PEAK electronics
THE WORLD OF DC/DC-CONVERTERS
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P6BU-xxxxE/Z LF (1kV)
P6KU–xxxxE/Z LF (3kV)

PMA-SERIES **Rev. 07-2015**

- ✓ **1 Watt**
- ✓ Unregulated
- ✓ **Single** or **Dual** Output
- ✓ **DIP8** 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 ±3% maximum, input range of ±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	±10%
Current max.	27 – 485mA (See table)
Current No-Load	5 – 90 mA (See table)
Filter	Capacitors
Reflected Ripple Current (@12uH)	20mA pk-pk

General Specifications

Efficiency	62% - 85% (See table)
Isolation I/O (60 sec)	1000VDC (P6BU-xxxxE/Z LF) 3000VDC (P6KU-xxxxE/Z LF)
Isolation I/O Capacitance	60 pF
Isolation I/O Resistance	1000 MΩ
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	±3%
Line regulation (per 1% Vin change)	±1.2%
Load regulation (20% to 100%)	±10% (for 3.3Vout) ±20%
Ripple & noise (20 MHz bandwidth)	100 mV pk-pk
Temperature coefficient	±0.02%/°C
Capacitor load (Test: min. Vin + const. load)	220uF (Single out) ±100uF (Dual out)

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	Brass (Solder coated)
Weight	~1.8 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						
P6BU/KU-3R33R3ELF	3.3	25	410	3.3	303	74
P6BU/KU-3R305ELF	3.3	25	394	5	200	77
P6BU/KU-3R37R2ELF	3.3	30	404	7.2	139	75
P6BU/KU-3R309ELF	3.3	30	399	9	111	76
P6BU/KU-3R312ELF	3.3	45	485	12	100	75
P6BU/KU-3R315ELF	3.3	25	384	15	67	79
P6BU/KU-3R318ELF	3.3	35	399	18	56	76
P6BU/KU-3R324ELF	3.3	90	485	24	50	75
P6BU/KU-053R3ELF	5	16	256	3.3	303	78
P6BU/KU-0505ELF	5	15	253	5	200	79
P6BU/KU-057R2ELF	5	16	241	7.2	139	83
P6BU/KU-0509ELF	5	25	253	9	111	79
P6BU/KU-0512ELF	5	25	296	12	100	81
P6BU/KU-0515ELF	5	25	244	15	67	82
P6BU/KU-0518ELF	5	25	241	18	56	83
P6BU/KU-0524ELF	5	28	293	24	50	82
P6BU/KU-123R3ELF	12	15	108	3.3	303	77
P6BU/KU-1205ELF	12	16	105	5	200	79
P6BU/KU-127R2ELF	12	16	100	7.2	139	83
P6BU/KU-1209ELF	12	15	105	9	111	79
P6BU/KU-1212ELF	12	8	125	12	100	80
P6BU/KU-1215ELF	12	17	105	15	67	79
P6BU/KU-1218ELF	12	15	103	18	56	81
P6BU/KU-1224ELF	12	25	127	24	50	79
P6BU/KU-153R3ELF	15	15	89	3.3	303	75
P6BU/KU-1505ELF	15	10	83	5	200	80
P6BU/KU-157R2ELF	15	12	88	7.2	139	76
P6BU/KU-1509ELF	15	10	85	9	111	78
P6BU/KU-1512ELF	15	13	98	12	100	82
P6BU/KU-1515ELF	15	15	83	15	67	80
P6BU/KU-1518ELF	15	12	85	18	56	78
P6BU/KU-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 (%)
P6BU/KU-243R3ELF	24	8	53	3.3	303	79
P6BU/KU-2405ELF	24	8	53	5	200	79
P6BU/KU-247R2ELF	24	10	56	7.2	139	74
P6BU/KU-2409ELF	24	7	53	9	111	79
P6BU/KU-2412ELF	24	8	63	12	100	80
P6BU/KU-2415ELF	24	8	52	15	67	80
P6BU/KU-2418ELF	24	8	51	18	56	82
P6BU/KU-2424ELF	24	9	61	24	50	82
DUAL OUTPUT						
P6BU/KU-3R33R3ZLF	3.3	30	489	±3.3	±152	62
P6BU/KU-3R305ZLF	3.3	35	481	±5	±100	63
P6BU/KU-3R37R2ZLF	3.3	30	481	±7.2	±69	63
P6BU/KU-3R309ZLF	3.3	30	466	±9	±56	65
P6BU/KU-3R312ZLF	3.3	32	543	±12	±50	67
P6BU/KU-3R315ZLF	3.3	32	452	±15	±33	67
P6BU/KU-3R318ZLF	3.3	32	439	±18	±28	69
P6BU/KU-3R324ZLF	3.3	32	439	±24	±25	69
P6BU/KU-053R3ZLF	5	15	299	±3.3	±152	67
P6BU/KU-0505ZLF	5	20	270	±5	±100	74
P6BU/KU-057R2ZLF	5	15	260	±7.2	±69	77
P6BU/KU-0509ZLF	5	20	260	±9	±56	77
P6BU/KU-0512ZLF	5	22	300	±12	±50	80
P6BU/KU-0515ZLF	5	20	247	±15	±33	81
P6BU/KU-0518ZLF	5	22	244	±18	±28	82
P6BU/KU-0524ZLF	5	20	300	±24	±25	85
P6BU/KU-123R3ZLF	12	10	121	±3.3	±152	69
P6BU/KU-1205ZLF	12	7	110	±5	±100	76
P6BU/KU-127R2ZLF	12	15	109	±7.2	±69	76
P6BU/KU-1209ZLF	12	15	109	±9	±56	78
P6BU/KU-1212ZLF	12	12	123	±12	±50	81
P6BU/KU-1215ZLF	12	10	102	±15	±33	82
P6BU/KU-1218ZLF	12	15	103	±18	±28	81

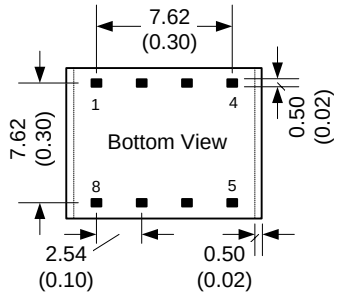
Order #	Input Voltage (VDC)	Input Current No Load (mA)	Input Current Full Load (mA)	Output Voltage (VDC)	Output Current Full Load (mA)	Efficiency (%)
P6BU/KU-1224ZLF	12	20	125	±24	±25	80
P6BU/KU-153R3ZLF	15	10	93	±3.3	±152	72
P6BU/KU-1505ZLF	15	10	89	±5	±100	75
P6BU/KU-157R2ZLF	15	15	89	±7.2	±69	75
P6BU/KU-1509ZLF	15	15	87	±9	±56	77
P6BU/KU-1512ZLF	15	5	103	±12	±50	78
P6BU/KU-1515ZLF	15	5	80	±15	±33	83
P6BU/KU-1518ZLF	15	10	85	±18	±28	78
P6BU/KU-1524ZLF	15	10	103	±24	±25	78
P6BU/KU-243R3ZLF	24	5	60	±3.3	±152	70
P6BU/KU-2405ZLF	24	6	56	±5	±100	74
P6BU/KU-247R2ZLF	24	6	55	±7.2	±69	76
P6BU/KU-2409ZLF	24	7	56	±9	±56	75
P6BU/KU-2412ZLF	24	5	62	±12	±50	81
P6BU/KU-2415ZLF	24	5	51	±15	±33	81
P6BU/KU-2418ZLF	24	7	53	±18	±28	78
P6BU/KU-2424ZLF	24	7	64	±24	±25	78

If you need other specifications, please enquire.

How to Order:

Standard **1 kV** Isolation	P6**B**U-xxxxELF or …ZLF
Standard **3 kV** Isolation	P6**K**U-xxxxELF or …ZLF

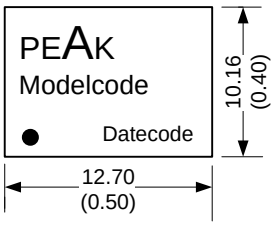
Package / Pinning / Derating

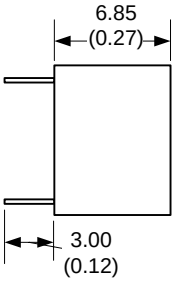


All dimensions are typical in millimeters (inches).
- Pin diameter: 1.0 +/-0.05 (0.04 +/-0.002)
- Pin pitch tolerance: +/-0.35 (+/-0.014)
- Case tolerance +/-0.5 (+/-0.02)

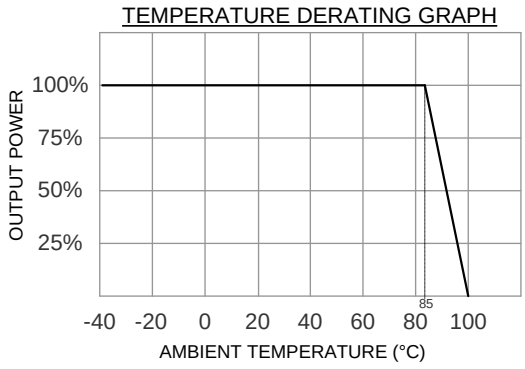
Specification may change without notice.

DIP 8 – PLASTIC CASE





TEMPERATURE DERATING GRAPH

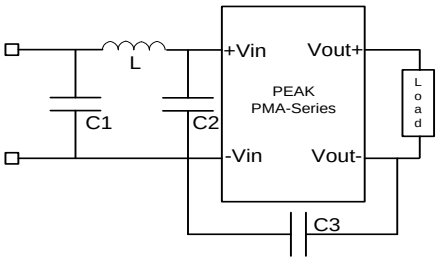


PIN CONNECTIONS		
#	SINGLE	DUAL
1	-Vin	-Vin
4	+Vin	+Vin
5	+Vout	+Vout
7	-Vout	Common
8	no Pin	-Vout
others	no Pin	no Pin

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