

# P18TG-xxxxE/Z4:1(H35)LF



## PMQ-SERIES

Rev.09-2009

- ✓ 4 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 P18TG-xxxxE/Z4:1(H35)LF is a family of cost effective 4W, 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
RoHS Conform	Soldering 260 $^\circ\text{C}$ , max. (1.5mm from case 10s.)

# Selection Guide

## Single/Dual Output

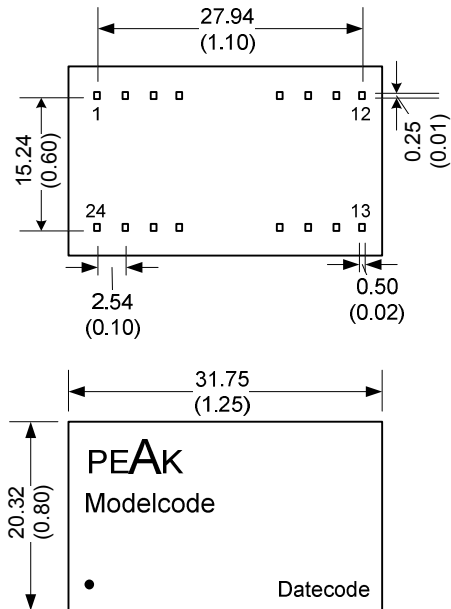
Order #	Input Voltage (VDC)	Input Current No Load (mA)	Input Current Full Load (mA)	Output Voltage (VDC)	Output Current Min. Load (mA)	Output Current Full Load (mA)	Efficiency (%)	Capacitor Load (uF) <sup>2</sup>
<b>SINGLE OUTPUT</b>								
P18TG-243R3E4:1LF	9-36	18	222	3.3	0	1200	75	1000
P18TG-2405E4:1LF	9-36	18	210.9	5	0	800	79	680
P18TG-2409E4:1LF	9-36	18	208.3	9	0	444	80	100
P18TG-2412E4:1LF	9-36	18	205.8	12	0	333	81	100
P18TG-2415E4:1LF	9-36	18	203.3	15	0	266	82	68
P18TG-2424E4:1LF	9-36	18	208.3	24	0	166	80	47
P18TG-483R3E4:1LF	18-72	15	110	3.3	0	1200	75	1000
P18TG-4805E4:1LF	18-72	15	105.5	5	0	800	79	680
P18TG-4809E4:1LF	18-72	15	104.2	9	0	444	80	100
P18TG-4812E4:1LF	18-72	15	102.8	12	0	333	81	100
P18TG-4815E4:1LF	18-72	15	101.6	15	0	266	82	68
P18TG-4824E4:1LF	18-72	15	104.2	24	0	166	80	47
<b>DUAL OUTPUT</b>								
P18TG-243R3Z4:1LF	9-36	18	222	± 3.3	0	± 606	75	± 470
P18TG-2405Z4:1LF	9-36	18	210.9	± 5	0	± 400	79	± 330
P18TG-2409Z4:1LF	9-36	18	208.3	± 9	0	± 222	80	± 47
P18TG-2412Z4:1LF	9-36	18	205.8	± 12	0	± 166	81	± 47
P18TG-2415Z4:1LF	9-36	18	203.3	± 15	0	± 133	82	± 33
P18TG-2424Z4:1LF	9-36	18	208.3	± 24	0	± 83	80	± 22
P18TG-483R3Z4:1LF	18-72	15	110	± 3.3	0	± 606	75	± 470
P18TG-4805Z4:1LF	18-72	15	105.5	± 5	0	± 400	79	± 330
P18TG-4809Z4:1LF	18-72	15	104.2	± 9	0	± 222	80	± 47
P18TG-4812Z4:1LF	18-72	15	102.8	± 12	0	± 166	81	± 47
P18TG-4815Z4:1LF	18-72	15	101.6	± 15	0	± 133	82	± 33
P18TG-4824Z4:1LF	18-72	15	104.2	± 24	0	± 83	80	± 22

If you need other specifications, please enquire.

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

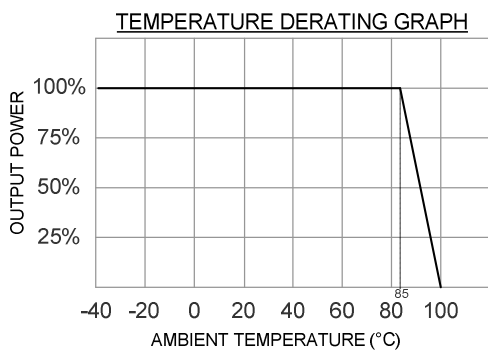
→ Example: P18TG-1205Z4:1H35LF for 3.5kV

# Package / Pinning / Derating



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

## DIP24 – PLASTIC CASE



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.