PEAK electronics
THE WORLD OF DC/DC-CONVERTERS
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P6CU-xxxxE/Z LF (1kV)
P6LU–xxxxE/Z (Hxx)LF (3-6kV)

PM1-SERIES **Rev. 07-2015**

- ✓ 1 Watt
- ✓ Unregulated
- ✓ **Single** and **Dual** Output
- ✓ **SIP7** Case
- ✓ **1-6 kV** DC I/O Isolation
- ✓ Low Ripple and Noise

Ready for UL*

The PM1 series is a family of cost effective 0.5 – 1W single output DC/DC converters. They are encapsulated in an ultra miniature SIP7 (PxCU/LU…) or DIP14 (PxDU/MU…) case. High performance features: 1000-6000Vdc input/output isolation, high efficiency operation, output voltage accuracy of ±3% maximum, input range of ±10% and low output ripple and noise. *** PM1 Series is ready for UL. Please ask for MOQ if you need certification.**

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

Input Specifications

Voltage Range	±10%
Current max.	27 – 459mA (See table)
Current No-Load	5 – 35mA (See table)
Filter	Capacitors
Reflected Ripple Current (@12uH)	20mA pk-pk

General Specifications

Efficiency	63% - 86% (See table)
Isolation I/O (60 sec)	1000VDC (P6CU-xxxxELF) 3000VDC (P6LU-xxxxELF) 4000-6000VDC (P6LU-xxxxEHxxLF)
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/EN 60950-1 UL/cUL60950-1

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%,max. (for 3.3Vout) ±20%,max.
Ripple & noise (20 MHz bandwidth)	75 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	Alloy42 (Solder coated)
Weight	2.3 g

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)
SINGLE OUTPUT							
P6CU/LU-3R33R3ELF	3.3	28	399	3.3	303	76	220
P6CU/LU-3R305ELF	3.3	22	389	5	200	78	220
P6CU/LU-3R309ELF	3.3	35	379	9	111	80	220
P6CU/LU-3R315ELF	3.3	30	389	15	67	78	220
P6CU/LU-3R318ELF	3.3	30	415	18	56	73	220
P6CU/LU-3R324ELF	3.3	30	415	24	42	73	220
P6CU/LU-053R3ELF	5	15	256	3.3	303	78	220
P6CU/LU-0505ELF	5	17	247	5	200	81	220
P6CU/LU-057R2ELF	5	16	247	7.2	139	81	220
P6CU/LU-0509ELF	5	15	244	9	111	82	220
P6CU/LU-0512ELF	5	17	253	12	83	79	220
P6CU/LU-0515ELF	5	17	233	15	67	86	220
P6CU/LU-0518ELF	5	16	241	18	56	83	220
P6CU/LU-0524ELF	5	20	244	24	42	82	220
P6CU/LU-123R3ELF	12	12	111	3.3	303	75	220
P6CU/LU-1205ELF	12	14	105	5	200	79	220
P6CU/LU-127R2ELF	12	14	111	7.2	139	75	220
P6CU/LU-1209ELF	12	9	104	9	111	80	220
P6CU/LU-1212ELF	12	13	105	12	83	79	220
P6CU/LU-1215ELF	12	10	102	15	67	82	220
P6CU/LU-1218ELF	12	11	103	18	56	81	220
P6CU/LU-1224ELF	12	20	110	24	42	76	220
P6CU/LU-153R3ELF	15	10	83	3.3	303	80	220
P6CU/LU-1505ELF	15	7	82	5	200	81	220
P6CU/LU-157R2ELF	15	10	85	7.2	139	78	220
P6CU/LU-1509ELF	15	10	85	9	111	78	220
P6CU/LU-1512ELF	15	8	83	12	83	80	220
P6CU/LU-1515ELF	15	12	84	15	67	79	220
P6CU/LU-1518ELF	15	10	83	18	56	80	220
P6CU/LU-1524ELF	15	5	80	24	42	83	220
P6CU/LU-243R3ELF	24	8	56	3.3	303	74	220
P6CU/LU-2405ELF	24	6	54	5	200	77	220
P6CU/LU-247R2ELF	24	6	57	7.2	139	73	220
P6CU/LU-2409ELF	24	6	55	9	111	76	220
P6CU/LU-2412ELF	24	6	53	12	83	78	220
P6CU/LU-2415ELF	24	5	52	15	67	80	220

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)
P6CU/LU-2418ELF	24	5	51	18	56	82	220
P6CU/LU-2424ELF	24	8	52	24	42	80	220
P6CU/LU-483R3ELF	48	5	29	3.3	303	73	220
P6CU/LU-4805ELF	48	5	29	5	200	73	220
P6CU/LU-487R2ELF	48	5	28	7.2	139	75	220
P6CU/LU-4809ELF	48	5	27	9	111	76	220
P6CU/LU-4812ELF	48	5	27	12	83	76	220
P6CU/LU-4815ELF	48	5	27	15	67	77	220
P6CU/LU-4818ELF	48	5	28	18	56	75	220
P6CU/LU-4824ELF	48	6	27	24	42	76	220
DUAL OUTPUT							
P6CU/LU-3R33R3ZLF	3.3	30	459	±3.3	±152	66	±220
P6CU/LU-3R305ZLF	3.3	30	433	±5.0	±100	70	±100
P6CU/LU-3R37R2ZLF	3.3	30	421	±7.2	±69	72	±100
P6CU/LU-3R309ZLF	3.3	26	404	±9.0	±56	75	±100
P6CU/LU-3R312ZLF	3.3	30	394	±12	±42	77	±100
P6CU/LU-3R315ZLF	3.3	25	389	±15	±33	78	±100
P6CU/LU-3R318ZLF	3.3	25	404	±18	±28	75	±100
P6CU/LU-3R324ZLF	3.3	25	404	±24	±21	75	±100
P6CU/LU-053R3ZLF	5	20	299	±3.3	±152	67	±100
P6CU/LU-0505ZLF	5	20	270	±5.0	±100	74	±100
P6CU/LU-057R2ZLF	5	15	253	±7.2	±69	79	±100
P6CU/LU-0509ZLF	5	15	247	±9.0	±56	81	±100
P6CU/LU-0512ZLF	5	20	250	±12	±42	80	±100
P6CU/LU-0515ZLF	5	20	244	±15	±33	82	±100
P6CU/LU-0518ZLF	5	22	247	±18	±28	81	±100
P6CU/LU-0524ZLF	5	22	247	±24	±21	81	±100
P6CU/LU-123R3ZLF	12	13	123	±3.3	±152	68	±100
P6CU/LU-1205ZLF	12	10	123	±5.0	±100	74	±100
P6CU/LU-127R2ZLF	12	10	110	±7.2	±69	76	±100
P6CU/LU-1209ZLF	12	13	110	±9.0	±56	78	±100
P6CU/LU-1212ZLF	12	10	102	±12	±42	82	±100
P6CU/LU-1215ZLF	12	10	102	±15	±33	82	±100
P6CU/LU-1218ZLF	12	10	102	±18	±28	82	±100
P6CU/LU-1224ZLF	12	20	111	±24	±21	75	±100

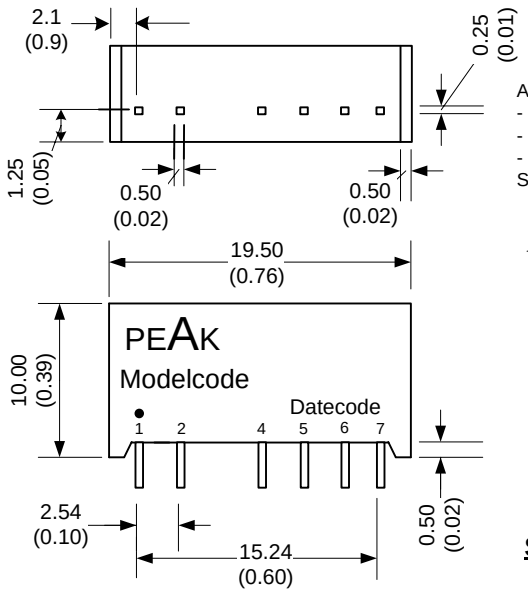
Order #	Input Voltage (VDC)	Input Current No Load (mA)	Input Current Full Load (mA)	Output Voltage (VDC)	Output Current Full Load (mA)	Efficiency (%)	Capacitor Load (uF)
P6CU/LU-153R3ZLF	15	20	89	±3.3	±152	75	±100
P6CU/LU-1505ZLF	15	20	89	±5.0	±100	75	±100
P6CU/LU-157R2ZLF	15	18	89	±7.2	±69	75	±100
P6CU/LU-1509ZLF	15	18	87	±9.0	±56	77	±100
P6CU/LU-1512ZLF	15	20	87	±12	±42	77	±100
P6CU/LU-1515ZLF	15	20	87	±15	±33	77	±100
P6CU/LU-1518ZLF	15	15	89	±18	±28	75	±100
P6CU/LU-1524ZLF	15	15	89	±24	±21	75	±100
P6CU/LU-243R3ZLF	24	7	62	±3.3	±152	67	±100
P6CU/LU-2405ZLF	24	6	56	±5.0	±100	74	±100
P6CU/LU-247R2ZLF	24	7	56	±7.2	±69	78	±100
P6CU/LU-2409ZLF	24	7	56	±9.0	±56	78	±100
P6CU/LU-2412ZLF	24	6	52	±12	±42	80	±100
P6CU/LU-2415ZLF	24	8	52	±15	±33	80	±100
P6CU/LU-2418ZLF	24	6	51	±18	±28	81	±100
P6CU/LU-2424ZLF	24	8	51	±24	±21	82	±100
P6CU/LU-483R3ZLF	48	6	34	±3.3	±152	62	±100
P6CU/LU-4805ZLF	48	5	31	±5.0	±100	68	±100
P6CU/LU-487R2ZLF	48	5	29	±7.2	±69	72	±100
P6CU/LU-4809ZLF	48	5	29	±9.0	±56	73	±100
P6CU/LU-4812ZLF	48	6	28	±12	±42	74	±100
P6CU/LU-4815ZLF	48	5	27	±15	±33	77	±100
P6CU/LU-4818ZLF	48	5	28	±18	±28	75	±100
P6CU/LU-4824ZLF	48	6	28	±24	±21	74	±100

If you need other specifications, please enquire.

How to Order:

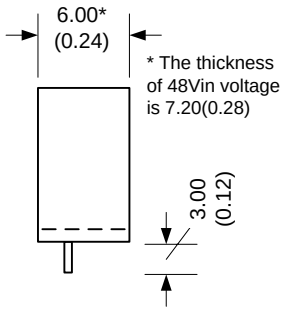
Standard **1 kV** Isolation	P6**C**U-xxxxELF or ZLF
Standard **3 kV** Isolation	P6**L**U-xxxxELF or ZLF
Optional **4 kV** Isolation	P6**L**U-xxxxE**H40**LF or …Z**H40**LF
Optional **5.2 kV** Isolation	P6**L**U-xxxxE**H52**LF or …Z**H52**LF
Optional **6 kV** Isolation	P6**L**U-xxxxE**H60**LF or …Z**H60**LF

Package / Pinning / Derating



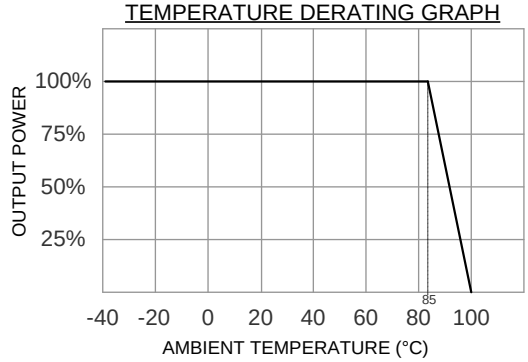
All dimensions are typical in millimeters (inches).
- Pin diameter: 0.5 +/-0.05 (0.02 +/-0.002)
- Pin pitch tolerance: +/-0.35 (+/-0.014)
- Case tolerance +/-0.5 (+/-0.02)

Specification may change without notice.



SIP 7 – PLASTIC CASE

TEMPERATURE DERATING GRAPH



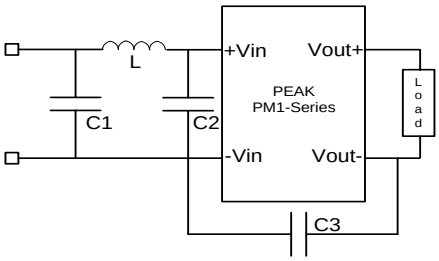
PIN CONNECTIONS				
Model	P6CU (1kV)		P6LU (3-6kV)	
#	SINGLE	DUAL	SINGLE	DUAL
1	+Vin	+Vin	+Vin	+Vin
2	-Vin	-Vin	-Vin	-Vin
4	-Vout	-Vout	no Pin	no Pin
5	no Pin	Common	-Vout	-Vout
6	+Vout	+Vout	N.P.	Common
7	no Pin	no Pin	+Vout	+Vout

App Notes:

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

- All models should be externally fused for protection.
  300mA for 12, 24, 48Vin,
  500mA for 5Vin and
  800mA for 3.3Vin

EMC Typical Recommended Circuit (CLASS B)



Vout	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