

P3LU-xxxxE/Z(Hxx)LF



PM1-SERIES

Rev.02-2009

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

The PM1 series P3LU-xxxxE/Z(Hxx)LF is a family of cost effective 0.5 W single & dual output DC-DC converters. These converters are in an ultra miniature SIP7 case. Devices are encapsulated. High performance features: 3000VDC up to 6000VDC 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	$\pm 1.2\% / 1\%$ Vin Change
Load Regulation (20% - 100%)	$\pm 10\%$ (3.3Vout Models: $\pm 20\%$)
Ripple and Noise (20Mhz bandwidth)	75 mV pk-pk
Temperature Coefficient	$\pm 0.02\% / ^\circ\text{C}$

General Specifications

Efficiency	See Table
I/O Isolation Voltage (3 sec.)	3000 VDC (up to 6000 VDC optional)*
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	~ 2.3g, 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 (10 mm distance required)
RoHS Conform	Soldering 260 °C, max. (1.5 mm 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 (µF)
SINGLE OUTPUT							
P3LU-053R3ELF	5	30	142	3.3	151.5	70	220
P3LU-0505ELF	5	30	135	5	100	74	220
P3LU-057R2ELF	5	30	135	7.2	69.4	74	220
P3LU-0509ELF	5	30	133	9	55.5	75	220
P3LU-0512ELF	5	30	131	12	41.6	76	220
P3LU-0515ELF	5	30	131	15	33.3	76	220
P3LU-0518ELF	5	30	131	18	27.8	76	220
P3LU-0524ELF	5	30	128	24	20.8	78	220
P3LU-123R3ELF	12	20	59	3.3	151.5	70	220
P3LU-1205ELF	12	20	57	5	100	73	220
P3LU-127R2ELF	12	20	56	7.2	69.4	74	220
P3LU-1209ELF	12	20	55	9	55.5	75	220
P3LU-1212ELF	12	20	54	12	41.6	76	220
P3LU-1215ELF	12	20	54	15	33.3	76	220
P3LU-1218ELF	12	20	54	18	27.8	76	220
P3LU-1224ELF	12	20	53	24	20.8	78	220
P3LU-243R3ELF	24	10	29	3.3	151.5	70	220
P3LU-2405ELF	24	10	28	5	100	73	220
P3LU-247R2ELF	24	10	28	7.2	69.4	74	220
P3LU-2409ELF	24	10	28	9	55.5	75	220
P3LU-2412ELF	24	10	27	12	41.6	76	220
P3LU-2415ELF	24	10	26	15	33.3	78	220
P3LU-2418ELF	24	10	26	18	27.8	78	220
P3LU-2424ELF	24	10	26	24	20.8	78	220
P3LU-483R3ELF	48	6	14	3.3	151.5	70	220
P3LU-4805ELF	48	6	14	5	100	72	220
P3LU-487R2ELF	48	6	14	7.2	69.4	72	220
P3LU-4809ELF	48	6	14	9	55.5	74	220
P3LU-4812ELF	48	6	14	12	41.6	74	220
P3LU-4815ELF	48	6	13	15	33.3	75	220
P3LU-4818ELF	48	6	13	18	27.8	75	220
P3LU-4824ELF	48	6	13	24	20.8	77	220

If you need other specifications, please enquire.

***OPTIONS:**

H40 = 4000 VDC ISOLATION
H52 = 5200 VDC ISOLATION
H60 = 6000 VDC ISOLATION

For other I/O Isolation please see table on the left hand side and add "Hxx" before LF (P3LU-2412EH60LF for 6KV)

Selection Guide

Dual 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 (µF) ²
DUAL OUTPUT							
P3LU-053R3ZLF	5	30	166	± 3.3	± 75.7	60	± 100
P3LU-0505ZLF	5	30	135	± 5	± 50	74	± 100
P3LU-057R2ZLF	5	30	129	± 7.2	± 34.7	77	± 100
P3LU-0509ZLF	5	30	128	± 9	± 27.7	78	± 100
P3LU-0512ZLF	5	30	128	± 12	± 20.8	78	± 100
P3LU-0515ZLF	5	30	128	± 15	± 16.7	78	± 100
P3LU-0518ZLF	5	30	126	± 18	± 13.9	79	± 100
P3LU-0524ZLF	5	30	126	± 24	± 10.4	79	± 100
P3LU-123R3ZLF	12	20	69	± 3.3	± 75.7	60	± 100
P3LU-1205ZLF	12	20	56	± 5	± 50	74	± 100
P3LU-127R2ZLF	12	20	54	± 7.2	± 34.7	77	± 100
P3LU-1209ZLF	12	20	53	± 9	± 27.7	78	± 100
P3LU-1212ZLF	12	20	53	± 12	± 20.8	78	± 100
P3LU-1215ZLF	12	20	53	± 15	± 16.7	78	± 100
P3LU-1218ZLF	12	20	52	± 18	± 13.9	80	± 100
P3LU-1224ZLF	12	20	52	± 24	± 10.4	80	± 100
P3LU-243R3ZLF	24	10	35	± 3.3	± 75.7	60	± 100
P3LU-2405ZLF	24	10	28	± 5	± 50	74	± 100
P3LU-247R2ZLF	24	10	27	± 7.2	± 34.7	76	± 100
P3LU-2409ZLF	24	10	27	± 9	± 27.7	76	± 100
P3LU-2412ZLF	24	10	26	± 12	± 20.8	78	± 100
P3LU-2415ZLF	24	10	26	± 15	± 16.7	78	± 100
P3LU-2418ZLF	24	10	26	± 18	± 13.9	78	± 100
P3LU-2424ZLF	24	10	26	± 24	± 10.4	80	± 100
P3LU-483R3ZLF	48	6	17	± 3.3	± 75.7	60	± 100
P3LU-4805ZLF	48	6	14	± 5	± 50	74	± 100
P3LU-487R2ZLF	48	6	13	± 7.2	± 34.7	76	± 100
P3LU-4809ZLF	48	6	13	± 9	± 27.7	76	± 100
P3LU-4812ZLF	48	6	13	± 12	± 20.8	76	± 100
P3LU-4815ZLF	48	6	13	± 15	± 16.7	77	± 100
P3LU-4818ZLF	48	6	13	± 18	± 13.9	77	± 100
P3LU-4824ZLF	48	6	13	± 24	± 10.4	79	± 100

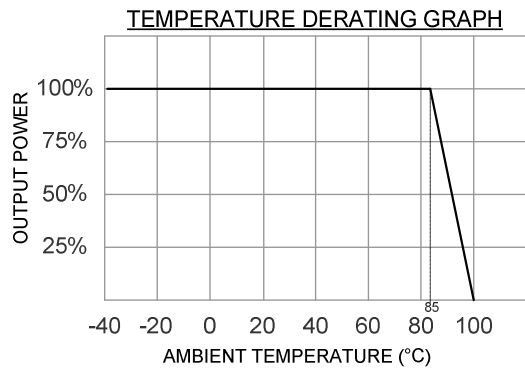
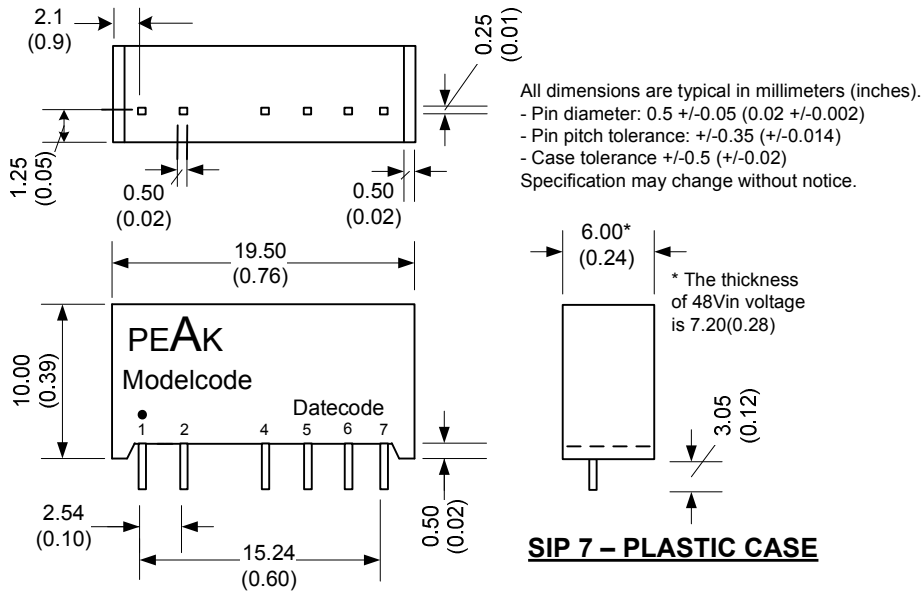
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H40 = 4000 VDC ISOLATION
H52 = 5200 VDC ISOLATION
H60 = 6000 VDC ISOLATION

For other I/O Isolation please see table on the left hand side and add "Hxx" before LF (P3LU-2412ZH40LF for 4KV)

Package / Pinning / Derating



PIN CONNECTIONS		
#	SINGLE ≥3KV	DUAL ≥3KV
1	+Vin	+Vin
2	- Vin	- Vin
4	Omitted	Omitted
5	- Vout	- Vout
6	Omitted	Common
7	+Vout	+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.