

# P3CU-xxxxE/Z LF



## PM1-SERIES

Rev.02-2009

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

The PM1 series P3CU-xxxxE/ZLF 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: 1000VDC 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%)	$\pm 10\%$ (3.3 Vout 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.)	1000 VDC
I/O Isolation Capacity	60 pF, typ.
I/O Isolation Resistance	1000 M Ohm
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-0rated)
Potting Material	Epoxy (UL94V-0rated)
Weight	~ 2.3g, typ.

### Environment Specifications

Operating Temperature	-40 to +85 $^\circ\text{C}$ (ambient)
Maximum Case Temperature	100 $^\circ\text{C}$
Storage Temperature	-40 to +125 $^\circ\text{C}$
Cooling	Free Air Convection (10 mm distance required)
RoHS Conform	Soldering 260 $^\circ\text{C}$ , 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 (uF) <sup>2</sup>
<b>SINGLE OUTPUT</b>							
P3CU-3R305ELF	3.3	22	210	5	100	72	100
P3CU-053R3ELF	5	30	142	3.3	151.5	70	100
P3CU-0505ELF	5	30	135	5	100	74	100
P3CU-057R2ELF	5	30	135	7.2	69.4	74	100
P3CU-0509ELF	5	30	133	9	55.5	75	100
P3CU-0512ELF	5	30	131	12	41.6	76	100
P3CU-0515ELF	5	30	131	15	33.3	76	100
P3CU-0518ELF	5	30	131	18	27.8	76	100
P3CU-0524ELF	5	30	128	24	20.8	78	100
P3CU-123R3ELF	12	20	59	3.3	151.5	70	100
P3CU-1205ELF	12	20	57	5	100	73	100
P3CU-127R2ELF	12	20	56	7.2	69.4	74	100
P3CU-1209ELF	12	20	55	9	55.5	75	100
P3CU-1212ELF	12	20	54	12	41.6	76	100
P3CU-1215ELF	12	20	54	15	33.3	76	100
P3CU-1218ELF	12	20	54	18	27.8	76	100
P3CU-1224ELF	12	20	53	24	20.8	78	100
P3CU-243R3ELF	24	10	29	3.3	151.5	70	100
P3CU-2405ELF	24	10	28	5	100	73	100
P3CU-247R2ELF	24	10	28	7.2	69.4	74	100
P3CU-2409ELF	24	10	28	9	55.5	75	100
P3CU-2412ELF	24	10	27	12	41.6	76	100
P3CU-2415ELF	24	10	26	15	33.3	78	100
P3CU-2418ELF	24	10	26	18	27.8	78	100
P3CU-2424ELF	24	10	26	24	20.8	78	100
P3CU-483R3ELF	48	6	14	3.3	151.5	70	100
P3CU-4805ELF	48	6	14	5	100	72	100
P3CU-487R2ELF	48	6	14	7.2	69.4	72	100
P3CU-4809ELF	48	6	14	9	55.5	74	100
P3CU-4812ELF	48	6	14	12	41.6	74	100
P3CU-4815ELF	48	6	13	15	33.3	75	100
P3CU-4818ELF	48	6	13	18	27.8	75	100
P3CU-4824ELF	48	6	13	24	20.8	77	100

If you need other specifications, please enquire.

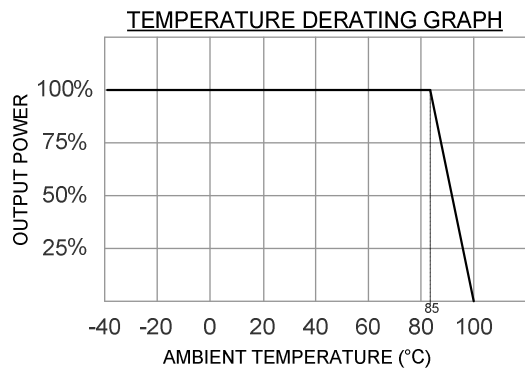
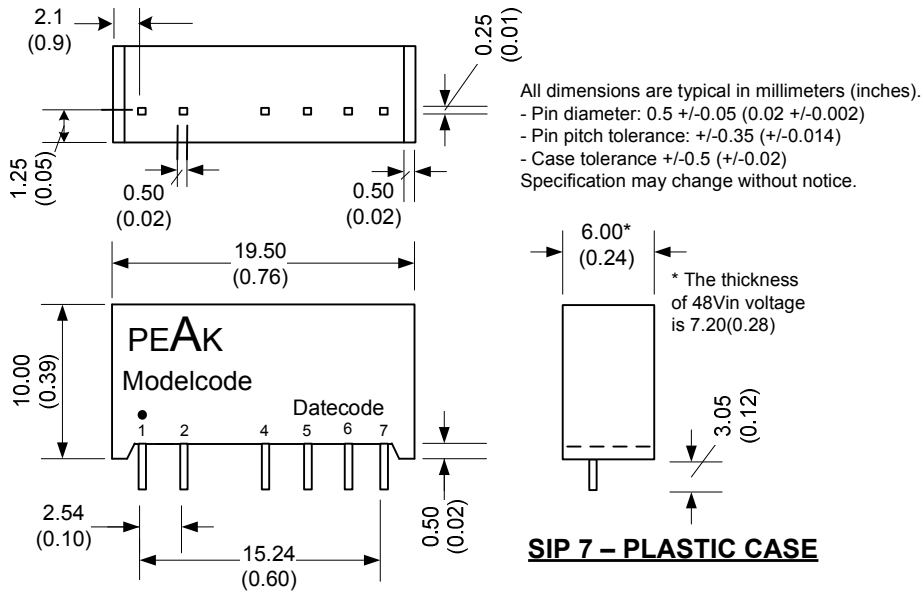
# Selection Guide

## 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) <sup>2</sup>
<b>DUAL OUTPUT</b>							
P3CU-3R305ZLF	3.3	25	236	± 5	± 50	64	± 100
P3CU-053R3ZLF	5	30	166	± 3.3	± 75.7	60	± 100
P3CU-0505ZLF	5	30	135	± 5	± 50	74	± 100
P3CU-057R2ZLF	5	30	129	± 7.2	± 34.7	77	± 100
P3CU-0509ZLF	5	30	128	± 9	± 27.7	78	± 100
P3CU-0512ZLF	5	30	128	± 12	± 20.8	78	± 100
P3CU-0515ZLF	5	30	128	± 15	± 16.7	78	± 100
P3CU-0518ZLF	5	30	126	± 18	± 13.9	79	± 100
P3CU-0524ZLF	5	30	126	± 24	± 10.4	79	± 100
P3CU-123R3ZLF	12	20	69	± 3.3	± 75.7	60	± 100
P3CU-1205ZLF	12	20	56	± 5	± 50	74	± 100
P3CU-127R2ZLF	12	20	54	± 7.2	± 34.7	77	± 100
P3CU-1209ZLF	12	20	53	± 9	± 27.7	78	± 100
P3CU-1212ZLF	12	20	53	± 12	± 20.8	78	± 100
P3CU-1215ZLF	12	20	53	± 15	± 16.7	78	± 100
P3CU-1218ZLF	12	20	52	± 18	± 13.9	80	± 100
P3CU-1224ZLF	12	20	52	± 24	± 10.4	80	± 100
P3CU-243R3ZLF	24	10	35	± 3.3	± 75.7	60	± 100
P3CU-2405ZLF	24	10	28	± 5	± 50	74	± 100
P3CU-247R2ZLF	24	10	27	± 7.2	± 34.7	76	± 100
P3CU-2409ZLF	24	10	27	± 9	± 27.7	76	± 100
P3CU-2412ZLF	24	10	26	± 12	± 20.8	78	± 100
P3CU-2415ZLF	24	10	26	± 15	± 16.7	78	± 100
P3CU-2418ZLF	24	10	26	± 18	± 13.9	78	± 100
P3CU-2424ZLF	24	10	26	± 24	± 10.4	80	± 100
P3CU-483R3ZLF	48	6	17	± 3.3	± 75.7	60	± 100
P3CU-4805ZLF	48	6	14	± 5	± 50	74	± 100
P3CU-487R2ZLF	48	6	13	± 7.2	± 34.7	76	± 100
P3CU-4809ZLF	48	6	13	± 9	± 27.7	76	± 100
P3CU-4812ZLF	48	6	13	± 12	± 20.8	76	± 100
P3CU-4815ZLF	48	6	13	± 15	± 16.7	77	± 100
P3CU-4818ZLF	48	6	13	± 18	± 13.9	77	± 100
P3CU-4824ZLF	48	6	13	± 24	± 10.4	79	± 100

If you need other specifications, please enquire.

# Package / Pinning / Derating



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

## 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.