

P3DU-xxxxE/Z LF



PM1-SERIES

Rev.11-2008

- ✓ 0.5 Watt
- ✓ Unregulated
- ✓ **Single** and **Dual** Output
- ✓ **DIP14** Case
- ✓ **1 kV** DC I/O Isolation
- ✓ Low Ripple and Noise

The PM1 series P3DU-xxxxE/ZLF is a family of cost effective 0.5 W single & dual output DC-DC converters. These converters are in an ultra miniature DIP14 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 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.)	1000 VDC
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	~ 2.6g, 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 (µF) ²
SINGLE OUTPUT							
P3DU-053R3ELF	5	30	142	3.3	151.5	70	220
P3DU-0505ELF	5	30	135	5	100	74	220
P3DU-057R2ELF	5	30	135	7.2	69.4	74	220
P3DU-0509ELF	5	30	133	9	55.5	75	220
P3DU-0512ELF	5	30	131	12	41.6	76	220
P3DU-0515ELF	5	30	131	15	33.3	76	220
P3DU-0518ELF	5	30	131	18	27.8	76	220
P3DU-0524ELF	5	30	128	24	20.8	78	220
P3DU-123R3ELF	12	20	59	3.3	151.5	70	220
P3DU-1205ELF	12	20	57	5	100	73	220
P3DU-127R2ELF	12	20	111	7.2	69.4	74	220
P3DU-1209ELF	12	20	55	9	55.5	75	220
P3DU-1212ELF	12	20	54	12	41.6	76	220
P3DU-1215ELF	12	20	54	15	33.3	76	220
P3DU-1218ELF	12	20	54	18	27.8	76	220
P3DU-1224ELF	12	20	53	24	20.8	78	220
P3DU-243R3ELF	24	10	29	3.3	151.5	70	220
P3DU-2405ELF	24	10	28	5	100	73	220
P3DU-247R2ELF	24	10	28	7.2	69.4	74	220
P3DU-2409ELF	24	10	28	9	55.5	75	220
P3DU-2412ELF	24	10	27	12	41.6	76	220
P3DU-2415ELF	24	10	26	15	33.3	78	220
P3DU-2418ELF	24	10	26	18	27.8	78	220
P3DU-2424ELF	24	10	26	24	20.8	78	220

If you need other specifications, please enquire.

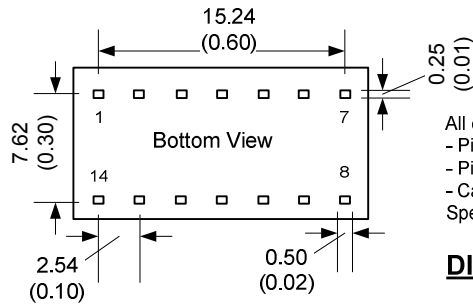
Selection Guide

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) ²
DUAL OUTPUT							
P3DU-053R3ZLF	5	30	166	± 3.3	± 75.7	60	± 100
P3DU-0505ZLF	5	30	135	± 5	± 50	74	± 100
P3DU-057R2ZLF	5	30	129	± 7.2	± 34.7	77	± 100
P3DU-0509ZLF	5	30	128	± 9	± 27.7	78	± 100
P3DU-0512ZLF	5	30	128	± 12	± 20.8	78	± 100
P3DU-0515ZLF	5	30	128	± 15	± 16.7	78	± 100
P3DU-0518ZLF	5	30	126	± 18	± 13.9	79	± 100
P3DU-0524ZLF	5	30	126	± 24	± 10.4	79	± 100
P3DU-123R3ZLF	12	20	69	± 3.3	± 75.7	60	± 100
P3DU-1205ZLF	12	20	56	± 5	± 50	74	± 100
P3DU-127R2ZLF	12	20	54	± 7.2	± 34.7	77	± 100
P3DU-1209ZLF	12	20	53	± 9	± 27.7	78	± 100
P3DU-1212ZLF	12	20	53	± 12	± 20.8	78	± 100
P3DU-1215ZLF	12	20	53	± 15	± 16.7	78	± 100
P3DU-1218ZLF	12	20	52	± 18	± 13.9	80	± 100
P3DU-1224ZLF	12	20	52	± 24	± 10.4	80	± 100
P3DU-243R3ZLF	24	10	35	± 3.3	± 75.7	60	± 100
P3DU-2405ZLF	24	10	28	± 5	± 50	74	± 100
P3DU-247R2ZLF	24	10	27	± 7.2	± 34.7	76	± 100
P3DU-2409ZLF	24	10	27	± 9	± 27.7	76	± 100
P3DU-2412ZLF	24	10	26	± 12	± 20.8	78	± 100
P3DU-2415ZLF	24	10	26	± 15	± 16.7	78	± 100
P3DU-2418ZLF	24	10	26	± 18	± 13.9	78	± 100
P3DU-2424ZLF	24	10	26	± 24	± 10.4	80	± 100

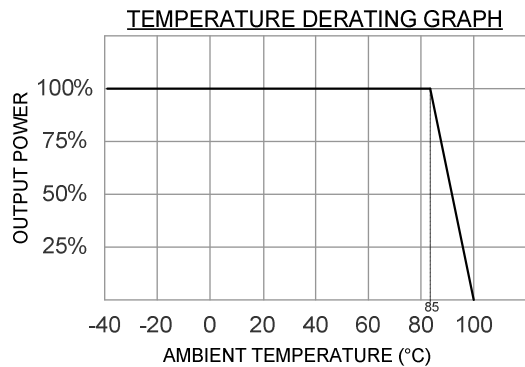
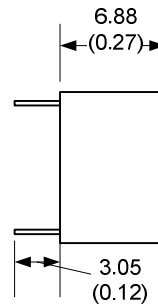
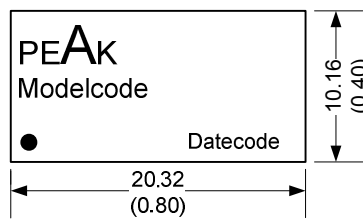
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Package / Pinning / Derating



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.

DIP14 – PLASTIC CASE



PIN CONNECTIONS		
#	SINGLE	DUAL
1	- Vin	- Vin
7	N.C.	N.C.
8	Omitted	Common
9	+Vout	+Vout
10	Omitted	Omitted
11	- Vout	- Vout
14	+Vin	+Vin

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.