AC/DC Power Supply

TMPW 10-J Series, 10 Watt

- Compact chassis mount power module in 2.17” x 1.08” 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 86%
- Internal EN 55032 class B filter
- Protection class II prepared
- 3 year product warranty

The TMPW 10-J is a 10 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.

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<tr>
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</thead>
<tbody>
<tr>
<td>TMPW 10-105-J</td>
<td>10 W</td>
<td>5 VDC</td>
<td>2'000 mA</td>
<td>81 %</td>
<td></td>
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<tr>
<td>TMPW 10-112-J</td>
<td></td>
<td>12 VDC</td>
<td>833 mA</td>
<td>85 %</td>
<td></td>
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<tr>
<td>TMPW 10-115-J</td>
<td></td>
<td>15 VDC</td>
<td>667 mA</td>
<td>86 %</td>
<td></td>
</tr>
<tr>
<td>TMPW 10-124-J</td>
<td></td>
<td>24 VDC</td>
<td>417 mA</td>
<td>86 %</td>
<td></td>
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</tbody>
</table>

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### Input Specifications

**Input Voltage**
- AC Range: 90 - 305 VAC (Full Range)
- DC Range: 100 - 250 VDC (264 VAC max. for Household Certification)

**Input Frequency**
- Full Load & Vin = 230 VAC: 47 - 63 Hz (designed to meet: 47 - 440 Hz)

**Input Current**
- Full Load & Vin = 230 VAC: 140 mA max.
- At 230 VAC: 60 A max.
- At 115 VAC: 30 A max.
- Full Load & Vin = 115 VAC: 230 mA max.

**Power Consumption**
- At no load: 100 mW max.
- Input Inrush Current
  - At 230 VAC: 60 A max.
  - At 115 VAC: 30 A max.

**Recommended Input Fuse**
- 1600 mA (slow blow)
- (The need of an external fuse has to be assessed in the final application)

### Output Specifications

**Voltage Set Accuracy**
- ±2% max.

**Regulation**
- Input Variation (Vmin - Vmax): 0.2% max.
- Load Variation (0 - 100%): 1% max. (5 & 12 Vout models)
- 0.5% max. (other models)

**Ripple and Noise**
- (20 MHz Bandwidth)
  - 5 VDC model: 60 mVp-p max. (w/ 0.1 µF // 47 µF)
  - 12 VDC model: 120 mVp-p max. (w/ 0.1 µF // 47 µF)
  - 15 VDC model: 150 mVp-p max. (w/ 0.1 µF // 47 µF)
  - 24 VDC model: 240 mVp-p max. (w/ 0.1 µF // 47 µF)

**Capacitive Load**
- 5 VDC model: 3'500 µF max.
- 12 VDC model: 700 µF max.
- 15 VDC model: 390 µF max.
- 24 VDC model: 180 µF max.

**Minimum Load**
- Not required

**Temperature Coefficient**
- ±0.02 %/K max.

**Hold-up Time**
- At 230 VAC: 30 ms min.

**Start-up Time**
- At 230 VAC: 60 ms max.
- At 115 VAC: 60 ms max.

**Short Circuit Protection**
- Continuous, Automatic recovery

**Overvoltage Protection**
- 105 - 145% of Vout nom.
  (By zener diode)

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

### Safety Specifications

**Safety Standards**
- IT / Multimedia Equipment: EN 62368-1
- Household: UL 62368-1
- Certification Documents: EN 60335-1
- IEC 60335-1
- www.tracopower.com/overview/tmpw10-j

**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)
- Voltage Fluctuations & Flicker: EN 61000-3-3

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

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### General Specifications

<table>
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<tr>
<th>Specification</th>
<th>Details</th>
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<tbody>
<tr>
<td>Relative Humidity</td>
<td>95% max. (non-condensing)</td>
</tr>
<tr>
<td>Temperature Ranges</td>
<td>- Operating Temperature: -40°C to +70°C</td>
</tr>
<tr>
<td></td>
<td>- Storage Temperature: -40°C to +85°C</td>
</tr>
<tr>
<td>Power Derating</td>
<td>- High Temperature: 2.5 %/K above 50°C</td>
</tr>
<tr>
<td></td>
<td>- Low Input Voltage: 2 %/V below 100 VAC</td>
</tr>
<tr>
<td>Cooling System</td>
<td>Natural convection (20 LFM)</td>
</tr>
<tr>
<td>Altitude During Operation</td>
<td>5'000 m max.</td>
</tr>
<tr>
<td>Switching Frequency</td>
<td>35 - 75 kHz (PWM) (PFM)</td>
</tr>
<tr>
<td>Insulation System</td>
<td>Reinforced Insulation</td>
</tr>
<tr>
<td>Working Voltage (rated)</td>
<td>254 VAC</td>
</tr>
<tr>
<td>Isolation Test Voltage</td>
<td>- Input to Output: 60 s, 4'000 VAC</td>
</tr>
<tr>
<td></td>
<td>- Touch Current: 250 µA max.</td>
</tr>
<tr>
<td>Leakage Current</td>
<td>450'000 h (MIL-HDBK-217F, ground benign)</td>
</tr>
<tr>
<td>Reliability</td>
<td>- Calculated MTBF</td>
</tr>
<tr>
<td>Environment</td>
<td>IEC 60068-2-6</td>
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<tr>
<td></td>
<td>2 g, 3 axis, 60 min, 10-500 Hz, 10 min/cycle</td>
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<tr>
<td>Housing Material</td>
<td>Plastic resin (UL 94 V-0 rated)</td>
</tr>
<tr>
<td>Potting Material</td>
<td>Silicone (UL 94 V-0 rated)</td>
</tr>
<tr>
<td>Connection Type</td>
<td>JST</td>
</tr>
<tr>
<td>Weight</td>
<td>65 g</td>
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<tr>
<td>Environmental Compliance</td>
<td>Reach</td>
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<td></td>
<td>RoHS</td>
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<tr>
<td>Supporting Documents</td>
<td><a href="http://www.tracopower.com/info/reach-declaration.pdf">www.tracopower.com/info/reach-declaration.pdf</a></td>
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<td><a href="http://www.tracopower.com/info/rohs-declaration.pdf">www.tracopower.com/info/rohs-declaration.pdf</a></td>
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All specifications valid at nominal voltage, full load and +25°C after warm-up time unless otherwise stated.
Outline Dimensions

Dimensions in mm (inch)
Tolerances: ±0.5 (±0.02)

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

For DC Input:
Connect +Vin to N
Connect –Vin to L

JST housing: PSIP-03V-LE-A
JST crimp terminals: SPSI-41T-M1.1
SPS1-001T-M1.1

Dimensions in mm (inch)
Tolerances: ±0.5 (±0.02)