



- Efficiency up to 86%
- 1500VDC Isolation
- MTBF > 700,000 Hours
- 4:1 Input
- Six-Sided Shielding
- UL60950 Approved
- RoHS Compliant



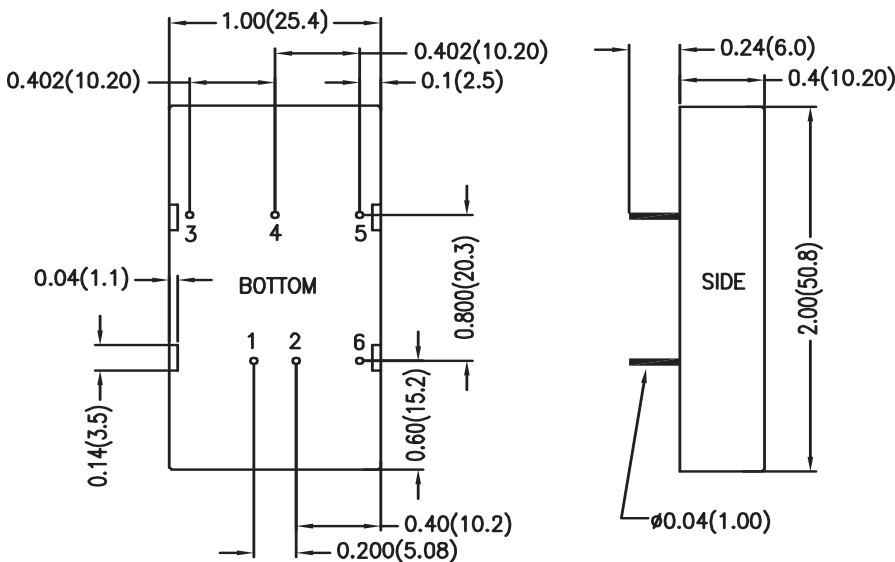
15 Watt TMS Single and Dual Series



| Model Number | Voltage | | | Current | | | | Reflected Ripple | Input Overvoltage (1000ms) | Efficiency | Capacitive Load |
|--------------|------------|-------------|--------|----------------|-----------------|----------|----------|------------------|----------------------------|------------|-----------------|
| | Input | | Output | Input | | Output | | | | | |
| | Nom. (VDC) | Range (VDC) | (VDC) | @ No Load (mA) | @ Max Load (mA) | Min (mA) | Max (mA) | | | | |
| TMS10H24S3R3 | 24 | 9-36 | 3.3 | 25 | 528 | 300 | 3000 | 40 | 50 | 78 | 470µF |
| TMS15H24S5 | 24 | 9-36 | 5 | 25 | 762 | 300 | 3000 | 40 | 50 | 82 | 470µF |
| TMS15H24S5R1 | 24 | 9-36 | 5.1 | 25 | 787 | 300 | 3000 | 40 | 50 | 81 | 470µF |
| TMS15H24S12 | 24 | 9-36 | 12 | 25 | 735 | 125 | 1250 | 40 | 50 | 85 | 470µF |
| TMS15H24S15 | 24 | 9-36 | 15 | 25 | 726 | 100 | 1000 | 40 | 50 | 86 | 470µF |
| TMS15H12D5 | 24 | 9-36 | ±5 | 25 | 771 | ±150 | ±1500 | 40 | 50 | 81 | 220µF |
| TMS15H24D12 | 24 | 9-36 | ±12 | 25 | 735 | ±62.5 | ±625 | 40 | 50 | 85 | 220µF |
| TMS15H24D15 | 24 | 9-36 | ±15 | 25 | 726 | ±50 | ±500 | 40 | 50 | 86 | 220µF |
| TMS10H48S3R3 | 48 | 18-75 | 3.3 | 15 | 264 | 300 | 3000 | 30 | 100 | 78 | 470µF |
| TMS15H48S5 | 48 | 18-75 | 5 | 15 | 381 | 300 | 3000 | 30 | 100 | 82 | 470µF |
| TMS15H48S5R1 | 48 | 18-75 | 5.1 | 15 | 393 | 300 | 3000 | 30 | 100 | 81 | 470µF |
| TMS15H48S12 | 48 | 18-75 | 12 | 15 | 368 | 125 | 1250 | 30 | 100 | 85 | 470µF |
| TMS15H48S15 | 48 | 18-75 | 15 | 15 | 363 | 100 | 1000 | 30 | 100 | 86 | 470µF |
| TMS15H12D5 | 48 | 18-75 | ±5 | 15 | 386 | ±150 | ±1500 | 30 | 100 | 81 | 220µF |
| TMS15H48D12 | 48 | 18-75 | ±12 | 15 | 368 | ±62.5 | ±625 | 30 | 100 | 85 | 220µF |
| TMS15H48D15 | 48 | 18-75 | ±15 | 15 | 363 | ±50 | ±500 | 30 | 100 | 86 | 220µF |

Dimensions are inches (mm) unless noted

Tolerance: Inches Millimeters
 X.XX ±0.01 X.X ±0.25
 X.XXX ±0.005 X.XX ±0.13
 Pin ±0.002 ±0.05



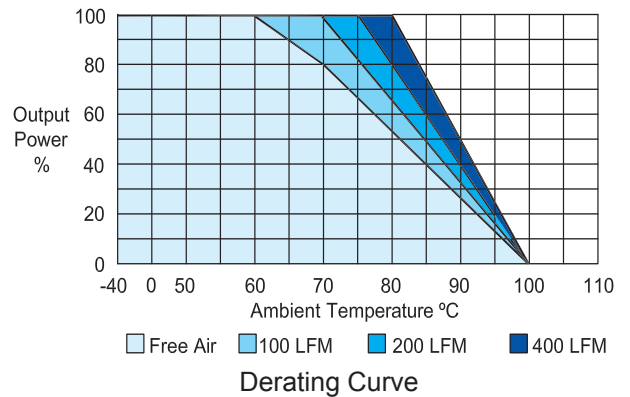
| Pin Connections | | |
|-----------------|--------|--------|
| Pin | Single | Dual |
| 1 | +Vin | +Vin |
| 2 | -Vin | -Vin |
| 3 | +Vout | +Vout |
| 4 | No Pin | Common |
| 5 | -Vout | -Vout |
| 6 | No Pin | No Pin |

See Model Selection Table for Model Specific Parameters

| Input Parameters | Min | Typ | Max | Units | |
|-------------------------------------------------------|-------------------------------------------------|---------|-----------|-----------|-----|
| Reverse Polarity Input Current | | | 1 | A | |
| Short Circuit Input Power | | | 3500 | mW | |
| Start Voltage | 24 Vin 48 Vin | 8 15 | 8.5 17 | 9 18 | VDC |
| Under Voltage Shutdown | 24 Vin 48 Vin | 7 13 | 8 15 | 8.5 17 | VDC |
| Switching Frequency | 290 | 330 | 400 | kHz | |
| Input Filter | Pi Filter | | | | |
| Output Parameters | Min | Typ | Max | Units | |
| Output Voltage Accuracy | | ±1.0 | ±2.0 | % | |
| Output Voltage Balance Dual Output, Balanced Loads | | ±0.5 | ±2.0 | % | |
| Load Regulation Io = 10% to 100% | | ±0.5 | ±1.0 | % | |
| Line Regulation Vin=Min. to Max. | | ±0.1 | ±0.5 | % | |
| Ripple & Noise (20MHz) | | 55 | 80 | mV P-P | |
| Ripple & Noise (20 MHz) Over Line, Load & Temp | | | 100 | mV P-P | |
| Ripple & Noise (20 MHz) | | | 15 | mV RMS | |
| Over Power Protection | 120 | | | % | |
| Transient Recovery Time 25% Load Step Change | | 300 | 500 | µs | |
| Transient Response Deviation, 25% Load Step Change | | ±2 | ±4 | % | |
| Temperature Coefficient | | ±0.01 | ±0.02 | % / °C | |
| Short Circuit Protection | Continuous | | | | |
| General Specifications | Min | Typ | Max | Units | |
| Isolation Voltage, 60 seconds | 1500 | | | VDC | |
| Isolation Resistance 500VDC | 1000 | | | Mohms | |
| Isolation Capacitance, 100kHz, 1V | | 1200 | 1500 | pF | |
| Operating Temperature (Ambient) | -40 | | +60 | °C | |
| Storage Temperature | -50 | | +125 | °C | |
| Humidity | | | 95 | % | |
| MTBF MIL-HDBK-217F @25°C, Ground Benign | 700 | | | K Hours | |
| Cooling | Free-Air Convection | | | | |
| Case Size | 2.0 x 1.0 x 0.4 inches 50.8 x 25.4 x 10.2 mm | | | | |
| Case Material | Six Sided Shielding Metal Case (UL94V-0) | | | | |
| Weight | 32g | | | | |
| Agency Approval | UL60950 Approved | | | | |

Notes:

- Specifications typical at Ta=+25°C, resistive load, nominal input voltage, full rated output current unless otherwise noted.
- Transient recovery time is measured to within 1% error band for a step change in output load 75% to 100%.
- ConTech power converters require a minimum output loading to maintain specified regulation. Operation under no-load conditions will not damage these modules; however, they may not meet all specifications listed.
- The series has a limitation of a maximum connected capacitance at the output. The power module may be operated in current limiting mode during start-up, affecting the ramp-up and the startup time.
- When measuring peak-to-peak output noise, use a Cout 0.47µF ceramic capacitor. Scope measurement should be made by using a BNC socket, measurement bandwidth is 0-20MHz. Position the load between 2" and 2.5" from the converter.
- Water washability - ConTech DC/DC converters are designed to withstand most solder/wash processes. Careful attention should be used when assessing the applicability in your specific manufacturing process. Converters are not hermetically sealed.
- See ConTech website for Definition of Terms, Application Notes, and Test Setups and Parameters. www.ConTech-us.com/appnotes.html.
- Specifications subject to change without notice.
- See ConTech website www.ConTech-us.com/pdf/rohs.pdf for RoHS Statement.

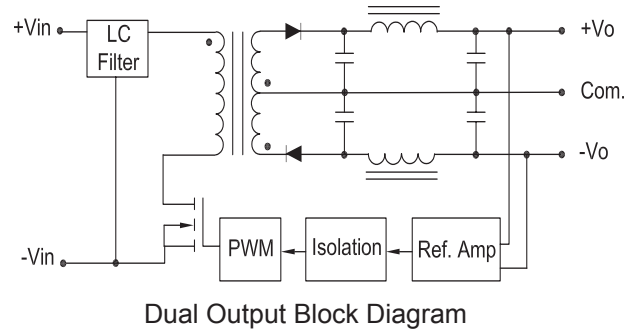
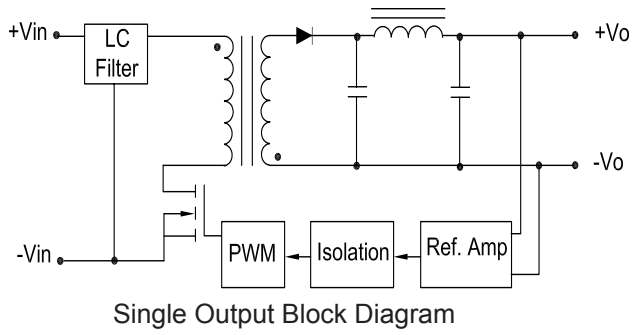


To avoid exceeding the maximum temperature rating of the components inside the power module, the case temperature must be kept below 90°C.

| Input Fuse Selection Table | |
|----------------------------|-------------------|
| 24V Input | 2500 mA Slow-Blow |
| 48V Input | 1250 mA Slow-Blow |

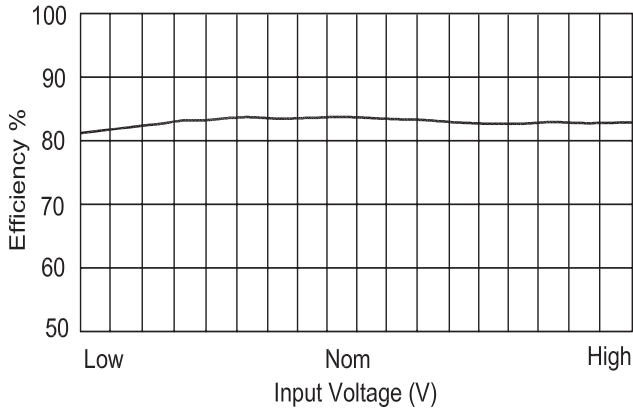
External fusing should be used for system protection due to a catastrophic failure. See ConTech website for Fusing Application Notes to determine the correct fuse.

Block Diagrams

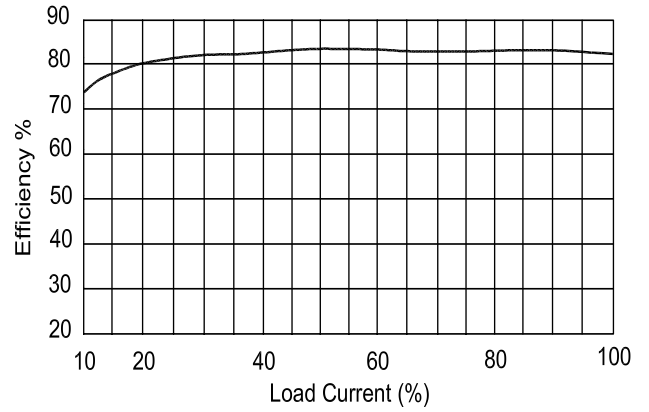


Efficiency Curves

Single Output

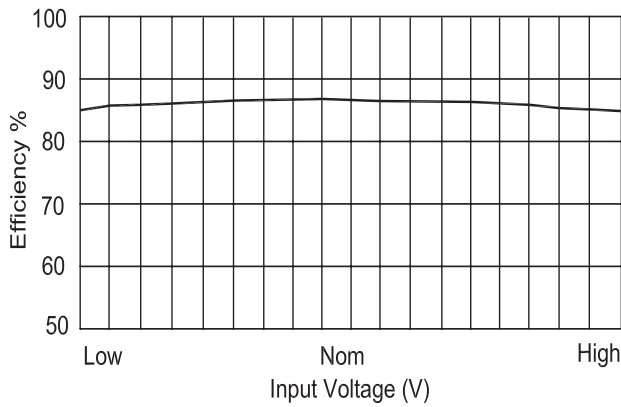


Efficiency vs Input Voltage

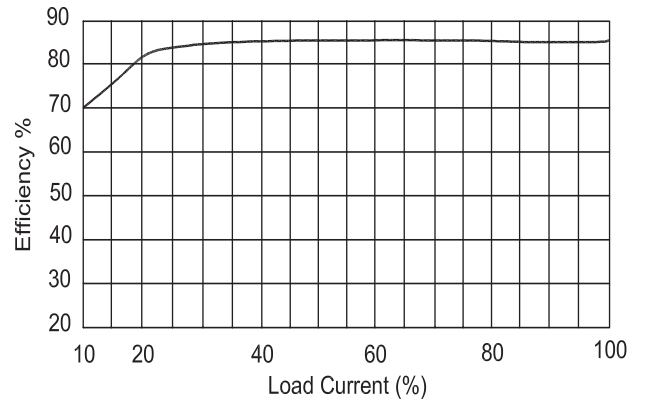


Efficiency vs Output Load

Dual Output



Efficiency vs Input Voltage



Efficiency vs Output Load