

P2IU-xxxxELF



PMA-SERIES

Rev.11-2008

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

The PMA series P2IU-xxxxELF is a family of cost effective 0.25 W single output DC/DC converters. These converters are in an ultra miniature SIP4 case. Devices are encapsulated. High performance features: 3000VDC 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 | Capacitor |
| Input Reflected Ripple Current ¹ | 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 _{out} 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.) | 3000 VDC |
| I/O Isolation Capacity | 60 pF, typ. |
| I/O Isolation Resistance | 1000 M Ohm |
| 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.) |

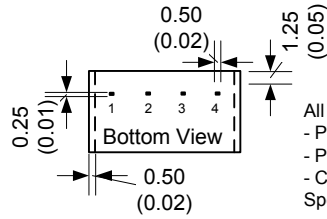
Selection Guide

Single Output

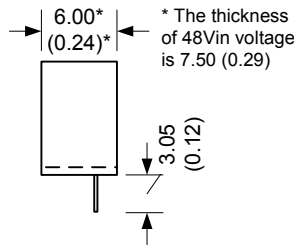
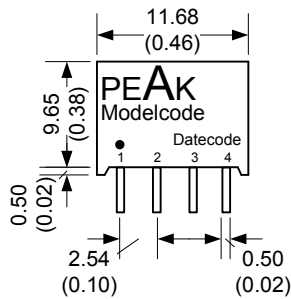
| Order # | Input Voltage (VDC) | Input Current No Load (mA) | Input Current Full Load (mA) | Output Voltage (VDC) | Output Current Full Load (mA) | Efficiency (%) | Capacitor Load (uF) ² |
|----------------------|---------------------|----------------------------|------------------------------|----------------------|-------------------------------|----------------|----------------------------------|
| SINGLE OUTPUT | | | | | | | |
| P2IU-053R3ELF | 5 | 20 | 75 | 3.3 | 75.7 | 66 | 100 |
| P2IU-0505ELF | 5 | 20 | 75 | 5 | 50 | 66 | 100 |
| P2IU-057R2ELF | 5 | 20 | 75 | 7.2 | 34.72 | 66 | 100 |
| P2IU-0509ELF | 5 | 20 | 73 | 9 | 27.77 | 68 | 100 |
| P2IU-0512ELF | 5 | 20 | 73 | 12 | 20.83 | 68 | 100 |
| P2IU-0515ELF | 5 | 20 | 73 | 15 | 16.67 | 68 | 100 |
| P2IU-0518ELF | 5 | 20 | 73 | 18 | 13.88 | 68 | 100 |
| P2IU-0524ELF | 5 | 20 | 71 | 24 | 10.41 | 70 | 100 |
| P2IU-123R3ELF | 12 | 15 | 31 | 3.3 | 75.7 | 66 | 100 |
| P2IU-1205ELF | 12 | 15 | 31 | 5 | 50 | 67 | 100 |
| P2IU-127R2ELF | 12 | 15 | 30 | 7.2 | 34.72 | 68 | 100 |
| P2IU-1209ELF | 12 | 15 | 30 | 9 | 27.77 | 68 | 100 |
| P2IU-1212ELF | 12 | 15 | 30 | 12 | 20.83 | 68 | 100 |
| P2IU-1215ELF | 12 | 15 | 30 | 15 | 16.67 | 69 | 100 |
| P2IU-1218ELF | 12 | 15 | 29 | 18 | 13.88 | 70 | 100 |
| P2IU-1224ELF | 12 | 15 | 28 | 24 | 10.41 | 72 | 100 |
| P2IU-243R3ELF | 24 | 8 | 15 | 3.3 | 75.7 | 67 | 100 |
| P2IU-2405ELF | 24 | 8 | 15 | 5 | 50 | 67 | 100 |
| P2IU-247R2ELF | 24 | 8 | 15 | 7.2 | 34.72 | 67 | 100 |
| P2IU-2409ELF | 24 | 8 | 15 | 9 | 27.77 | 69 | 100 |
| P2IU-2412ELF | 24 | 8 | 15 | 12 | 20.83 | 69 | 100 |
| P2IU-2415ELF | 24 | 8 | 15 | 15 | 16.67 | 69 | 100 |
| P2IU-2418ELF | 24 | 8 | 15 | 18 | 13.88 | 69 | 100 |
| P2IU-2424ELF | 24 | 8 | 15 | 24 | 10.41 | 69 | 100 |
| P2IU-483R3ELF | 48 | 5 | 8.1 | 3.3 | 75.7 | 64 | 100 |
| P2IU-4805ELF | 48 | 5 | 7.8 | 5 | 50 | 66 | 100 |
| P2IU-487R2ELF | 48 | 5 | 7.8 | 7.2 | 34.72 | 66 | 100 |
| P2IU-4809ELF | 48 | 5 | 7.8 | 9 | 27.77 | 66 | 100 |
| P2IU-4812ELF | 48 | 5 | 7.7 | 12 | 20.83 | 67 | 100 |
| P2IU-4815ELF | 48 | 5 | 7.7 | 15 | 16.67 | 67 | 100 |
| P2IU-4818ELF | 48 | 5 | 7.7 | 18 | 13.88 | 67 | 100 |
| P2IU-4824ELF | 48 | 5 | 7.5 | 24 | 10.41 | 69 | 100 |

If you need other specifications, please enquire.

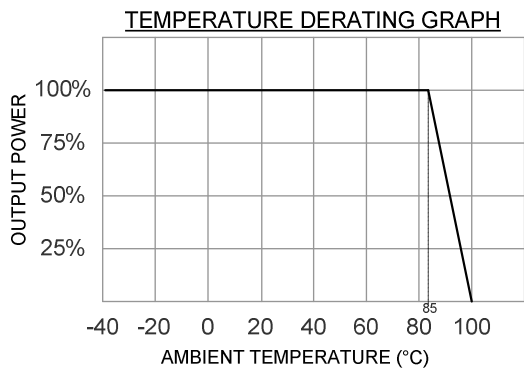
Package / Pinning / Derating



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:

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

² = 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.