

# P22TG-xxxxE/Z2:1(H35)LF



## PMD-SERIES

Rev.11-2008

- ✓ 5 Watt
- ✓ 2:1 Wide Input
- ✓ **Reg. Single and Dual Output**
- ✓ **1.5 to 3.5 kV DC I/O Isolation**
- ✓ **DIP24 Case**
- ✓ Continuous Short Circuit Prot.
- ✓ Full SMD Technology

The PMD 5W series P22TG-xxxxE/Z2:1(H35)LF is a family of cost effective 5W single & dual output DC-DC converters. These converters are encapsulated in miniature DIP24 plastic case. High performance features: 1500VDC up to 3500VDC input/output isolation, continuous short circuit protection with automatic restart and tight line / load regulation, high efficiency operation, output voltage accuracy of  $\pm 1\%$  maximum and a wide input range of 2:1

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

### Input Specifications

Voltage Range	2:1 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 ( $\mu\text{F}^2$ )
<b>SINGLE OUTPUT</b>								
P22TG-123R3E2:1LF	9-18	30	490	3.3	0	1300	73	1000
P22TG-1205E2:1LF	9-18	30	542	5	0	1000	77	1000
P22TG-1209E2:1LF	9-18	30	534	9	0	555	78	680
P22TG-1212E2:1LF	9-18	30	514	12	0	417	81	330
P22TG-1215E2:1LF	9-18	30	520	15	0	333	80	220
P22TG-1224E2:1LF	9-18	30	520	24	0	208	80	68
P22TG-243R3E2:1LF	18-36	20	239	3.3	0	1300	75	1000
P22TG-2405E2:1LF	18-36	20	261	5	0	1000	80	1000
P22TG-2409E2:1LF	18-36	20	254	9	0	555	82	680
P22TG-2412E2:1LF	18-36	20	261	12	0	417	80	330
P22TG-2415E2:1LF	18-36	20	255	15	0	333	82	220
P22TG-2424E2:1LF	18-36	20	255	24	0	208	82	68
P22TG-483R3E2:1LF	36-72	12	120	3.3	0	1300	75	1000
P22TG-4805E2:1LF	36-72	12	131	5	0	1000	80	1000
P22TG-4809E2:1LF	36-72	12	127	9	0	555	82	680
P22TG-4812E2:1LF	36-72	12	131	12	0	417	80	330
P22TG-4815E2:1LF	36-72	12	126	15	0	333	83	220
P22TG-4824E2:1LF	36-72	12	126	24	0	208	83	68

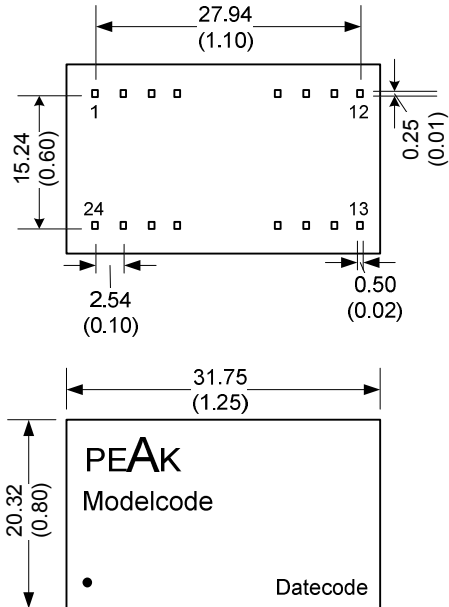
<b>DUAL OUTPUT</b>								
P22TG-123R3Z2:1LF	9-18	30	565	± 3.3	0	± 750	73	± 680
P22TG-1205Z2:1LF	9-18	30	542	± 5	0	± 500	77	± 330
P22TG-1209Z2:1LF	9-18	30	520	± 9	0	± 278	80	± 220
P22TG-1212Z2:1LF	9-18	30	520	± 12	0	± 208	80	± 100
P22TG-1215Z2:1LF	9-18	30	528	± 15	0	± 167	79	± 47
P22TG-1224Z2:1LF	9-18	30	520	± 24	0	± 104	80	± 33
P22TG-243R3Z2:1LF	18-36	20	275	± 3.3	0	± 750	75	± 680
P22TG-2405Z2:1LF	18-36	20	267	± 5	0	± 500	78	± 330
P22TG-2409Z2:1LF	18-36	20	251	± 9	0	± 278	83	± 220
P22TG-2412Z2:1LF	18-36	20	261	± 12	0	± 208	80	± 100
P22TG-2415Z2:1LF	18-36	20	261	± 15	0	± 167	80	± 47
P22TG-2424Z2:1LF	18-36	20	261	± 24	0	± 104	80	± 33
P22TG-483R3Z2:1LF	36-72	12	142	± 3.3	0	± 750	73	± 680
P22TG-4805Z2:1LF	36-72	12	132	± 5	0	± 500	79	± 330
P22TG-4809Z2:1LF	36-72	12	132	± 9	0	± 278	79	± 220
P22TG-4812Z2:1LF	36-72	12	131	± 12	0	± 208	80	± 100
P22TG-4815Z2:1LF	36-72	12	131	± 15	0	± 167	80	± 47
P22TG-4824Z2:1LF	36-72	12	131	± 24	0	± 104	80	± 33

If you need other specifications, please enquire.

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

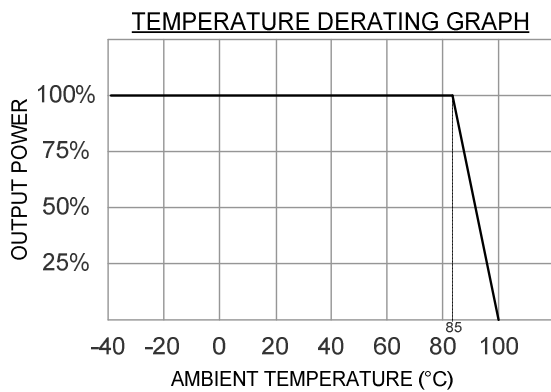
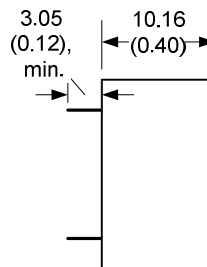
→ Example: P22TG-1205Z2:1H35LF for 3.5kV

# 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	DUAL
2	- Vin	- Vin
3	- Vin	- Vin
9	Omitted	Common
11	N.C.	- Vout
14	+Vout	+Vout
16	- Vout	Common
22	+Vin	+Vin
23	+Vin	+Vin
others	Omitted	Omitted

Same Pinning for 3.5kV Isolation

### 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.