

P22TG-xxxxE/Z4:1(H35)LF



PMQ-SERIES

Rev.01-2009

- ✓ 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 P18TG-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 ¹ | 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.) |

PMQ-Series – P22TG-xxxxE/Z4:1(H35)LF – Single and Dual Output – DIP24 - Plastic Case

Specification can change without a notice – We accept no liability for any inaccuracy or printing errors.

Selection Guide

Single/Dual Output

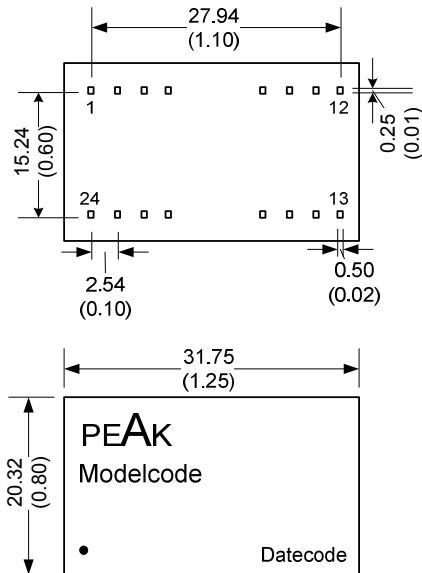
| Order # | Input Voltage (VDC) | Input Current No Load (mA) | Input Current Full Load (mA) | Output Voltage (VDC) | Output Current Min. Load (mA) | Output Current Full Load (mA) | Efficiency (%) | Capacitor Load (uF) [‡] |
|----------------------|---------------------|----------------------------|------------------------------|----------------------|-------------------------------|-------------------------------|----------------|----------------------------------|
| SINGLE OUTPUT | | | | | | | | |
| 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 | 680 |
| P22TG-2409E4:1LF | 9-36 | 18 | 257.2 | 9 | 0 | 555 | 81 | 220 |
| P22TG-2412E4:1LF | 9-36 | 18 | 257.2 | 12 | 0 | 416 | 81 | 100 |
| P22TG-2415E4:1LF | 9-36 | 18 | 254.1 | 15 | 0 | 333 | 82 | 100 |
| P22TG-2424E4:1LF | 9-36 | 18 | 260.4 | 24 | 0 | 208 | 80 | 47 |
| 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 | 680 |
| 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 | 100 |
| P22TG-4815E4:1LF | 18-72 | 15 | 127 | 15 | 0 | 333 | 82 | 100 |
| P22TG-4824E4:1LF | 18-72 | 15 | 130.2 | 24 | 0 | 208 | 80 | 47 |
| DUAL OUTPUT | | | | | | | | |
| P22TG-243R3Z4:1LF | 9-36 | 18 | 281.5 | ± 3.3 | 0 | ± 757 | 74 | ± 470 |
| P22TG-2405Z4:1LF | 9-36 | 18 | 260.4 | ± 5 | 0 | ± 500 | 80 | ± 330 |
| P22TG-2409Z4:1LF | 9-36 | 18 | 257.2 | ± 9 | 0 | ± 277 | 81 | ± 68 |
| P22TG-2412Z4:1LF | 9-36 | 18 | 257.2 | ± 12 | 0 | ± 208 | 81 | ± 47 |
| P22TG-2415Z4:1LF | 9-36 | 18 | 254.1 | ± 15 | 0 | ± 166 | 82 | ± 47 |
| P22TG-2424Z4:1LF | 9-36 | 18 | 260.4 | ± 24 | 0 | ± 104 | 80 | ± 22 |
| P22TG-483R3Z4:1LF | 18-72 | 15 | 140.7 | ± 3.3 | 0 | ± 757 | 74 | ± 470 |
| P22TG-4805Z4:1LF | 18-72 | 15 | 130.2 | ± 5 | 0 | ± 500 | 80 | ± 330 |
| P22TG-4809Z4:1LF | 18-72 | 15 | 128.6 | ± 9 | 0 | ± 277 | 81 | ± 68 |
| P22TG-4812Z4:1LF | 18-72 | 15 | 128.6 | ± 12 | 0 | ± 208 | 81 | ± 47 |
| P22TG-4815Z4:1LF | 18-72 | 15 | 127 | ± 15 | 0 | ± 166 | 82 | ± 47 |
| P22TG-4824Z4:1LF | 18-72 | 15 | 130.2 | ± 24 | 0 | ± 104 | 80 | ± 22 |

If you need other specifications, please enquire.

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

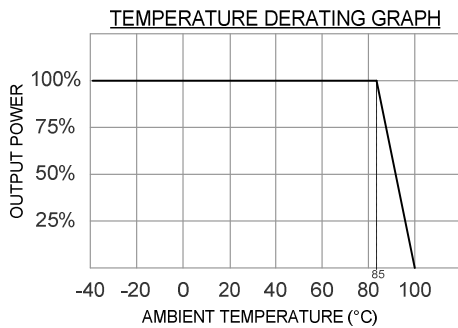
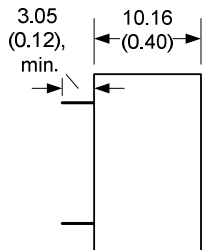
→ Example: P22TG-1205Z4:1H35LF for 3.5kV

Package / Pinning / Derating



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 | N.C. | 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:

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