# PME-xxxxTLF

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PSD-SERIES Rev.04-2009

- ✓ 1 Watt
- ✓ Unregulated
- ✓ **Single** Output
- ✓ **SMD** Case – **Full Pin**
- ✓ **1 kV** DC I/O Isolation
- ✓ Low Ripple and Noise

The PSD series is a family of cost effective 1 W single output DC/DC converters. These converters are in an ultra miniature SMD full-pin case. Devices are encapsulated. High performance features: 1000VDC input/output isolation, industrial standard pinout, high power density, no heat sink required

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

| | | |
|---|---|---|
| **Input Specifications** | | |
| Voltage Range | | ± 10% |
| Input Filter | | Capacitors |
| **Output Specifications** | | |
| Voltage Accuracy | | ± 3% |
| Short Circuit Protection | | Short Term |
| Line Regulation | *3.3 Vout* | ± 1.5%, max. (For Vin Change of 1%) |
| | *Others* | ± 1.2%, max. (For Vin Change of 1%) |
| Load Regulation (10% - 100%) | *3.3 Vout* | 20%, max. |
| | *5 Vout* | 15%, max. |
| | *9, 12, 15, 24 Vout* | 10%, max. |
| Ripple and Noise (20Mhz bandwidth) | | 75 mV pk-pk, max. |
| Temperature Coefficient | | ± 0.03% / ℃ |
| **General Specifications** | | |
| Efficiency | | See Table |
| I/O Isolation Voltage (3 sec.) | | 1000 VDC |
| I/O Isolation Resistance (Tested at 500 VDC) | | 1000 M Ohm |
| Switching Frequency | | 100 kHz, typ (5, 12 Vin); 500 kHz (24Vin) |
| Humidity | | 95% rel H |
| Reliability Calculated MTBF (MIL-HDBK-217F) | | > 3500 khrs |
| **Physical Specifications** | | |
| Case Material | | Non Conductive Black Plastic (UL94V-0 rated) |
| Potting Material | | Epoxy (UL94V-0 rated) |
| Weight | | ~ 1.4g, max. |
| **Environment Specifications** | | |
| Operating Temperature | | -40 to +85℃ (ambient) |
| Storage Temperature | | -55 to +125℃ |
| Cooling | | Free Air Convection (10mm distance required) |
| Soldering | | Not usable for heat steam soldering |
| RoHS Conform | | |

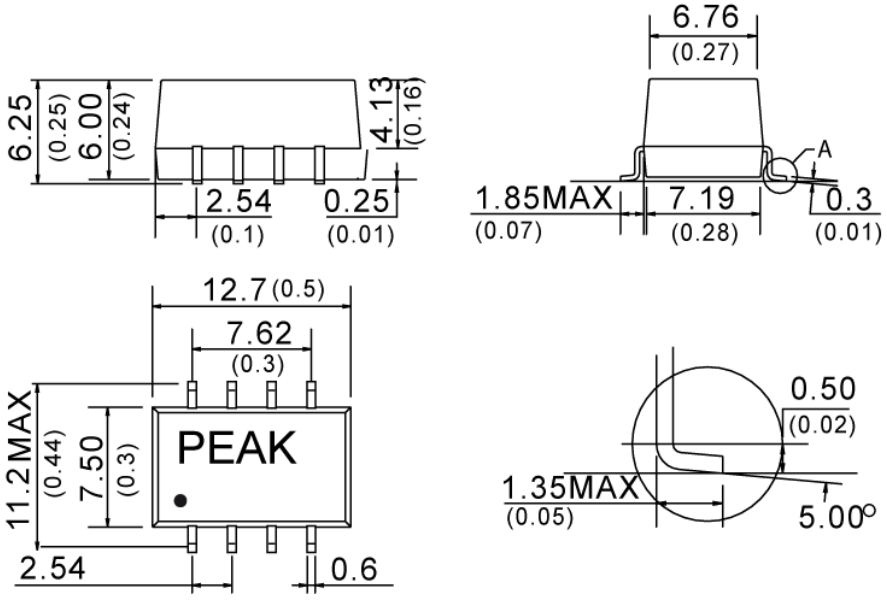
# Selection Guide
## **Single** Output

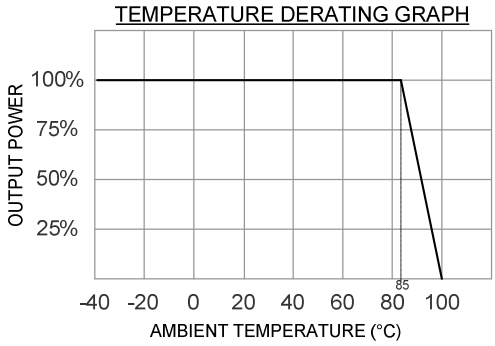
| Order # | Input Voltage (VDC) | Output Voltage (VDC) | Output Current max. (mA) | Output Current min. (mA) | Efficiency (%) |
|---|---|---|---|---|---|
| **SINGLE OUTPUT** | | | | | |
| PME-3R33R3TLF | 3.3 | 3.3 | 303 | 30 | 73 |
| PME-3R305TLF | 3.3 | 5 | 200 | 20 | 74 |
| PME-053R3TLF | 5 | 3.3 | 303 | 30 | 72 |
| PME-0505TLF | 5 | 5 | 200 | 20 | 77 |
| PME-0509TLF | 5 | 9 | 111 | 12 | 76 |
| PME-0512TLF | 5 | 12 | 84 | 9 | 79 |
| PME-0515TLF | 5 | 15 | 67 | 7 | 78 |
| PME-1205TLF | 12 | 5 | 200 | 20 | 69 |
| PME-1209TLF | 12 | 9 | 111 | 12 | 73 |
| PME-1212TLF | 12 | 12 | 84 | 9 | 73 |
| PME-1215TLF | 12 | 15 | 67 | 7 | 74 |
| PME-243R3TLF | 24 | 3.3 | 300 | 30 | 69 |
| PME-2405TLF | 24 | 5 | 200 | 20 | 70 |
| PME-2409TLF | 24 | 9 | 110 | 11 | 72 |
| PME-2412TLF | 24 | 12 | 83 | 8 | 75 |
| PME-2415TLF | 24 | 15 | 67 | 7 | 76 |
| PME-2424TLF | 24 | 24 | 42 | 4 | 77 |

If you need other specifications, please enquire.

Notes:

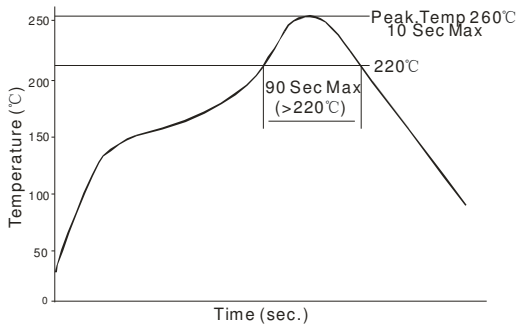
# Package / Pinning / Derating




| PIN CONNECTIONS | |
|---|---|
| # | SINGLE |
| 1 | - Vin |
| 2 | +Vin |
| 4 | - Vout |
| 5 | +Vout |
| Others | N.C. |

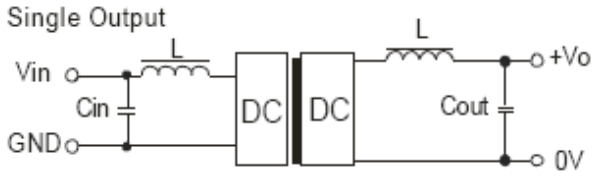
**Reflow:**



# App Notes

**Requirement on output load**
To ensure this module can operate efficiently and reliably, during operation, the minimum output load is **not less than 10%** of the full load, and that **this product should never be operated under no-load!** If the actual output power is very small, please connect a resistor with proper resistance at the output end in parallel to increase the load.

**Recommended testing circuit**
If you want to further decrease the input/output ripple, an "LC" filtering network may be connected to the input and output ends if the DC/DC converter, see Figure on the right hand side.

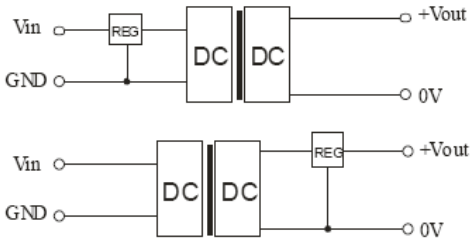



It should also be noted that the inductance and the frequency of the "LC" filtering network should be staggered with the DC/DC frequency to avoid mutual interference. However, the capacitance of the output filter capacitor must be proper. If the capacitance is too big, a start-up problem might arise. For every channel of output, provided the safe and reliable operation is ensured, the greatest capacitance of its filter capacitor sees (see Table).

**Output Voltage Regulation and Over-voltage Protection Circuit**
The simplest device for output voltage regulation, over-voltage and over-current protection is a linear voltage regulator with overheat protection that is connected to the input or output end in series.

| EXTERNAL CAPACITOR TABLE | | | |
|---|---|---|---|
| Vin (VDC) | Cin (uF) | Vout (VDC) | Cout (uF) |
| 3.3 / 5 | 4.7 | 3.3 / 5 | 10 |
| 12 | 2.2 | 9 | 4.7 |
| 24 | 0.47 | 12 | 2.2 |
| -- | -- | 15 | 1 |
| -- | -- | 24 | 0.47 |
| It's not recommend to connect any external capacitor in the application field with less than 0.5 watt output. | | | |

**Overload Protection**
Under normal operating conditions, the output circuit of these products has no protection against over-current and short-circuits. The simplest method is to connect a self-recovery fuse in series at the input end or add a circuit breaker to the circuit.




**No parallel connection or plug and play.**