

# P22TG-xxxxE/Z4:1(H35)LF



## PMQ-SERIES

Rev. 05-2011

- ✓ 5 Watt
- ✓ **4:1 Ultra Wide Input**
- ✓ Regulated
- ✓ **Single and Dual Output**
- ✓ **1.5 to 3.5 kV DC I/O Isolation**
- ✓ **DIP24 Plastic Case**
- ✓ **Continuous Short Circuit Prot.**

The PMQ series P22TG-xxxxE/Z4:1(H35)LF is a family of cost effective 5W, single & dual output DC-DC converters with a ultra wide input range of 4:1. These converters are encapsulated in DIP24 plastic case with high performance features: 1500 to 3500VDC input/output isolation voltage, continuous short circuit protection with automatic restart and tight line / load regulation, high efficiency operation and output voltage accuracy of  $\pm 1\%$  maximum.

All specifications typical at  $T_a=25^\circ\text{C}$ , nominal input voltage and full load unless otherwise specified

### Input Specifications

Voltage Range	4:1 Ultra Wide Input
Input Filter	Pi Type
Input Reflected Ripple Current <sup>1</sup>	35 mA pk-pk

### Output Specifications

Voltage Accuracy	$\pm 1\%$
Short Circuit Protection	Indefinite (automatic recovery)
Line Regulation	$\pm 0.5\%$
Load Regulation	$\pm 0.5\%$ (3.3 / $\pm 3.3V_{out}$ Models: $\pm 1.5\%$ )
Ripple and Noise (20Mhz bandwidth)	60 mV pk-pk
Temperature Coefficient	$\pm 0.02\% / ^\circ\text{C}$

### General Specifications

Efficiency	See Table
I/O Isolation Voltage (3 sec.)	1500 VDC (3500 VDC optional)*
I/O Isolation Capacity	470 pF, typ.
I/O Isolation Resistance	1000 MOhm
Switching Frequency (typical)	266 kHz
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	~ 13.5g, 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 (10mm distance required)
RoHS Conform	Soldering 260 $^\circ\text{C}$ , max. (1.5mm from case 10s.)

# Selection Guide

## Single/Dual Output

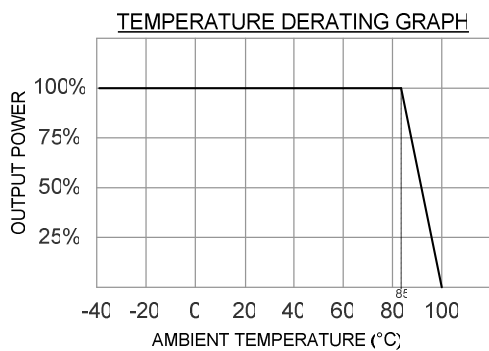
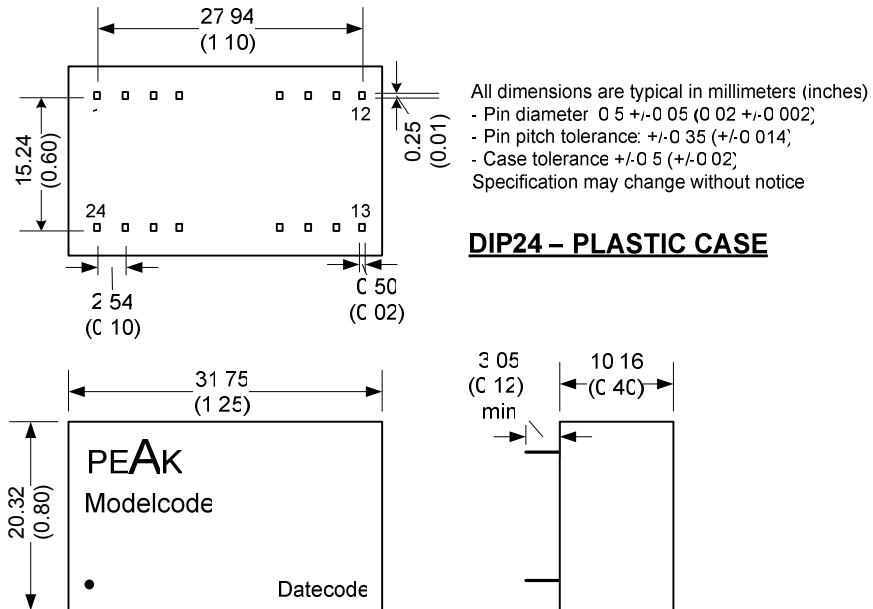
Order #	Input Voltage (VDC)	Input Current No Load (mA)	Input Current Full Load (mA)	Output Voltage (VDC)	Output Current Min. Load (mA)	Output Current Full Load (mA)	Efficiency (%)	Capacitor Load ( $\mu\text{F}$ ) <sup>2</sup>
<b><u>SINGLE OUTPUT</u></b>								
P22TG-243R3E4:1LF	9-36	18	238.3	3.3	0	1300	75	1000
P22TG-2405E4:1LF	9-36	18	260.4	5	0	1000	80	1000
P22TG-2409E4:1LF	9-36	18	257.2	9	0	555	81	470
P22TG-2412E4:1LF	9-36	18	257.2	12	0	416	81	220
P22TG-2415E4:1LF	9-36	18	254.1	15	0	333	82	68
P22TG-2424E4:1LF	9-36	18	260.4	24	0	208	80	68
P22TG-483R3E4:1LF	18-72	15	119.2	3.3	0	1300	75	1000
P22TG-4805E4:1LF	18-72	15	130.2	5	0	1000	80	1000
P22TG-4809E4:1LF	18-72	15	128.6	9	0	555	81	220
P22TG-4812E4:1LF	18-72	15	128.6	12	0	416	81	470
P22TG-4815E4:1LF	18-72	15	127	15	0	333	82	330
P22TG-4824E4:1LF	18-72	15	130.2	24	0	208	80	47
<b><u>DUAL OUTPUT</u></b>								
P22TG-243R3Z4:1LF	9-36	18	281.5	$\pm 3.3$	0	$\pm 757$	74	$\pm 100$
P22TG-2405Z4:1LF	9-36	18	260.4	$\pm 5$	0	$\pm 500$	80	$\pm 470$
P22TG-2409Z4:1LF	9-36	18	257.2	$\pm 9$	0	$\pm 277$	81	$\pm 100$
P22TG-2412Z4:1LF	9-36	18	257.2	$\pm 12$	0	$\pm 208$	81	$\pm 68$
P22TG-2415Z4:1LF	9-36	18	254.1	$\pm 15$	0	$\pm 166$	82	$\pm 22$
P22TG-2424Z4:1LF	9-36	18	260.4	$\pm 24$	0	$\pm 104$	80	$\pm 22$
P22TG-483R3Z4:1LF	18-72	15	140.7	$\pm 3.3$	0	$\pm 757$	74	$\pm 680$
P22TG-4805Z4:1LF	18-72	15	130.2	$\pm 5$	0	$\pm 500$	80	$\pm 330$
P22TG-4809Z4:1LF	18-72	15	128.6	$\pm 9$	0	$\pm 277$	81	$\pm 220$
P22TG-4812Z4:1LF	18-72	15	128.6	$\pm 12$	0	$\pm 208$	81	$\pm 220$
P22TG-4815Z4:1LF	18-72	15	127	$\pm 15$	0	$\pm 166$	82	$\pm 47$
P22TG-4824Z4:1LF	18-72	15	130.2	$\pm 24$	0	$\pm 104$	80	$\pm 22$

If you need other specifications, please enquire.

**\* For optional 3.5kV DC I/O Isolation, please add "H35" before LF!**

→ Example: P22TG-1205Z4:1H35LF for 3.5kV

# Package / Pinning / Derating



PIN CONNECTIONS				
#	Single 1.5kV	Dual 1.5kV	Single 3.5kV	Dual 3.5kV
1	+Vin	+Vin	Omitted	Omitted
2	N.C.	- Vout	- Vin	- Vin
3	N.C.	Common	- Vin	- Vin
9	Omitted	Omitted	Omitted	Common
10	- Vout	Common	Omitted	Omitted
11	+Vout	+Vout	N.C.	- Vout
12	- Vin	- Vin	Omitted	Omitted
13	- Vin	- Vin	Omitted	Omitted
14	+Vout	+Vout	+Vout	+Vout
15	- Vout	Common	Omitted	Omitted
16	Omitted	Omitted	- Vout	Common
22	N.C.	Common	+Vin	+Vin
23	N.C.	- Vout	+Vin	+Vin
24	+Vin	+Vin	Omitted	Omitted

## App Notes:

- <sup>1</sup> = Measured Input reflected ripple current with a simulated source inductance of 12uH.
- <sup>2</sup> = Tested by nominal Vin and constant resistor load.