P6MU-xxxxE/Z(Hxx)LF

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PM1-SERIES Rev.11-2008

- ✓ 1 Watt
- ✓ Unregulated
- ✓ **Single** and **Dual** Output
- ✓ **DIP14** Case
- ✓ **3 - 6 kV** DC I/O Isolation
- ✓ Low Ripple and Noise

The PM1 series P6MU-xxxxE/Z(Hxx)LF is a family of cost effective 1 W single & dual output DC-DC converters. These converters are in an ultra miniature DIP14 case. Devices are encapsulated. High performance features: 3000VDC up to 6000VDC input/output isolation, high efficiency operation, output voltage accuracy of ±3% maximum, input range of ±10% tolerance and low output ripple and noise.

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

Input Specifications	
Voltage Range	± 10%
Input Filter	Capacitor
Input Reflected Ripple Current[1]	20 mA pk-pk
Output Specifications	
Voltage Accuracy	± 3%
Short Circuit Protection	Short Term
Line Regulation	± 1.2% / 1% Vin Change
Load Regulation (20% - 100%)	± 10% (3.3 Vout Models: ± 20%)
Ripple and Noise (20Mhz bandwidth)	75 mV pk-pk
Temperature Coefficient	± 0.02% / ℃
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 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	~ 2.6g, typ.
Environment Specifications	
Operating Temperature	-40 to +85 ℃ (ambient)
Maximum Case Temperature	100℃
Storage Temperature	-40 to +125℃
Cooling	Free Air Convection
RoHS Conform	Soldering 260℃, 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)[2]
SINGLE OUTPUT							
P6MU-053R3ELF	5	30	267	3.3	303	75	220
P6MU-0505ELF	5	30	256	5	200	78	220
P6MU-057R2ELF	5	30	267	7.2	138.9	75	220
P6MU-0509ELF	5	30	267	9	111.1	75	220
P6MU-0512ELF	5	30	263	12	83.3	76	220
P6MU-0515ELF	5	30	263	15	66.7	76	220
P6MU-0518ELF	5	30	267	18	55.6	75	220
P6MU-0524ELF	5	30	278	24	41.7	72	220
P6MU-123R3ELF	12	20	113	3.3	303	74	220
P6MU-1205ELF	12	20	113	5	200	74	220
P6MU-127R2ELF	12	20	113	7.2	138.9	74	220
P6MU-1209ELF	12	20	111	9	111.1	75	220
P6MU-1212ELF	12	20	108	12	83.3	77	220
P6MU-1215ELF	12	20	106	15	66.7	78	220
P6MU-1218ELF	12	20	106	18	55.6	78	220
P6MU-1224ELF	12	20	111	24	41.7	75	220
P6MU-243R3ELF	24	10	56	3.3	303	75	220
P6MU-2405ELF	24	10	54	5	200	77	220
P6MU-247R2ELF	24	10	56	7.2	138.9	75	220
P6MU-2409ELF	24	10	56	9	111.1	75	220
P6MU-2412ELF	24	10	53	12	83.3	78	220
P6MU-2415ELF	24	10	53	15	66.7	78	220
P6MU-2418ELF	24	10	53	18	55.6	78	220
P6MU-2424ELF	24	10	53	24	41.7	78	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
(P6MU-2412E**H60**LF 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 (uF)[2]
DUAL OUTPUT							
P6MU-053R3ZLF	5	30	307	± 3.3	± 151.5	65	± 100
P6MU-0505ZLF	5	30	270	± 5	± 100	74	± 100
P6MU-057R2ZLF	5	30	259	± 7.2	± 69.44	77	± 100
P6MU-0509ZLF	5	30	256	± 9	± 55.55	78	± 100
P6MU-0512ZLF	5	30	256	± 12	± 41.67	78	± 100
P6MU-0515ZLF	5	30	250	± 15	± 33.33	80	± 100
P6MU-0518ZLF	5	30	256	± 18	± 27.77	78	± 100
P6MU-0524ZLF	5	30	266	± 24	± 20.83	75	± 100
P6MU-123R3ZLF	12	20	126	± 3.3	± 151.5	66	± 100
P6MU-1205ZLF	12	20	111	± 5	± 100	75	± 100
P6MU-127R2ZLF	12	20	115	± 7.2	± 69.44	72	± 100
P6MU-1209ZLF	12	20	111	± 9	± 55.55	75	± 100
P6MU-1212ZLF	12	20	106	± 12	± 41.67	78	± 100
P6MU-1215ZLF	12	20	106	± 15	± 33.33	78	± 100
P6MU-1218ZLF	12	20	111	± 18	± 27.77	75	± 100
P6MU-1224ZLF	12	20	111	± 24	± 20.83	75	± 100
P6MU-243R3ZLF	24	10	62	± 3.3	± 151.5	67	± 100
P6MU-2405ZLF	24	10	57	± 5	± 100	72	± 100
P6MU-247R2ZLF	24	10	59	± 7.2	± 69.44	70	± 100
P6MU-2409ZLF	24	10	55	± 9	± 55.55	75	± 100
P6MU-2412ZLF	24	10	53	± 12	± 41.67	78	± 100
P6MU-2415ZLF	24	10	55	± 15	± 33.33	75	± 100
P6MU-2418ZLF	24	10	57	± 18	± 27.77	72	± 100
P6MU-2424ZLF	24	10	59	± 24	± 20.83	70	± 100

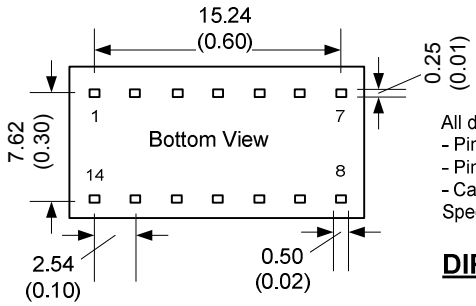
If you need other specifications, please enquire.

***OPTIONS:**

H40 = 4000 VDC ISOLATION
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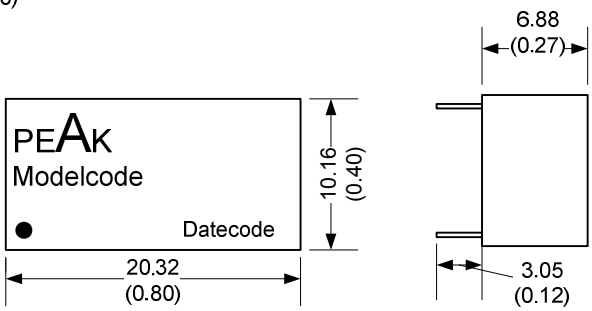
For other I/O Isolation please see table on the left hand side and add "**Hxx**" before LF
(P6MU-2412Z**H60**LF for **6KV)**

Package / Pinning / Derating

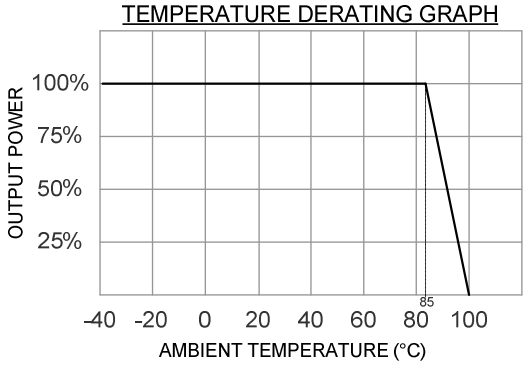


All dimensions are typical in millimeters (inches).
- Pin diameter: 1.0 +/-0.05 (0.04 +/-0.002)
- Pin pitch tolerance: +/-0.35 (+/-0.014)
- Case tolerance +/-0.5 (+/-0.02)
Specification may change without notice.

DIP14 – PLASTIC CASE



TEMPERATURE DERATING GRAPH



PIN CONNECTIONS		
#	SINGLE ≥3KV	DUAL ≥3KV
1	- Vin	- Vin
7	N.C.	N.C.
8	+Vout	+Vout
9	Omitted	Common
10	- Vout	- Vout
11	Omitted	Omitted
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.
- For reduce converter's ripple & noise, it is recommended to add a 4.7μF~100μF(±4.7μF~±68μF for dual output) capacitor in output end. For EMI performance improvement, it is recommended to add a 12μH inductor and a 10μF~100μF capacitor in input end.

