

# P3IU-xxxxELF



## PMA-SERIES

Rev.11-2008

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

The PMA series P3IU-xxxxELF is a family of cost effective 0.5 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 <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.)	3000 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 °C (ambient)
Maximum Case Temperature	100 °C
Storage Temperature	-40 to +125 °C
Cooling	Free Air Convection
RoHS Conform	Soldering 260 °C, max. (1.5mm from case 10s.)

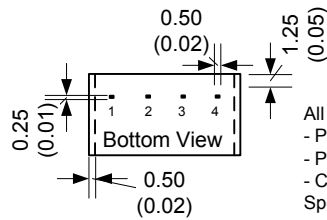
# Selection Guide

## Single Output

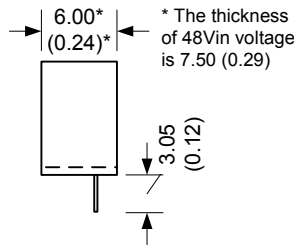
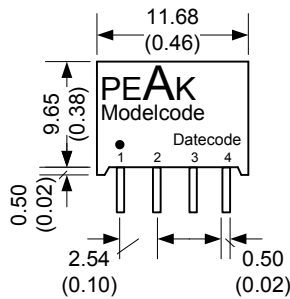
Order #	Input Voltage (VDC)	Input Current No Load (mA)	Input Current Full Load (mA)	Output Voltage (VDC)	Output Current Full Load (mA)	Efficiency (%)	Capacitor Load (uF) <sup>2</sup>
<b>SINGLE OUTPUT</b>							
P3IU-053R3ELF	5	30	134	3.3	151.5	75	100
P3IU-0505ELF	5	30	129	5	100	78	100
P3IU-057R2ELF	5	30	136	7.2	69.44	74	100
P3IU-0509ELF	5	30	134	9	55.55	75	100
P3IU-0512ELF	5	30	132	12	41.67	76	100
P3IU-0515ELF	5	30	132	15	33.33	76	100
P3IU-0518ELF	5	30	134	18	27.77	75	100
P3IU-0524ELF	5	30	139	24	20.83	72	100
P3IU-123R3ELF	12	20	60	3.3	151.5	70	100
P3IU-1205ELF	12	20	56	5	100	74	100
P3IU-127R2ELF	12	20	56	7.2	69.44	74	100
P3IU-1209ELF	12	20	56	9	55.55	75	100
P3IU-1212ELF	12	20	60	12	41.67	70	100
P3IU-1215ELF	12	20	60	15	33.33	70	100
P3IU-1218ELF	12	20	60	18	27.77	70	100
P3IU-1224ELF	12	20	60	24	20.83	70	100
P3IU-243R3ELF	24	10	31	3.3	151.5	67	100
P3IU-2405ELF	24	10	29	5	100	72	100
P3IU-247R2ELF	24	10	31	7.2	69.44	67	100
P3IU-2409ELF	24	10	31	9	55.55	67	100
P3IU-2412ELF	24	10	31	12	41.67	67	100
P3IU-2415ELF	24	10	29	15	33.33	72	100
P3IU-2418ELF	24	10	30	18	27.77	70	100
P3IU-2424ELF	24	10	30	24	20.83	70	100
P3IU-483R3ELF	48	6	17	3.3	151.5	62	100
P3IU-4805ELF	48	6	16	5	100	65	100
P3IU-487R2ELF	48	6	17	7.2	69.44	62	100
P3IU-4809ELF	48	6	17	9	55.55	62	100
P3IU-4812ELF	48	6	17	12	41.67	62	100
P3IU-4815ELF	48	6	17	15	33.33	62	100
P3IU-4818ELF	48	6	17	18	27.77	62	100
P3IU-4824ELF	48	6	17	24	20.83	62	100

If you need other specifications, please enquire.

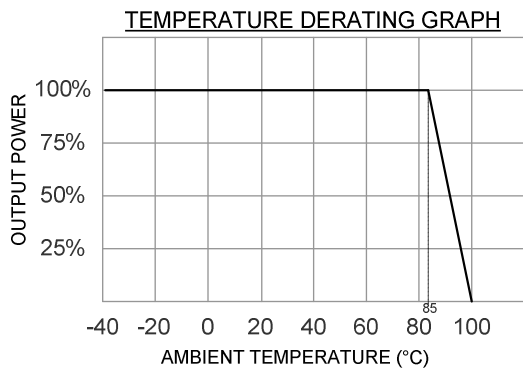
# Package / Pinning / Derating



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**

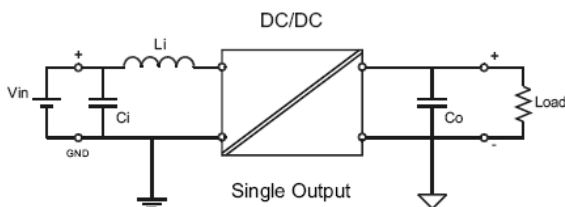


PIN CONNECTIONS	
#	SINGLE
1	- Vin
2	+Vin
3	- Vout
4	+Vout

## App Notes:

- <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 FCC 47CFR Part 15/B	CLASS B CLASS B
ESD	IEC 61000-4-2	Perf. Criteria B
RS	IEC 61000-4-3	Perf. Criteria A