AC/DC Power Supply

TMPW 25-T Series, 25 Watt

- Compact chassis mount power module in 3.48" x 1.50" 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 88%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3 year product warranty

The TMPW 25-T is a 25 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.

Models

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>TMPW 25-105-T</td>
<td>TMPW 25-105-J</td>
<td>20 W</td>
<td>5.1 VDC</td>
<td>3'922 mA</td>
<td>84 %</td>
</tr>
<tr>
<td>TMPW 25-112-T</td>
<td>TMPW 25-112-J</td>
<td>25 W</td>
<td>12 VDC</td>
<td>2'083 mA</td>
<td>88 %</td>
</tr>
<tr>
<td>TMPW 25-115-T</td>
<td>TMPW 25-115-J</td>
<td></td>
<td>15 VDC</td>
<td>1'666 mA</td>
<td>88 %</td>
</tr>
<tr>
<td>TMPW 25-124-T</td>
<td>TMPW 25-124-J</td>
<td></td>
<td>24 VDC</td>
<td>1'042 mA</td>
<td>87 %</td>
</tr>
</tbody>
</table>

Options


## Input Specifications

<table>
<thead>
<tr>
<th>Input Voltage</th>
<th>Operational Range: 90 - 305 VAC (Full Range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- AC Range</td>
<td>Rated Range: 100 - 277 VAC (Full Range)</td>
</tr>
<tr>
<td>- DC Range</td>
<td>Certified Range: 100 - 250 VDC</td>
</tr>
<tr>
<td></td>
<td>Polarity: irrelevant</td>
</tr>
<tr>
<td></td>
<td>(The rated range refers to 62368-1. For 60335-1 certification the rated input voltage is 100 - 240 VAC and DC input is not permitted.)</td>
</tr>
</tbody>
</table>

### Input Frequency

<table>
<thead>
<tr>
<th>Input Frequency</th>
<th>Operational Range: 47 - 440 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certified:</td>
<td>50/60 Hz</td>
</tr>
</tbody>
</table>

### Input Current

| - Full Load & Vin = 230 VAC | 320 mA max. |
| - Full Load & Vin = 115 VAC | 490 mA max. |

### Power Consumption

| - No load & Vin = 230 VAC | 100 mW max. (Ready to meet ErP directive) |
| - No load & Vin = 115 VAC | 100 mW max. |

### Input Inrush Current

| - At 230 VAC | 60 A max. |
| - At 115 VAC | 30 A max. |

### Recommended Input Fuse

2'500 mA (slow blow)
(The need of an external fuse has to be assessed in the final application.)

## Output Specifications

### Voltage Set Accuracy

- Input Variation (Vmin - Vmax): ±2% max.
- Load Variation (0 - 100%):
  - 1% max., 3% max. (5.1 Vout models)
  - 2 % max. (other models)

### Regulation

- 5.1 VDC model: 120 mVp-p max. (w/ 0.1 µF || 47 µF)
- 12 VDC model: 150 mVp-p max. (w/ 0.1 µF || 47 µF)
- 15 VDC model: 160 mVp-p max. (w/ 0.1 µF || 47 µF)
- 24 VDC model: 240 mVp-p max. (w/ 0.1 µF || 47 µF)

### Ripple and Noise

(20 MHz Bandwidth)

| 5.1 VDC model: | 2'000 µF max. |
| 12 VDC model:  | 680 µF max.   |
| 15 VDC model:  | 220 µF max.   |
| 24 VDC model:  | 220 µF max.   |

### Capacitive Load

| 5.1 VDC model: | Not required |
| 12 VDC model:  | ±0.05 %/K max. |
| 15 VDC model:  | 36 ms min.   |
| 24 VDC model:  | 130 ms max.  |

### Hold-up Time

| - At 230 VAC | 36 ms min. |
| - At 115 VAC | 130 ms max. |

### Short Circuit Protection

Continuous, Automatic recovery

### Output Current Limitation

140 - 280% of Iout max.

### Overvoltage Protection

105 - 145% of Vout nom.
(By Zener diode)

### Transient Response

- Response Deviation
  - 2% typ. / 3% max. (50% to 75% Load Step)
  - 500 µs max. (50% to 75% Load Step)

### Safety Specifications

<table>
<thead>
<tr>
<th>Safety Standards</th>
<th>EN 62368-1</th>
</tr>
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<tbody>
<tr>
<td>- IT / Multimedia Equipment</td>
<td>IEC 62368-1</td>
</tr>
<tr>
<td>- Household</td>
<td>UL 62368-1</td>
</tr>
<tr>
<td>- Power Transformers</td>
<td>EN 60335-1</td>
</tr>
<tr>
<td>- Certification Documents</td>
<td>IEC 60335-1</td>
</tr>
<tr>
<td>- Certification Documents</td>
<td>IEC 61558-1</td>
</tr>
<tr>
<td></td>
<td>IEC 61558-2-16</td>
</tr>
</tbody>
</table>

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

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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, 3 V/m, perf. criteria A
- EFT (Burst) / Surge: EN 61000-4-4, ±1 kV, perf. criteria A
- Conducted RF Disturbances: EN 61000-4-6, 3 Vrms, perf. criteria A
- PF Magnetic Field: EN 61000-4-8, 1 A/m, perf. criteria A
- Voltage Dips & Interruptions: EN 61000-4-11
  30%, 25 periods, perf. criteria A
  >95%, 250 periods, perf. criteria B

### General Specifications

**Temperature Ranges**
- Operating Temperature: 4°C to +70°C
- Storage Temperature: 4°C to +85°C

**Power Derating**
- High Temperature: 2.5 %/K above 50°C (High Temperature)
  2.0 %/K below ~30°C (Low Temperature)
- Low Input Voltage: 2 %/V below 100 VAC

**Relative Humidity**
95% max. (non condensing)

**Switching Frequency**
50 - 68 kHz (PWM, PFM)

**Insulation System**
Reinforced Insulation

**Working Voltage (rated)**
311 VAC

**Isolation Test Voltage**
- Input to Output: 60 s
  4'000 VAC
- Touch Current: 250 µA max.

**Reliability**
- Calculated MTBF: 400'000 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**
100 g

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

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Environmental Compliance - REACH Declaration

- REACH SVHC list compliant
- REACH Annex XVII compliant
- RoHS Declaration

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

- SCIP Reference Number
  b3d76bc2-7b6c-4bb6-9ca5-7c666f237530

Supporting Documents
Overview Link (for additional Documents)
www.tracopower.com/overview/tmpw25-t

Outline Dimensions

### Pinout

<table>
<thead>
<tr>
<th>Pin</th>
<th>Single</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AC IN (N)</td>
</tr>
<tr>
<td>2</td>
<td>AC IN (L)</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)

Dimensions in mm (inch)
Tolerances: ±0.5 (±0.02)
Mounting screw locked torque: 0.29 Nm (3 kgfcm)