



P6AU-xxxxELF (1kV) P6IU-xxxxELF (3kV)

PMA-SERIES

Rev. 07-2015

- ✓ 1 Watt
- ✓ Unregulated
- ✓ Single Output
- ✓ SIP4 Case
- ✓ 1-3 kV DC I/O Isolation
- ✓ Low Ripple and Noise

The PMA series is a family of cost effective 0.25 – 1.5W single/dual output DC/DC converters. They are encapsulated in an ultra miniature SIP4 (PxAU/IU...) or DIP8 (PxBU/KU...) case. High performance features: 1000-3000Vdc input/output isolation, high efficiency operation, output voltage accuracy of $\pm 3\%$ maximum, input range of $\pm 10\%$ and low output ripple and noise.

All specifications typical at Ta=25°C, nominal input voltage and full load unless otherwise specified

Input Specifications

Voltage Range	$\pm 10\%$
Current max.	27 – 485mA (See table)
Current No-Load	5 – 53mA (See table)
Filter	Capacitors
Reflected Ripple Current (@12uH)	20mA pk-pk

General Specifications

Efficiency	72% - 83% (See table)	
Isolation I/O (60 sec)	1000VDC (P6AU-xxxxELF)	3000VDC (P6IU-xxxxELF)
Isolation I/O Capacitance	60 pF	
Isolation I/O Resistance	1000 M Ω	
Switching Frequency	80 kHz (variable)	
Humidity (rel.)	95%	
MTBF (Calculated MIL-HDBK-217F)	>1.121 Mhrs	
Safety Standard (designed to meet)	IEC 60950-1	

EMC Specifications

Radiated Emissions	EN55022	Class B
Conducted Emissions*	EN55022	Class B
ESD	IEC-61000-4-2	Pref. Criteria A
RS	IEC-61000-4-3	Pref. Criteria A
EFT*	IEC-61000-4-4	Pref. Criteria A
Surge*	IEC-61000-4-5	Pref. Criteria A
CS	IEC-61000-4-6	Pref. Criteria A
PFMF	IEC-61000-4-8	Pref. Criteria A

*Input filter components are required to meet conducted emission class B (see App Note). An external filter capacitor (e.g. 470uF/100V) is required if the module has to meet IEC61000-4-4 and IEC61000-4-5.

Output Specifications

Voltage accuracy	$\pm 3\%$
Line regulation (per 1% Vin change)	$\pm 1.2\%$
Load regulation (20% to 100%)	$\pm 10\%$
	(for 3.3Vout) $\pm 20\%$
Ripple & noise (20 MHz bandwidth)	100 mV pk-pk
Temperature coefficient	$\pm 0.02\%/^{\circ}\text{C}$
Capacitor load (Test: min. Vin + const. load)	220uF

Environment / Physical Specifications

Operation Temp. (Derating)	-40°C to 85°C
Case max.	100°C
Storage	-40°C to 125°C
Cooling	Nature / Free Air
Case Material	Plastic (UL94V-0 rated)
Potting	Epoxy (UL94V-0 rated)
Pin Material	Alloy42 (Solder coated)
Weight	~1.5 g



Order #	Input Voltage (VDC)	Input Current No Load (mA)	Input Current Full Load (mA)	Output Voltage (VDC)	Output Current Full Load (mA)	Efficiency (%)
SINGLE OUTPUT						
P6AU/IU-3R33R3ELF	3.3	25	421	3.3	303	72
P6AU/IU-3R305ELF	3.3	25	394	5	200	77
P6AU/IU-3R37R2ELF	3.3	25	384	7.2	139	79
P6AU/IU-3R309ELF	3.3	30	404	9	111	75
P6AU/IU-3R312ELF	3.3	45	473	12	100	77
P6AU/IU-3R315ELF	3.3	35	384	15	67	79
P6AU/IU-3R318ELF	3.3	35	399	18	56	76
P6AU/IU-3R324ELF	3.3	53	461	24	50	79
P6AU/IU-053R3ELF	5	20	257	3.3	303	78
P6AU/IU-0505ELF	5	25	247	5	200	81
P6AU/IU-057R2ELF	5	16	241	7.2	139	83
P6AU/IU-0509ELF	5	26	250	9	111	80
P6AU/IU-0512ELF	5	25	300	12	100	80
P6AU/IU-0515ELF	5	35	244	15	67	82
P6AU/IU-0518ELF	5	25	247	18	56	81
P6AU/IU-0524ELF	5	35	289	24	50	83
P6AU/IU-123R3ELF	12	15	107	3.3	303	78
P6AU/IU-1205ELF	12	16	105	5	200	79
P6AU/IU-127R2ELF	12	16	100	7.2	139	83
P6AU/IU-1209ELF	12	15	107	9	111	78
P6AU/IU-1212ELF	12	15	125	12	100	80
P6AU/IU-1215ELF	12	15	105	15	67	79
P6AU/IU-1218ELF	12	20	104	18	56	80
P6AU/IU-1224ELF	12	25	123	24	50	81
P6AU/IU-153R3ELF	15	15	89	3.3	303	75
P6AU/IU-1505ELF	15	9	82	5	200	81
P6AU/IU-157R2ELF	15	12	88	7.2	139	76
P6AU/IU-1509ELF	15	10	90	9	111	74
P6AU/IU-1512ELF	15	13	100	12	100	80
P6AU/IU-1515ELF	15	15	84	15	67	79
P6AU/IU-1518ELF	15	12	85	18	56	78
P6AU/IU-1524ELF	15	10	99	24	50	81



Order #	Input Voltage (VDC)	Input Current No Load (mA)	Input Current Full Load (mA)	Output Voltage (VDC)	Output Current Full Load (mA)	Efficiency (%)
P6AU/IU-243R3ELF	24	8	54	3.3	303	77
P6AU/IU-2405ELF	24	8	52	5	200	80
P6AU/IU-247R2ELF	24	10	54	7.2	139	77
P6AU/IU-2409ELF	24	7	54	9	111	77
P6AU/IU-2412ELF	24	8	62	12	100	80
P6AU/IU-2415ELF	24	8	51	15	67	81
P6AU/IU-2418ELF	24	8	52	18	56	80
P6AU/IU-2424ELF	24	9	60	24	50	83
P6AU/IU-483R3ELF	48	6	29	3.3	303	73
P6AU/IU-4805ELF	48	6	28	5	200	74
P6AU/IU-487R2ELF	48	7	27	7.2	139	77
P6AU/IU-4809ELF	48	5	27	9	111	78
P6AU/IU-4812ELF	48	5	32	12	100	77
P6AU/IU-4815ELF	48	5	27	15	67	76
P6AU/IU-4818ELF	48	8	28	18	56	75
P6AU/IU-4824ELF	48	8	31	24	50	80

If you need other specifications, please enquire.

How to Order:

Standard 1 kV Isolation	P6 <u>A</u> U-xxxxELF
Standard 3 kV Isolation	P6 <u>I</u> U-xxxxELF



Package / Pinning / Derating

Bottom View

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.

PEAK Modelcode
Datecode

* The thickness of 48Vin voltage is 7.50 (0.29)

SIP4 – PLASTIC CASE

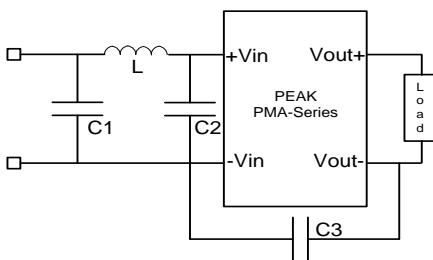
TEMPERATURE DERATING GRAPH

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

App Notes:

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

EMC Typical Recommended Circuit (CLASS B):



Vin	C1	C2	C3	L
3.3	2.2uF/100V	-	-	18uH
5	2.2uF/100V	-	-	18uH
12	2.2uF/100V	-	-	18uH
15	2.2uF/100V	-	-	18uH
24	2.2uF/100V	2.2uF/100V	470pF/2kV	18uH
48	10uF/100V Electrolytic	2.2uF/100V	470pF/2kV	18uH

