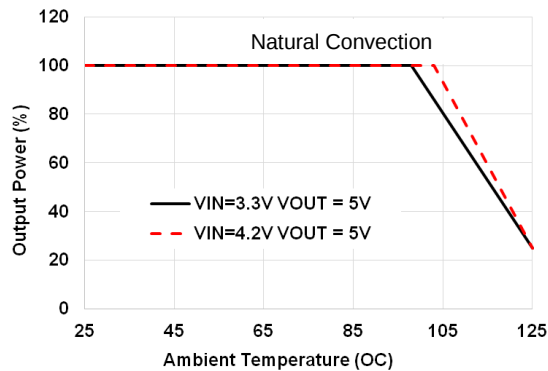
| Part Number  | Input Voltage (V) | Output Voltage (V) | Output Current (A) |
|--------------|-------------------|--------------------|--------------------|
| mEZD41501A-X | 2.7 - 13          | 5, 12, 15          | 1                  |
| mEZD41502A-X | 2.7 - 13          | 5, 12, 15          | 2                  |
| mEZD41503A-X | 2.7 - 10          | 5, 12              | 3                  |

#### ELECTRICAL CHARACTERISTICS

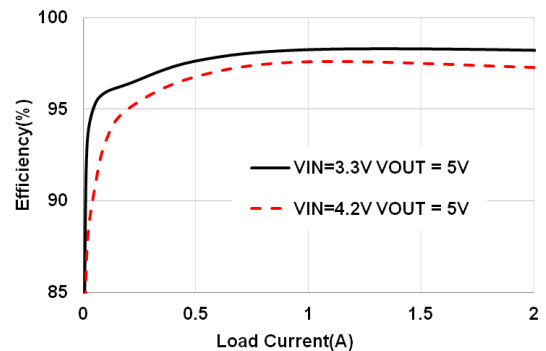
|                             |                                              |                          |
|-----------------------------|----------------------------------------------|--------------------------|
| Input Voltage Range         | mEZD41502A-A                                 | 2.7V to 4.2V             |
|                             | mEZD41502A-B                                 | 2.7V to 10V              |
|                             | mEZD41502A-C                                 | 3.4V to 13V              |
| Output Voltage Set Accuracy |                                              | ±2.2%                    |
| Output Voltage Ripple       | $V_{IN} = 3.3V, V_{OUT} = 5V, I_{OUT} = 2A$  | 27mV (Typ.)              |
|                             | $V_{IN} = 6.6V, V_{OUT} = 12V, I_{OUT} = 1A$ | 60mV (Typ.)              |
|                             | $V_{IN} = 6.6V, V_{OUT} = 15V, I_{OUT} = 1A$ | 90mV (Typ.)              |
| Line Regulation             | $V_{IN}$ from MIN to MAX, $I_{OUT} = 1A$     | ±0.3%                    |
| Load Regulation             | $I_{OUT}$ from MIN to MAX, $V_{IN} = 6.6V$   | ±0.5%                    |
| Efficiency                  | $V_{IN} = 3.3V, V_{OUT} = 5V, I_{OUT} = 2A$  | 97.2%                    |
|                             | $V_{IN} = 6.6V, V_{OUT} = 12V, I_{OUT} = 2A$ | 97.4%                    |
|                             | $V_{IN} = 6.6V, V_{OUT} = 15V, I_{OUT} = 2A$ | 96.7%                    |
| Switching Frequency         | Typical switching frequency                  | 600kHz                   |
| Short-Circuit Protection    | No output short allowed                      | -                        |
| Operating Temperature Range |                                              | 0 to 85°C                |
| Over-Temperature Protection | OTP                                          | 150°C                    |
| Calculated MTBF             | MIL-HDBK-217F                                | 4185x10 <sup>3</sup> hrs |

**TYPICAL PERFORMANCE CURVES**

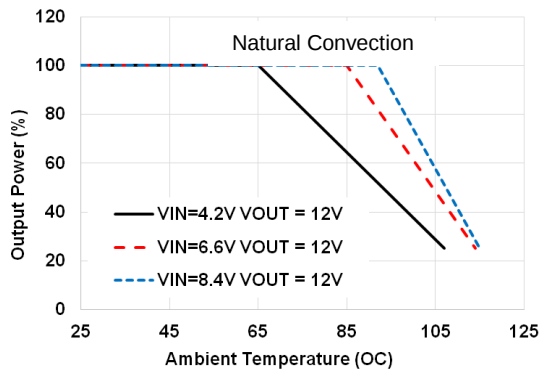
**Power Derating**  
 $V_{IN} = 3.3V$  and  $4.2V$ ,  $V_{OUT} = 5V$



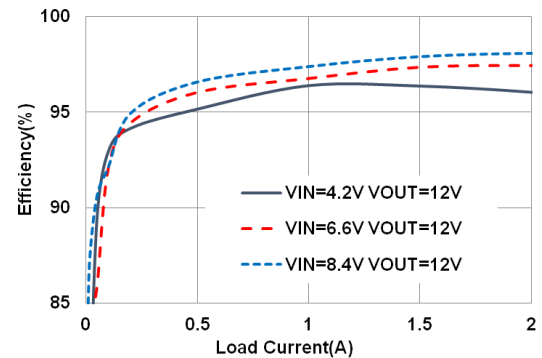
**Efficiency vs. Load Current**  
 $V_{IN} = 3.3V$  and  $4.2V$ ,  $V_{OUT} = 5V$



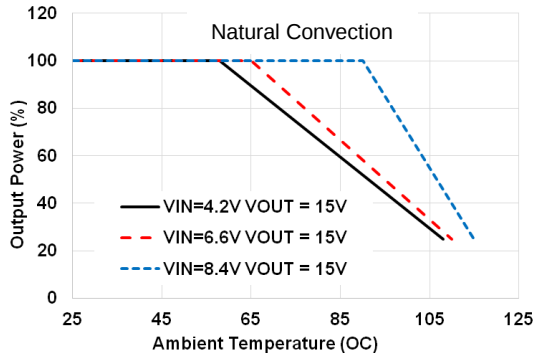
**Power Derating**  
 $V_{IN} = 4.2V$ ,  $6.6V$ , and  $8.4V$ ,  $V_{OUT} = 12V$



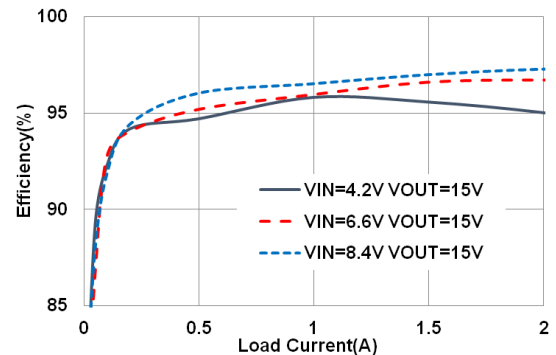
**Efficiency vs. Load Current**  
 $V_{IN} = 4.2V$ ,  $6.6V$ , and  $8.4V$ ,  $V_{OUT} = 12V$



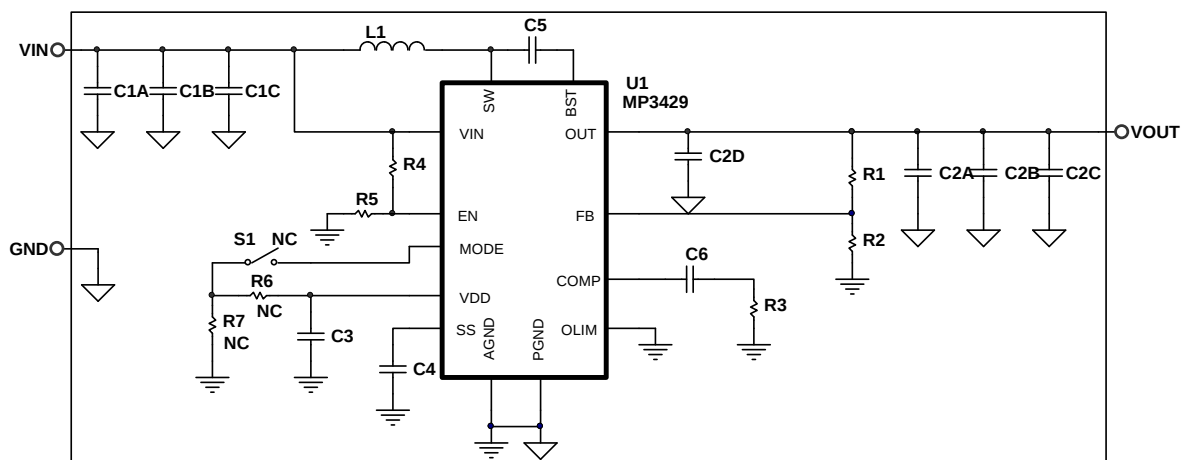
**Power Derating**  
 $V_{IN} = 4.2V$ ,  $6.6V$  and  $8.4V$ ,  $V_{OUT} = 15V$



**Efficiency vs. Load Current**  
 $V_{IN} = 4.2V$ ,  $6.6V$  and  $8.4V$ ,  $V_{OUT} = 15V$



#### DO-IT-YOURSELF SCHEMATIC



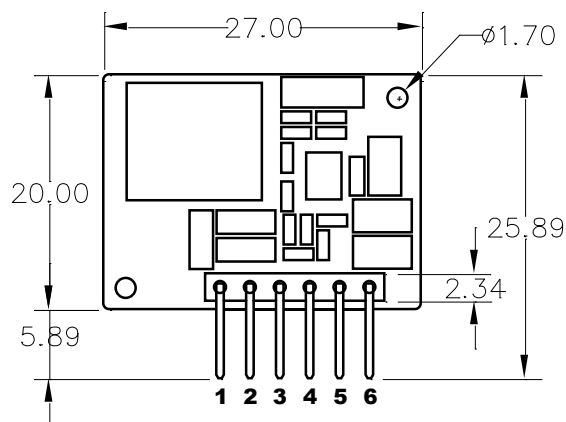
#### BILL OF MATERIALS

| Item | Qty | RefDes        | Value                  | Description                  | Package      | Manufacturer | Manufacturer P/N                         |
|------|-----|---------------|------------------------|------------------------------|--------------|--------------|------------------------------------------|
| 1    | 3   | C1A, C1B, C1C | 22μF                   | Ceramic Cap., 10V, X7R (A)   | 1206         | Murata       | GRM31CR71A226ME15L                       |
|      |     |               |                        | Ceramic Cap., 25V, X7R (B,C) | 1206         | Murata       | GRM31ER71E226KE15L                       |
| 2    | 3   | C2A, C2B, C2C | 22μF                   | Ceramic Cap., 10V, X7R (A)   | 1210         | Murata       | GRM32ER71A226KE20L                       |
|      |     |               |                        | Ceramic Cap., 25V, X7R (B,C) | 1210         | Murata       | GRM32ER71E226KE15L                       |
| 3    | 2   | C2D, C5       | 100nF                  | Ceramic Cap., 25V, X7R       | 0603         | Murata       | GRM188R71E104KA01D                       |
| 6    | 1   | C3            | 4.7μF                  | Ceramic Cap., 6.3V, X5R      | 0603         | Murata       | GRM188R60J475KE19D                       |
| 5    | 1   | C4            | 22nF                   | Ceramic Cap., 25V, X7R       | 0603         | Murata       | GRM188R71E223JA01D                       |
| 7    | 1   | C6            | 8.2nF(A)<br>6.8nF(B,C) | Ceramic Cap., 50V, X7R       | 0603         | Murata       | GRM188R71H822KA01D<br>GRM188R71H682KA01D |
| 8    | 1   | R1            | 750kΩ                  | Film Res, 1%                 | 0603         | YAGEO        | RC0603FR-07750KL                         |
|      |     |               | 187kΩ(A)               |                              |              |              | RC0603FR-07187KL                         |
| 9    | 1   | R2            | 68kΩ(B)<br>53.6kΩ(C)   | Film Res, 1%                 | 0603         | YAGEO        | RC0603FR-0768KL<br>RC0603FR-0753K6L      |
| 10   | 1   | R3            | 3kΩ(A)<br>10kΩ(B,C)    | Film Res, 1%                 | 0603         | YAGEO        | RC0603FR-073KL<br>RC0603FR-0710KL        |
| 11   | 1   | R4            | 30kΩ                   | Film Res, 1%                 | 0603         | YAGEO        | RC0603FR-0730KL                          |
| 12   | 1   | R5            | 34.8kΩ                 | Film Res, 1%                 | 0603         | YAGEO        | RC0603FR-0734K8L                         |
| 13   | 0   | R6, R7        | NC                     |                              |              |              |                                          |
| 14   | 1   | L1*           | 1.5μH                  | Irms = 19A, RDC = 3.3mΩ      | 11.5x10mm    | Sumida       | 104CDMCCDS-1R5MC-ND                      |
| 15   | 0   | S1            | NC                     |                              |              |              |                                          |
| 16   | 1   | U1            | MP3429                 | Boost Converter              | QFN<br>3x4mm | MPS          | MP3429GL                                 |
| 17   | 1   | VIN,VOUT,GND  | Connector              | 6-Pin Connector              | 2.54mm       | Würth        |                                          |

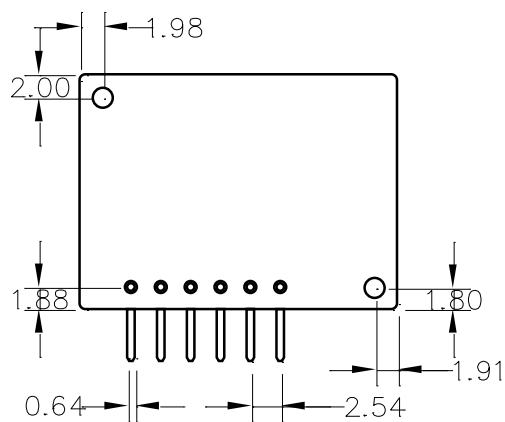
**NOTE:** A, B, C denote this value is specifically for mEZD41502A-A, mEZD41502A-B, mEZD41502A-C respectively.

\* Or equivalent

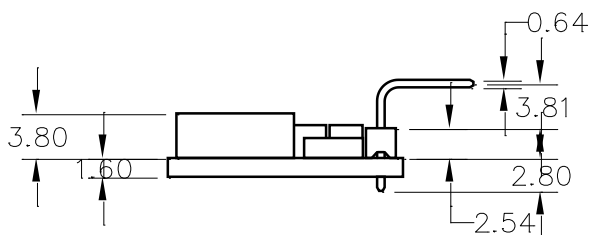
PRODUCT PACKAGE AND DIMENSIONS



**TOP VIEW**



**BOTTOM VIEW**



**SIDE VIEW**

| Pin  | Designation | Function       |
|------|-------------|----------------|
| 1, 2 | VIN         | Input Voltage  |
| 3, 4 | GND         | Power Ground   |
| 5, 6 | VOUT        | Output Voltage |

**NOTE:**

Contact factory for different sizes of the boards (Quantity >2k).

For more information, Gerber files, and PCB layout, please contact [mEZsupport@monolithicpower.com](mailto:mEZsupport@monolithicpower.com)