AC/DC Power Supply

• Compact chassis mount power module in 2.17” x 1.70” package
• Wide input voltage range 90-305 VAC
• Certified according to EN 60335-1 an IEC/EN/UL 62368-1
• I/O-Isolation 4’000 VAC
• Operating temperature range –40°C to +70°C
• No load input power <0.1W (acc. ErP directive)
• High efficiency up to 83%
• Internal EN 55032 class B filter
• Protection class II prepared
• 3-year product warranty

The TMPW 5-T is a 5 Watt AC/DC series with an extended input range of 90-305 VAC and is suitable for industrial and household/building technology applications and comes in a compact encapsulated plastic case. The 305 VAC (277 VAC ±10%) threshold is derived from a 480 VAC three-phase supply voltage often used in heavy industrial applications. Through the increased voltage level, the drawn current from the load is effectively reduced, which allows for an overall more compact and lightweight design approach. They offer an I/O-isolation voltage of 4000 VAC, a high temperature range of -40 to +70°C and are prepared for protection class II applications. Additionally, an internal EN 55032 class B filter saves valuable board space for an otherwise often mandatory external filter setup. An energy efficient design (<0.1 Watt standby power consumption) and safety approvals according to IEC/EN/UL 62368-1 and EN 60335-1 make this series suitable for a wide range of industrial and household/building technology applications.

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Screw terminals</td>
<td>JST connectors *</td>
<td>5 W</td>
<td>3.3 VDC</td>
<td>1'515 mA</td>
<td>73 %</td>
</tr>
<tr>
<td>TMPW 5-103-T</td>
<td>TMPW 5-103-J</td>
<td></td>
<td>5 VDC</td>
<td>1'000 mA</td>
<td>77 %</td>
</tr>
<tr>
<td>TMPW 5-105-T</td>
<td>TMPW 5-105-J</td>
<td></td>
<td>12 VDC</td>
<td>420 mA</td>
<td>81 %</td>
</tr>
<tr>
<td>TMPW 5-112-T</td>
<td>TMPW 5-112-J</td>
<td></td>
<td>24 VDC</td>
<td>210 mA</td>
<td>83 %</td>
</tr>
</tbody>
</table>

Options


Note - * Technically identical series with JST connectors available. See: www.tracopower.com/overview/tmpw5-j
## Input Specifications

<table>
<thead>
<tr>
<th>Voltage Set Accuracy</th>
<th>±2% max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage Reg.</td>
<td>±0.2% max. (3.3 &amp; 5 Vout models)</td>
</tr>
<tr>
<td>±0.1% max. (other models)</td>
<td></td>
</tr>
<tr>
<td>±0.5% max. (other models)</td>
<td></td>
</tr>
<tr>
<td>Ripple and Noise, (20 MHz Bandwidth)</td>
<td>60 mVp-p max. (w/ 0.1 µF</td>
</tr>
<tr>
<td>60 mVp-p max. (w/ 0.1 µF</td>
<td></td>
</tr>
<tr>
<td>120 mVp-p max. (w/ 0.1 µF</td>
<td></td>
</tr>
<tr>
<td>200 mVp-p max. (w/ 0.1 µF</td>
<td></td>
</tr>
</tbody>
</table>

| Capacitive Load | 3'500 µF max. |
| 2'500 µF max. |
| 470 µF max. |
| 150 µF max. |

| Minimum Load | Not required |
| Hold-up Time | 15 ms min. |
| Start-up Time | 60 ms max. |
| 60 ms max. |

## Output Specifications

| Voltage Set Accuracy | ±0.02 %/K max. |
| Voltage Reg. | 115 - 195% of Iout max. |
| Overvoltage Protection | 105 - 145% of Vout nom. |

| Short Circuit Protection | Continuous, Automatic recovery |
| Output Current Limitation | (By Zener diode) |

| Transient Response | 2% typ. / 3% max. (50% to 75% Load Step) |
| Response Time | 500 µs max. (50% to 75% Load Step) |

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

Standards
- IT / Multimedia Equipment
  EN 62368-1
  IEC 62368-1
  UL 62368-1
- Household
  EN 60335-1
  IEC 60335-1
- Power Transformers
  IEC 61558-1
  IEC 61558-2-16
- Certification Documents
  www.tracopower.com

Protection Class
Class I & II [Prepared]: Reinforced Insulation

Pollution Degree
PD 2

Over Voltage Category
OVC II

EMC Specifications

EMI Emissions
- Conducted Emissions
  EN 55032 class B (internal filter)
- Radiated Emissions
  EN 55032 class B (internal filter)
- Harmonic Current Emissions
  EN 61000-3-2, class A
- Voltage Fluctuations & Flicker
  EN 61000-3-3

EMS Immunity
- Electrostatic Discharge
  Air: EN 61000-4-2, ±8 kV, perf. criteria A
  Contact: EN 61000-4-2, ±4 kV, perf. criteria A
- RF Electromagnetic Field
  EN 61000-4-3, 10 V/m, perf. criteria A
- EFT (Burst) / Surge
  L to L: EN 61000-4-5, ±2 kV, perf. criteria A
  Continuous: EN 61000-4-8, 30 A/m, perf. criteria A
  230 VAC / 50 Hz: EN 61000-4-11
  30%, 25 periods, perf. criteria A
  60%, 10 periods, perf. criteria B
  >95%, 0.5 periods, perf. criteria A
  >95%, 250 periods, perf. criteria B
  100%, 1 period, perf. criteria A
  100%, 250 periods, perf. criteria B
- Conducted RF Disturbances
  EN 61000-4-6, 10 Vrms, perf. criteria A
- PF Magnetic Field
  EN 61000-4-11
  Continuous
  30%, 25 periods, perf. criteria A
  60%, 10 periods, perf. criteria B
  >95%, 0.5 periods, perf. criteria A
  >95%, 250 periods, perf. criteria B
  100%, 1 period, perf. criteria A
  100%, 250 periods, perf. criteria B
  115 VAC / 60 Hz
  30%, 25 periods, perf. criteria A
  60%, 10 periods, perf. criteria B
  >95%, 0.5 periods, perf. criteria A
  >95%, 250 periods, perf. criteria B
  100%, 1 period, perf. criteria A
  100%, 250 periods, perf. criteria B

General Specifications

Relative Humidity
95% max. [non condensing]

Temperature Ranges
- Operating Temperature
  −40°C to +70°C
- Storage Temperature
  −40°C to +85°C

Power Derating
- High Temperature
  2.5 %/K above 50°C [High Temperature]
  2.0 %/K below −30°C [Low Temperature]
  See application note: www.tracopower.com/overview/tmpw5-t

Cooling System
Natural convection (20 LFM)

Altitude During Operation
5,000 m max. [acc. IEC 62368-1]
2,000 m max. [acc. IEC 60335-1]

Switching Frequency
60 - 150 kHz [PWM, FFM]

Insulation System
Reinforced Insulation

Working Voltage (rated)
314 VAC

Isolation Test Voltage
- Input to Output, 60 s
  4,000 VAC

All specifications valid at nominal voltage, resistive full load and +25°C after warm-up time, unless otherwise stated.
**Leakage Current**
- Touch Current: 250 µA max.

**Reliability**
- Calculated MTBF: 450,000 h (MIL-HDBK-217F, ground benign)

**Environment**
- **Vibration**: IEC 60068-2-6
  - 2 g, 3 axis, 60 min, 10-500 Hz, 10 min/cycle
- **Mechanical Shock**: IEC 60068-2-27

**Housing Material**: Plastic resin (UL 94 V-0 rated)
**Potting Material**: Silicone (UL 94 V-0 rated)
**Housing Type**: Plastic Case
**Mounting Type**: Chassis Mount
**Connection Type**: Screw Terminal

**Weight**: 60 g

**Environmental Compliance**
- **REACH Declaration**: www.tracopower.com/info/reach-declaration.pdf
  - REACH SVHC list compliant
  - REACH Annex XVII compliant

  - Exemptions: 7c-I
  - (RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule)).

- **SCIP Reference Number**: 2850f896-dd56-4b18-a98b-adadb4b5a6dc

**Supporting Documents**
- Overview Link (for additional Documents): www.tracopower.com/overview/tmpw5-t

**Outline Dimensions**

```
Dimensions in mm (inch)
Tolerances: ±0.05 (±0.02)
Mounting screw locked torque: 0.2 Nm (2 kgfcm)
```

**Pinout**

<table>
<thead>
<tr>
<th>Pin</th>
<th>Single</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AC IN (L)</td>
</tr>
<tr>
<td>2</td>
<td>AC IN (N)</td>
</tr>
<tr>
<td>3</td>
<td>–Vout</td>
</tr>
<tr>
<td>4</td>
<td>NC</td>
</tr>
<tr>
<td>5</td>
<td>+Vout</td>
</tr>
</tbody>
</table>

NC: Not connected

Connectors: EK381V-03P
Torque: 0.3 Nm (3 kgfcm)