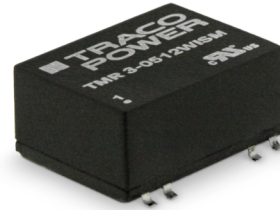


- Ultra wide 4:1 Input: 4.5–12, 9–36 and 18–75 VDC
- I/O-isolation 1'500 VDC
- Fully regulated outputs
- Operating temperature range –40°C to +80°C
- Protection against short circuit and overload
- Remote On/Off
- 3-year product warranty



The TMR 3WISM Series is a set of 3 Watt SMD DC/DC converters. They operate up to 65°C environment temperature at full load or up to 80°C with a 50% load derating. With UL 60950-1 certification, 1'500 VDC I/O-isolation voltage, external On/Off and short current protection they cover a wide range of application when space is limited. The input of the converters is designed for a wide voltage range (4:1) and minimum load is not required.

| Models         |                              |          |                  |          |                  |                 |
|----------------|------------------------------|----------|------------------|----------|------------------|-----------------|
| Order Code     | Input Voltage Range          | Output 1 |                  | Output 2 |                  | Efficiency typ. |
|                |                              | Vnom     | I <sub>max</sub> | Vnom     | I <sub>max</sub> |                 |
| TMR 3-0511WISM | 4.5 - 12 VDC<br>(9 VDC nom.) | 5 VDC    | 600 mA           |          |                  | 81 %            |
| TMR 3-0512WISM |                              | 12 VDC   | 250 mA           |          |                  | 84 %            |
| TMR 3-0513WISM |                              | 15 VDC   | 200 mA           |          |                  | 84 %            |
| TMR 3-0515WISM |                              | 24 VDC   | 125 mA           |          |                  | 84 %            |
| TMR 3-0522WISM |                              | +12 VDC  | 125 mA           | -12 VDC  | 125 mA           | 83 %            |
| TMR 3-0523WISM |                              | +15 VDC  | 100 mA           | -15 VDC  | 100 mA           | 83 %            |
| TMR 3-2411WISM | 9 - 36 VDC<br>(24 VDC nom.)  | 5 VDC    | 600 mA           |          |                  | 80 %            |
| TMR 3-2412WISM |                              | 12 VDC   | 250 mA           |          |                  | 85 %            |
| TMR 3-2413WISM |                              | 15 VDC   | 200 mA           |          |                  | 85 %            |
| TMR 3-2415WISM |                              | 24 VDC   | 125 mA           |          |                  | 85 %            |
| TMR 3-2422WISM |                              | +12 VDC  | 125 mA           | -12 VDC  | 125 mA           | 84 %            |
| TMR 3-2423WISM |                              | +15 VDC  | 100 mA           | -15 VDC  | 100 mA           | 84 %            |
| TMR 3-4811WISM | 18 - 75 VDC<br>(48 VDC nom.) | 5 VDC    | 600 mA           |          |                  | 80 %            |
| TMR 3-4812WISM |                              | 12 VDC   | 250 mA           |          |                  | 84 %            |
| TMR 3-4813WISM |                              | 15 VDC   | 200 mA           |          |                  | 84 %            |
| TMR 3-4815WISM |                              | 24 VDC   | 125 mA           |          |                  | 85 %            |
| TMR 3-4822WISM |                              | +12 VDC  | 125 mA           | -12 VDC  | 125 mA           | 83 %            |
| TMR 3-4823WISM |                              | +15 VDC  | 100 mA           | -15 VDC  | 100 mA           | 82 %            |

### Input Specifications

|                           |                |  |
|---------------------------|----------------|--|
| Input Current             | - At no load   | 9 Vin models: <b>40 mA typ.</b><br>24 Vin models: <b>20 mA typ.</b><br>48 Vin models: <b>13 mA typ.</b>                                      |
|                           | - At full load | 9 Vin models: <b>730 mA typ.</b><br>24 Vin models: <b>150 mA typ.</b><br>48 Vin models: <b>75 mA typ.</b>                                    |
| Surge Voltage             |                | 9 Vin models: <b>15 VDC max.</b> (1 s max.)<br>24 Vin models: <b>50 VDC max.</b> (1 s max.)<br>48 Vin models: <b>100 VDC max.</b> (1 s max.) |
| Recommended Input Fuse    |                | (The need of an external fuse has to be assessed in the final application.)  |
| Input Filter              |                | <b>Internal Pi-Type</b>  |
| Short Circuit Input Power |                | <b>1.5 W max.</b>  |

### Output Specifications

|                           |  |   |
|---------------------------|--|---|
| Voltage Set Accuracy      |  | <b>±1% max.</b>   |
| Regulation                | - Input Variation (Vmin - Vmax)            | single output models: <b>0.5% max.</b><br>dual output models: <b>0.5% max.</b>  |
|                           | - Load Variation (0 - 100%)                | single output models: <b>1% max.</b><br>dual output models: <b>1% max.</b> (Output 1)<br><b>1% max.</b> (Output 2)                                    |
|                           | - Voltage Balance (symmetrical load)       | dual output models: <b>2% max.</b>  |
|                           | - Cross Regulation (25% / 100% asym. load) | dual output models: <b>5% max.</b>  |
| Ripple and Noise          | - 20 MHz Bandwidth                         | <b>50 mVp-p max.</b>  |
| Capacitive Load           | - single output                            | 5 Vout models: <b>1'680 µF max.</b><br>12 Vout models: <b>820 µF max.</b><br>15 Vout models: <b>680 µF max.</b><br>24 Vout models: <b>390 µF max.</b> |
|                           | - dual output                              | 12 / -12 Vout models: <b>470 / 470 µF max.</b><br>15 / -15 Vout models: <b>330 / 330 µF max.</b>  |
| Minimum Load              |  | <b>Not required</b>   |
| Temperature Coefficient   |  | <b>±0.02 %/K max.</b>   |
| Start-up Time             |  | <b>30 ms max.</b>   |
| Short Circuit Protection  |  | <b>Automatic recovery</b>   |
| Overload Protection       |  | <b>Foldback Mode</b>  |
| Output Current Limitation |  | <b>160% typ. of Iout max.</b>   |
| Transient Response        | - Response Deviation                       | <b>5% max.</b> (25% Load Step)  |
|                           | - Response Time                            | <b>250 µs typ.</b> (25% Load Step)  |

### Safety Specifications

|                  |                             |  |
|------------------|-----------------------------|--|
| Standards        | - IT / Multimedia Equipment | <b>EN 60950-1</b><br><b>EN 62368-1</b><br><b>IEC 60950-1</b><br><b>IEC 62368-1</b><br><b>UL 60950-1</b><br><b>UL 62368-1</b> |
|                  | - Certification Documents   | <a href="http://www.tracopower.com/overview/tmr3wism">www.tracopower.com/overview/tmr3wism</a>                               |
| Pollution Degree |                             | <b>PD 3</b>  |

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

### EMC Specifications

|                 |                             |  |
|-----------------|-----------------------------|--|
| EMI (Emissions) | - Conducted Emissions       | EN 55032 class A (internal filter)<br>FCC 47 Part 15 class A (internal filter)               |
|                 | - Radiated Emissions        | EN 55032 class A (internal filter)<br>FCC 47 Part 15 class A (internal filter)               |
| EMS (Immunity)  |                             | EN 55024 (IT Equipment)<br>EN 55035 (Multimedia)   |
|                 | - Electrostatic Discharge   | Air: EN 61000-4-2, ±8 kV, perf. criteria A<br>Contact: EN 61000-4-2, ±6 kV, perf. criteria A |
|                 | - RF Electromagnetic Field  | EN 61000-4-3, 10 V/m, perf. criteria A   |
|                 | - EFT (Burst) / Surge       | EN 61000-4-4, ±2 kV, perf. criteria A<br>EN 61000-4-5, ±1 kV, perf. criteria A               |
|                 | - Conducted RF Disturbances | Ext. input component: 220 µF / 100 V<br>EN 61000-4-6, 10 Vrms, perf. criteria A              |
|                 | - PF Magnetic Field         | Continuous: EN 61000-4-8, 3 A/m, perf. criteria A  |

### General Specifications

|                            |  |  |
|----------------------------|--|--|
| Relative Humidity          |  | 95% max. (non condensing)  |
| Temperature Ranges         | - Operating Temperature                    | -40°C to +80°C   |
|                            | - Case Temperature                         | +95°C max.   |
|                            | - Storage Temperature                      | -55°C to +125°C  |
| Power Derating             | - High Temperature                         | 3.3 %/K above 65°C   |
|                            |  | See application note: <a href="http://www.tracopower.com/overview/tmr3wism">www.tracopower.com/overview/tmr3wism</a>                 |
| Cooling System             |  | Natural convection (20 LFM)  |
| Remote Control             | - Voltage Controlled Remote (passive = on) | On: < 0.6 VDC or open circuit<br>Off: 4.7 to 15 VDC<br>Refers to 'Remote' and '-Vin' Pin   |
|                            | - Current Controlled Remote (passive = on) | On: open circuit<br>Off: 2 to 4 mA current   |
|                            | - Off Idle Input Current                   | 3 mA max.  |
| Altitude During Operation  |  | 5'000 m max.   |
| Switching Frequency        |  | 100 kHz min. (PFM)   |
| Insulation System          |  | Functional Insulation  |
| Isolation Test Voltage     | - Input to Output, 60 s                    | 1'500 VDC  |
|                            | - Input to Output, 1 s                     | 1'800 VDC  |
| Isolation Resistance       | - Input to Output, 500 VDC                 | 1'000 MΩ min.  |
| Isolation Capacitance      | - Input to Output, 100 kHz, 1 V            | 500 pF typ.  |
| Reliability                | - Calculated MTBF                          | 5'090'000 h (MIL-HDBK-217F, ground benign)   |
| Moisture Sensitivity (MSL) |  | Level 2 (J-STD-033C)   |
| Washing Process            |  | Not allowed  |
| Housing Material           |  | Non-conductive Plastic (UL 94 V-0 rated)   |
| Pin Material               |  | Phosphor Bronze (C5191)  |
| Pin Foundation Plating     |  | Copper (1 - 3 µm)  |
| Pin Surface Plating        |  | Tin (7.5 µm min.), matte   |
| Housing Type               |  | Plastic Case   |
| Mounting Type              |  | PCB Mount  |
| Connection Type            |  | SMD (Surface-Mount Device)   |
| Footprint Type             |  | SMD14  |
| Soldering Profile          |  | Lead-Free Reflow Soldering (acc. J-STD-020E)   |
|                            |  | See application note: <a href="http://www.tracopower.com/info/reflow-soldering.pdf">www.tracopower.com/info/reflow-soldering.pdf</a> |
| Weight                     |  | 3.5 g  |

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

Environmental Compliance - REACH Declaration

[www.tracopower.com/info/reach-declaration.pdf](http://www.tracopower.com/info/reach-declaration.pdf)

- RoHS Declaration

REACH SVHC list compliant

REACH Annex XVII compliant

[www.tracopower.com/info/rohs-declaration.pdf](http://www.tracopower.com/info/rohs-declaration.pdf)

Exemptions: 7(a)

(RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule))

- SCIP Reference Number

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### Additional Information

Supporting Documents

[www.tracopower.com/overview/tmr3wism](http://www.tracopower.com/overview/tmr3wism)

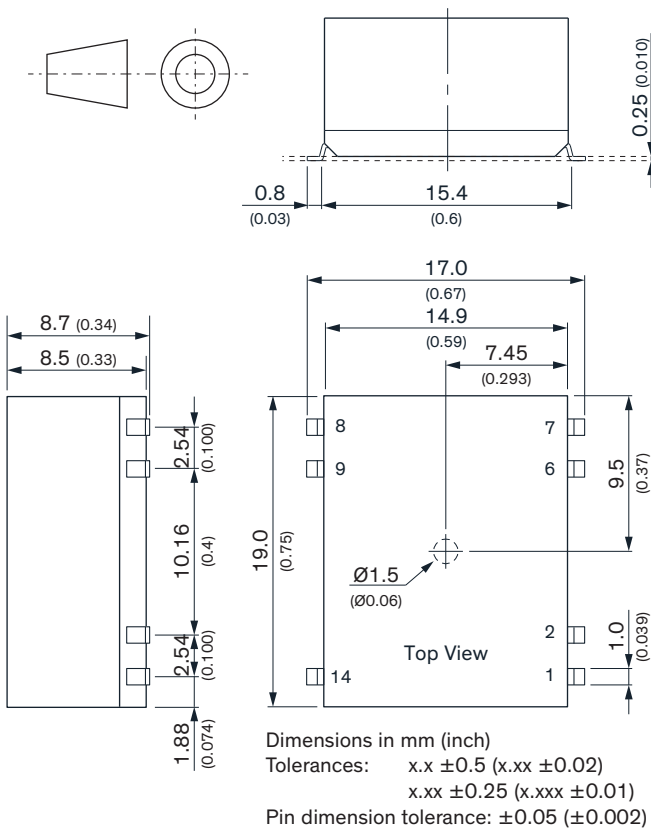
Frequently Asked Questions

[www.tracopower.com/glossary-faq](http://www.tracopower.com/glossary-faq)

Glossary

[www.tracopower.com/info/glossary.pdf](http://www.tracopower.com/info/glossary.pdf)

### Outline Dimensions



### Pinout

| Pin | Single Output | Dual Output |
|-----|---------------|-------------|
| 1   | -Vin (GND)    | -Vin (GND)  |
| 2   | Remote        | Remote      |
| 6   | NC            | Common      |
| 7   | NC            | -Vout       |
| 8   | +Vout         | +Vout       |
| 9   | -Vout         | Common      |
| 14  | +Vin (Vcc)    | +Vin (Vcc)  |

NC: Not connected

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

**Recommended Solder Pad Layout**

