

# P3KU-xxxxELF



## PMA-SERIES

Rev.11-2008

- ✓ 0.5 Watt
- ✓ Unregulated
- ✓ **Single** Output
- ✓ **DIP8** Case
- ✓ **3 kV** DC I/O Isolation
- ✓ Low Ripple and Noise

The PMA series P3KU-xxxxELF is a family of cost effective 0.5 W single output DC/DC converters. These converters are in an ultra miniature DIP8 case. Devices are encapsulated. High performance features: 3000VDC 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%)	$\pm 10\%$ (3.3V <sub>out</sub> Models: $\pm 20\%$ )
Ripple and Noise (20Mhz bandwidth)	100 mV pk-pk
Temperature Coefficient	$\pm 0.02\% / ^\circ\text{C}$

### General Specifications

Efficiency	See Table
I/O Isolation Voltage (3 sec.)	3000 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-0 rated)
Potting Material	Epoxy (UL94V-0 rated)
Weight	~ 1.8g, 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
RoHS Conform	Soldering 260 $^\circ\text{C}$ , max. (1.5mm from case 10s.)

# Selection Guide

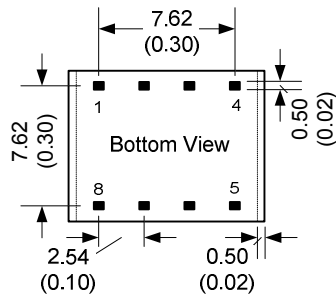
## Single Output

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>							
P3KU-053R3ELF	5	30	134	3.3	151.5	75	100
P3KU-0505ELF	5	30	129	5	100	78	100
P3KU-057R2ELF	5	30	134	7.2	69.44	75	100
P3KU-0509ELF	5	30	134	9	55.55	75	100
P3KU-0512ELF	5	30	132	12	41.67	76	100
P3KU-0515ELF	5	30	132	15	33.33	76	100
P3KU-0518ELF	5	30	134	18	27.77	75	100
P3KU-0524ELF	5	30	139	24	20.83	72	100
P3KU-123R3ELF	12	20	60	3.3	151.5	70	100
P3KU-1205ELF	12	20	56	5	100	75	100
P3KU-127R2ELF	12	20	58	7.2	69.44	72	100
P3KU-1209ELF	12	20	56	9	55.55	75	100
P3KU-1212ELF	12	20	60	12	41.67	70	100
P3KU-1215ELF	12	20	60	15	33.33	70	100
P3KU-1218ELF	12	20	60	18	27.77	70	100
P3KU-1224ELF	12	20	60	24	20.83	70	100
P3KU-243R3ELF	24	10	31	3.3	151.5	67	100
P3KU-2405ELF	24	10	29	5	100	72	100
P3KU-247R2ELF	24	10	31	7.2	69.44	67	100
P3KU-2409ELF	24	10	31	9	55.55	67	100
P3KU-2412ELF	24	10	31	12	41.67	67	100
P3KU-2415ELF	24	10	31	15	33.33	67	100
P3KU-2418ELF	24	10	31	18	27.77	67	100
P3KU-2424ELF	24	10	31	24	20.83	67	100

If you need other specifications, please enquire.

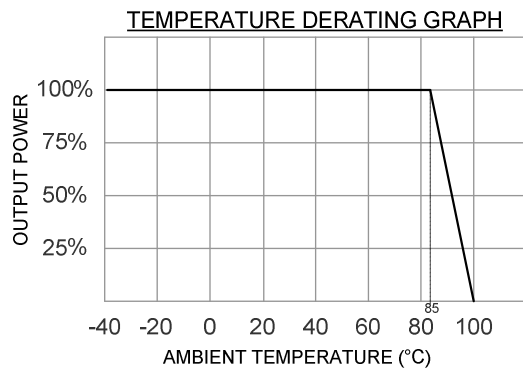
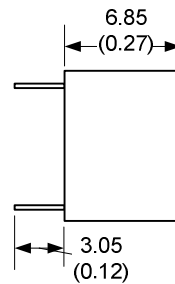
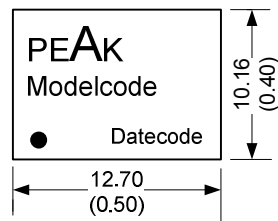
Notes:

# 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



PIN CONNECTIONS	
#	SINGLE
1	- Vin
4	+Vin
5	+Vout
7	- Vout
Others	Omitted

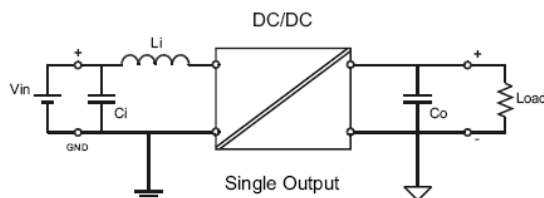
### App Notes:

<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.

- For reduce converter's ripple & noise, it is recommended to add a 4.7μF~100μF capacitor in output end. For EMI performance improvement, it is recommended to add a 12μH inductor and a 10μF~220μF capacitor in input end.



EMC SPECIFICATIONS		
Radiated Emissions	EN 55022 FCC 47CFR Part 15/B	CLASS B CLASS B
ESD	IEC 61000-4-2	Perf. Criteria B
RS	IEC 61000-4-3	Perf. Criteria A