

Features

- ◆ AC/DC power modules for PCB mounting
- ◆ Highest power density
- ◆ Fully encapsulated plastic case
- ◆ Universal input 90–264 VAC, 47–440 Hz
- ◆ High efficiency
- ◆ EMI meets EN 55022, class B and FCC, level B
- ◆ Low ripple and noise
- ◆ Short circuit and overload protection
- ◆ 3-year product warranty



The TMLM Series switching power supplies, offer highest power density in a fully encapsulated module which can be soldered directly on to PCBs. This feature makes these modules an ideal solution for all space critical applications in commercial and industrial electronic equipment. International safety approvals qualify the product for worldwide markets. SMD-technology and high efficiency guarantees a high reliability of these Power Supplies.

Models

| Order Code | Output Power max. | Output 1 | Output 2 | Efficiency |
|------------|-------------------|-------------------|-------------------|------------|
| TMLM 04103 | 4.0 Watt | 3.3 VDC / 1200 mA | | 67 % |
| TMLM 04105 | 4.0 Watt | 5.0 VDC / 800 mA | | 69 % |
| TMLM 04109 | 4.0 Watt | 9.0 VDC / 444 mA | | 72 % |
| TMLM 04112 | 4.0 Watt | 12 VDC / 333 mA | | 70 % |
| TMLM 04115 | 4.0 Watt | 15 VDC / 267 mA | | 74 % |
| TMLM 04124 | 4.0 Watt | 24 VDC / 167 mA | | 73 % |
| TMLM 04253 | 3.5 Watt | +5.0 VDC / 600 mA | +3.3 VDC / 150 mA | 69 % |
| TMLM 04225 | 3.6 Watt | +12 VDC / 250 mA | +5.0 VDC / 120 mA | 69 % |
| TMLM 05103 | 4.1 Watt | 3.3 VDC / 1250 mA | | 68 % |
| TMLM 05105 | 5 Watt | 5.0 VDC / 1000 mA | | 71 % |
| TMLM 05112 | 5 Watt | 12 VDC / 420 mA | | 75 % |
| TMLM 05115 | 5 Watt | 15 VDC / 333 mA | | 75 % |
| TMLM 05124 | 5.5 Watt | 24 VDC / 230 mA | | 77 % |
| TMLM 10103 | 8.2 Watt | 3.3 VDC / 2500 mA | | 74 % |
| TMLM 10105 | 10 Watt | 5.0 VDC / 2000 mA | | 79 % |
| TMLM 10112 | 10 Watt | 12 VDC / 833 mA | | 82 % |
| TMLM 10115 | 10 Watt | 15 VDC / 667 mA | | 78 % |
| TMLM 10124 | 10 Watt | 24 VDC / 417 mA | | 80 % |
| TMLM 20103 | 12 Watt | 3.3 VDC / 3600 mA | | 74 % |
| TMLM 20105 | 18 Watt | 5.0 VDC / 3600 mA | | 78 % |
| TMLM 20112 | 20 Watt | 12 VDC / 1660 mA | | 82 % |
| TMLM 20115 | 20 Watt | 15 VDC / 1330 mA | | 83 % |
| TMLM 20124 | 20 Watt | 24 VDC / 833 mA | | 83 % |

Input Specifications

| | | |
|--|---------------------------|--------------------------------|
| Input voltage | - Nominal | 100 – 240 VAC |
| | - Range | 90 – 264 VAC (universal input) |
| | - DC range | 120 – 370 VDC |
| Input frequency | | 47 – 440 Hz |
| Input current at full load (115 VAC / 230 VAC) | TMLM 04 models: | 110 mA / 70 mA typ. |
| | TMLM 05 models: | 110 mA / 70 mA typ. |
| | TMLM 10 models: | 220 mA / 150 mA typ. |
| | TMLM 20 models: | 385 mA / 250 mA typ. |
| Inrush current (<2 ms) (115 VAC / 230 VAC) | TMLM 04 models: | 15 A max / 25 A max. |
| | TMLM 05 & TMLM 10 models: | 10 A max / 20 A max. |
| | TMLM 20 models: | 20 A max / 40 A max. |
| External input fuse required (recommended value) | | 3.15 A slow blow type |

Output Specifications

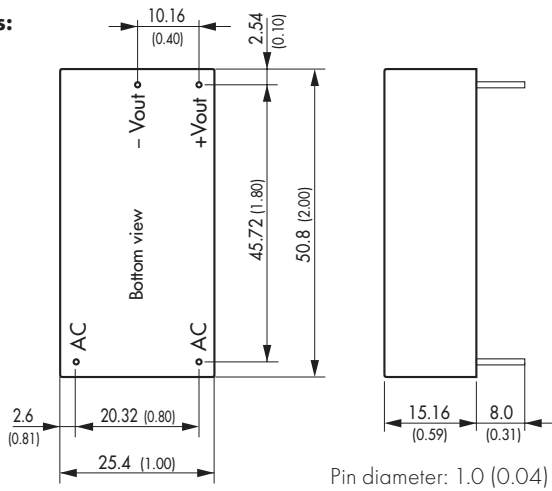
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|--|--|--|---------------------------|
| Voltage set accuracy | | ±2 % | |
| Regulation | - Input variation | 0.3 % max. (0.5% max. for TMLM 20 models, 3.0 % max for output 2) | |
| | - Load variation | TMLM 04; 3.3 VDC models: | 1.0 % max. (0–100% load) |
| | | TMLM 04 other models output 1: | 0.5 % max. (0–100% load) |
| | | TMLM 04 output 2: | 5.0 % max. (25–100% load) |
| | | TMLM 05 & TMLM 10 models: | 0.5 % max. (5–100% load) |
| | TMLM 20 models: | 1.0 % max. (5–100% load) | |
| Minimum load | | 0 % (25% for dual output models) operation at 0-load condition will not damage these power supplies, however, they may not meet all listed specifications | |
| Ripple and noise (20 MHz bandwidth) | TMLM 04; 3.3 VDC models: | <250 mV | |
| | TMLM 04; 5.0 VDC models: | <200 mV | |
| | TMLM 04; other models: | <100 mV | |
| | TMLM 05 & TMLM 10; 3.3 & 5.0 VDC models: | <130 mV | |
| | TMLM 05 & TMLM 10; 12 & 15 VDC models: | <210 mV | |
| | TMLM 05 & TMLM 10; 24 VDC models: | <280 mV | |
| | TMLM 20; 3.3 & 5.0 VDC models: | <200 mV | |
| | TMLM 20; 12 VDC model: | <240 mV | |
| | TMLM 20; 15 VDC model: | <300 mV | |
| | TMLM 20; 24 VDC model: | <480 mV | |
| | - Ripple & noise measured with: | 0.1 uF & 47 uF parallel capacitor | |
| Current limitation | | 120 – 180 %, hiccup technique | |
| Short circuit protection | | hiccup mode, indefinite (automatic recovery) | |
| Overvoltage protection by Zener diode (main output only) | | 120 % of Vout typ. | |

| Max. capacitive load [µF] | | Model series | | | |
|---------------------------|-------------------|---------------|---------|---------|---------|
| | | TMLM 04 | TMLM 05 | TMLM 10 | TMLM 20 |
| Single output models: | Output: 3.3 VDC | 14'000 | 13'800 | 75'000 | 4'500 |
| | 5.0 VDC | 8'000 | 6'000 | 40'000 | 3'500 |
| | 9.0 VDC | 2'400 | - | - | - |
| | 12 VDC | 1'000 | 1'400 | 8'500 | 1'800 |
| | 15 VDC | 700 | 1'000 | 3'500 | 1'500 |
| | 24 VDC | 220 | 170 | 1'200 | 1'200 |
| Dual output models: | 5.0 VDC / 3.3 VDC | 5'600 / 4'700 | - | - | - |
| | 12 VDC / 5.0 VDC | 330 / 4'700 | - | - | - |

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

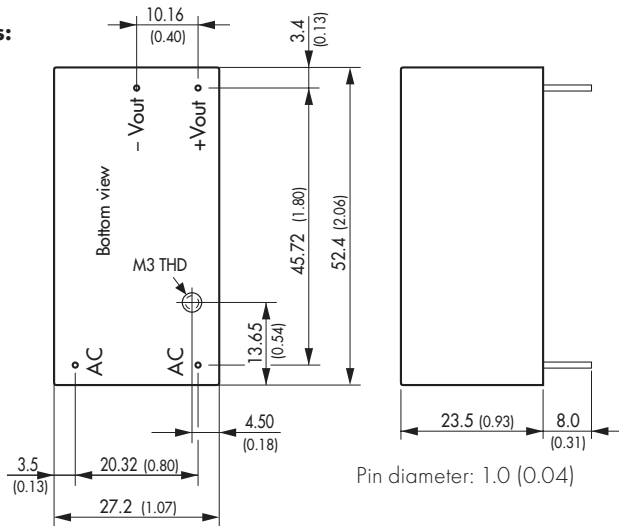
Outline Dimensions

TMLM 05 Models:



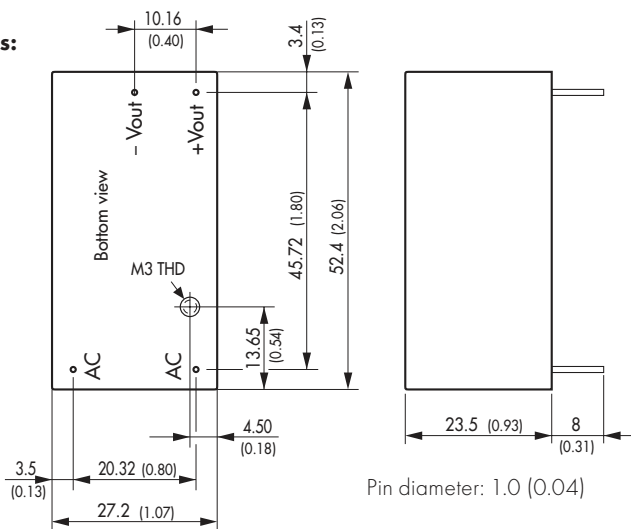
Weight: 30 g (1.06 oz)

TMLM 10 Models:



Weight: 54 g (1.91 oz)

TMLM 20 Models:



Weight: 59 g (2.08 oz)

Dimensions in [mm], () = Inch
Tolerances: ± 0.5 (± 0.02)
Pin pitch tolerance: ± 0.3 (± 0.012)
Max mounting screw penetration: 3.0 mm (0.12)

Specifications can be changed without notice! Make sure you are using the latest documentation, downloadable at www.tracopower.com