

# P6AU-xxxxELF



**PEAK**  
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## PMA-SERIES

Rev.11-2008

- ✓ 1 Watt
- ✓ Unregulated
- ✓ **Single** Output
- ✓ **SIP4** Case
- ✓ **1 kV** DC I/O Isolation
- ✓ Low Ripple and Noise

The PMA series P6AU-xxxxELF is a family of cost effective 1 W single output DC/DC converters. These converters are in an ultra miniature SIP4 case. Devices are encapsulated. High performance features: 1000VDC input/output isolation, high efficiency operation, output voltage accuracy of  $\pm 3\%$  maximum, input range of  $\pm 10\%$  tolerance and low output ripple and noise.

All specifications typical at  $T_a=25^\circ\text{C}$ , nominal input voltage and full load unless otherwise specified

### Input Specifications

|                                             |             |
|---------------------------------------------|-------------|
| Voltage Range                               | $\pm 10\%$  |
| Input Filter                                | Capacitors  |
| Input Reflected Ripple Current <sup>1</sup> | 20 mA pk-pk |

### Output Specifications

|                                    |                                                      |
|------------------------------------|------------------------------------------------------|
| Voltage Accuracy                   | $\pm 3\%$                                            |
| Short Circuit Protection           | Short Term                                           |
| Line Regulation                    | $\pm 1.2\% / 1\% V_{in}$ Change                      |
| Load Regulation (20% - 100%)       | $\pm 10\%$ (3.3V <sub>out</sub> Models: $\pm 20\%$ ) |
| Ripple and Noise (20Mhz bandwidth) | 100 mV pk-pk                                         |
| Temperature Coefficient            | $\pm 0.02\% / ^\circ\text{C}$                        |

### General Specifications

|                                             |                   |
|---------------------------------------------|-------------------|
| Efficiency                                  | See Table         |
| I/O Isolation Voltage (3 sec.)              | 1000 VDC          |
| I/O Isolation Capacity                      | 60 pF, typ.       |
| I/O Isolation Resistance                    | 1000 MOhm         |
| Switching Frequency                         | 80 kHz (Variable) |
| Humidity                                    | 95% rel H         |
| Reliability Calculated MTBF (MIL-HDBK-217F) | > 1.121 Mhrs      |

### Physical Specifications

|                  |                                              |
|------------------|----------------------------------------------|
| Case Material    | Non Conductive Black Plastic (UL94V-0 rated) |
| Potting Material | Epoxy (UL94V-0 rated)                        |
| Weight           | ~ 1.5g, typ.                                 |

### Environment Specifications

|                          |                                                              |
|--------------------------|--------------------------------------------------------------|
| Operating Temperature    | -40 to +85 $^\circ\text{C}$ (ambient)                        |
| Maximum Case Temperature | 100 $^\circ\text{C}$                                         |
| Storage Temperature      | -40 to +125 $^\circ\text{C}$                                 |
| Cooling                  | Free Air Convection                                          |
| RoHS Conform             | Soldering 260 $^\circ\text{C}$ , max. (1.5mm from case 10s.) |

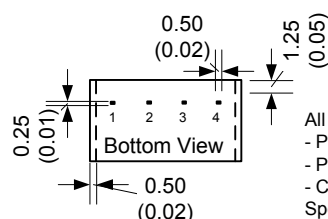
# Selection Guide

## Single Output

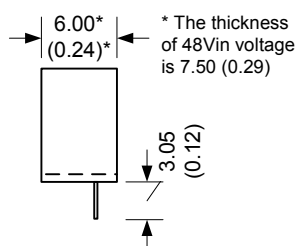
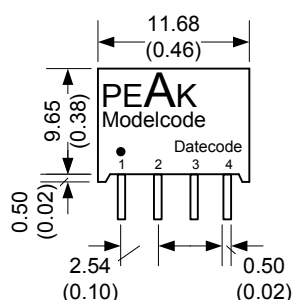
| Order #              | Input Voltage (VDC) | Input Current No Load (mA) | Input Current Full Load (mA) | Output Voltage (VDC) | Output Current Full Load (mA) | Efficiency (%) | Capacitor Load (uF) <sup>2</sup> |
|----------------------|---------------------|----------------------------|------------------------------|----------------------|-------------------------------|----------------|----------------------------------|
| <b>SINGLE OUTPUT</b> |                     |                            |                              |                      |                               |                |                                  |
| P6AU-3R33R3ELF       | 3.3                 | 25                         | 452                          | 3.3                  | 303                           | 67             | 220                              |
| P6AU-3R305ELF        | 3.3                 | 30                         | 415                          | 5                    | 200                           | 73             | 220                              |
| P6AU-053R3ELF        | 5                   | 25                         | 278                          | 3.3                  | 303                           | 72             | 220                              |
| P6AU-0505ELF         | 5                   | 25                         | 267                          | 5                    | 200                           | 75             | 220                              |
| P6AU-057R2ELF        | 5                   | 25                         | 264                          | 7.2                  | 138.8                         | 76             | 220                              |
| P6AU-0509ELF         | 5                   | 25                         | 260                          | 9                    | 111.1                         | 77             | 220                              |
| P6AU-0512ELF         | 5                   | 25                         | 257                          | 12                   | 83.3                          | 78             | 220                              |
| P6AU-0515ELF         | 5                   | 25                         | 257                          | 15                   | 66.67                         | 78             | 220                              |
| P6AU-0518ELF         | 5                   | 25                         | 257                          | 18                   | 55.5                          | 78             | 220                              |
| P6AU-0524ELF         | 5                   | 25                         | 257                          | 24                   | 41.67                         | 78             | 220                              |
| P6AU-123R3ELF        | 12                  | 16                         | 116                          | 3.3                  | 303                           | 72             | 220                              |
| P6AU-1205ELF         | 12                  | 16                         | 112                          | 5                    | 200                           | 75             | 220                              |
| P6AU-127R2ELF        | 12                  | 16                         | 110                          | 7.2                  | 138.8                         | 76             | 220                              |
| P6AU-1209ELF         | 12                  | 16                         | 109                          | 9                    | 111.1                         | 77             | 220                              |
| P6AU-1212ELF         | 12                  | 16                         | 107                          | 12                   | 83.3                          | 78             | 220                              |
| P6AU-1215ELF         | 12                  | 16                         | 107                          | 15                   | 66.67                         | 78             | 220                              |
| P6AU-1218ELF         | 12                  | 16                         | 107                          | 18                   | 55.5                          | 78             | 220                              |
| P6AU-1224ELF         | 12                  | 16                         | 107                          | 24                   | 41.67                         | 78             | 220                              |
| P6AU-243R3ELF        | 24                  | 10                         | 58                           | 3.3                  | 303                           | 72             | 220                              |
| P6AU-2405ELF         | 24                  | 10                         | 56                           | 5                    | 200                           | 75             | 220                              |
| P6AU-247R2ELF        | 24                  | 10                         | 55                           | 7.2                  | 138.8                         | 76             | 220                              |
| P6AU-2409ELF         | 24                  | 10                         | 55                           | 9                    | 111.1                         | 77             | 220                              |
| P6AU-2412ELF         | 24                  | 10                         | 54                           | 12                   | 83.3                          | 78             | 220                              |
| P6AU-2415ELF         | 24                  | 10                         | 54                           | 15                   | 66.67                         | 78             | 220                              |
| P6AU-2418ELF         | 24                  | 10                         | 54                           | 18                   | 55.5                          | 78             | 220                              |
| P6AU-2424ELF         | 24                  | 10                         | 54                           | 24                   | 41.67                         | 78             | 220                              |
| P6AU-483R3ELF        | 48                  | 7                          | 29                           | 3.3                  | 303                           | 72             | 220                              |
| P6AU-4805ELF         | 48                  | 7                          | 28                           | 5                    | 200                           | 75             | 220                              |
| P6AU-487R2ELF        | 48                  | 7                          | 27                           | 7.2                  | 138.8                         | 76             | 220                              |
| P6AU-4809ELF         | 48                  | 7                          | 27                           | 9                    | 111.1                         | 76             | 220                              |
| P6AU-4812ELF         | 48                  | 7                          | 27                           | 12                   | 83.3                          | 76             | 220                              |
| P6AU-4815ELF         | 48                  | 7                          | 27                           | 15                   | 66.67                         | 76             | 220                              |
| P6AU-4818ELF         | 48                  | 7                          | 27                           | 18                   | 55.5                          | 76             | 220                              |
| P6AU-4824ELF         | 48                  | 7                          | 27                           | 24                   | 41.67                         | 76             | 220                              |

If you need other specifications, please enquire.

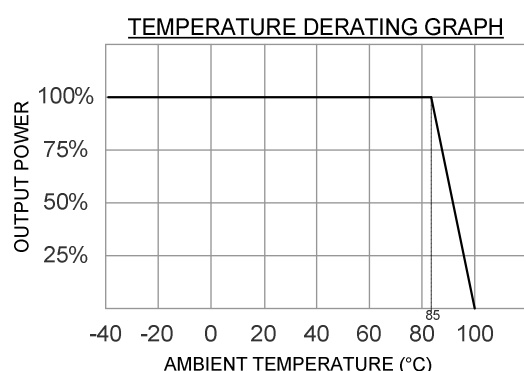
# Package / Pinning / Derating



All dimensions are typical in millimeters (inches).  
 - Pin diameter: 0.5 +/-0.05 (0.02 +/-0.002)  
 - Pin pitch tolerance: +/-0.35 (+/-0.014)  
 - Case tolerance +/-0.5 (+/-0.02)  
 Specification may change without notice.



**SIP4 – PLASTIC CASE**



| PIN CONNECTIONS |        |
|-----------------|--------|
| #               | SINGLE |
| 1               | - Vin  |
| 2               | +Vin   |
| 3               | - Vout |
| 4               | +Vout  |

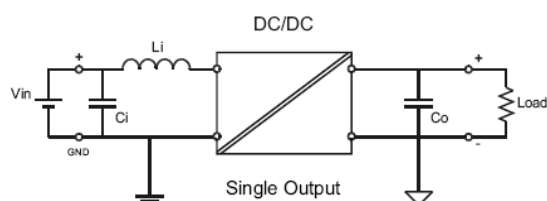
## App Notes:

<sup>1</sup> = Measured Input reflected ripple current with a simulated source inductance of 12uH.

<sup>2</sup> = Tested by minimal Vin and constant resistive load.

- Operation under no-load conditions will not damage these devices, but they will not observe the listed specifications.

- For reduce converter's ripple & noise, it is recommended to add a 4.7μF~100μF capacitor in output end. For EMI performance improvement, it is recommended to add a 12μH inductor and a 10μF~220μF capacitor in input end.



| EMC SPECIFICATIONS |                                 |                    |
|--------------------|---------------------------------|--------------------|
| Radiated Emissions | EN 55022<br>FCC 47CFR Part 15/B | CLASS B<br>CLASS B |
| ESD                | IEC 61000-4-2                   | Perf. Criteria B   |
| RS                 | IEC 61000-4-3                   | Perf. Criteria A   |