

## JTH Series



- 4:1 Input Range
- 1500 VDC Isolation
- Efficiency up to 86%
- -40 °C to +100 °C Operating Temperature
- Optional Remote On/Off
- Single & Dual Outputs
- Continuous Short Circuit Protection

## Specification

## Input

|                        |   |
|------------------------|---|
| Input Voltage Range    | • 24 V (9-36 VDC)<br>48 V (18-72 VDC)                             |
| Input Current          | • See table   |
| Input Filter           | • Pi network  |
| Input Reflected Ripple | • 35 mA rms through 12 $\mu$ H inductor,<br>5 Hz to 20 MHz        |
| Input Surge            | • 24 V models 50 VDC for 100 ms<br>48 V models 100 VDC for 100 ms |

## Output

|                          |  |
|--------------------------|--|
| Output Voltage           | • See table  |
| Voltage Balance          | • $\pm$ 1%   |
| Minimum Load             | • No minimum load required   |
| Line Regulation          | • $\pm$ 0.5%   |
| Load Regulation          | • $\pm$ 0.5% 10-100% load,<br>$\pm$ 1.0% below 10% load  |
| Setpoint Accuracy        | • $\pm$ 1%   |
| Start Up Rise Time       | • <20 ms   |
| Start Up Delay           | • <10 ms   |
| Ripple & Noise           | • 75 mV pk-pk 20 MHz BW  |
| Transient Response       | • 3% max deviation, recovery to within<br>1% in 200 $\mu$ s for 25% load change  |
| Temperature Coefficient  | • 0.02%/°C   |
| Overcurrent Protection   | • 140% typical of full load at nominal input   |
| Short Circuit Protection | • Trip & restart (Hiccup mode), auto recovery  |
| Remote On/Off            | • Optional - see Application Note.<br>On = +2.5 to +5.5 VDC or Open circuit<br>Off = -0.7 to +0.8 VDC or short circuit |

## General

|                       |   |
|-----------------------|---|
| Efficiency            | • See table   |
| Isolation             | • 1500 VDC Input to Output<br>1000 VDC Input to Case<br>1000 VDC Output to Case |
| Isolation Capacitance | • 1200 pF typical   |
| Switching Frequency   | • 300 kHz typical   |
| MTBF                  | • >1.2 Mhrs to MIL-STD-217F   |

## Environmental

|                       |   |
|-----------------------|---|
| Operating Temperature | • -40 °C to +100 °C, derate from 100% load<br>at +60 °C to 0% load at +100 °C |
| Case Temperature      | • 100 °C max  |
| Cooling               | • Convection-cooled   |
| Operating Humidity    | • Up to 95% RH, non-condensing  |
| Storage Temperature   | • -40 °C to +125 °C   |

## EMC

|                    |   |
|--------------------|---|
| Emissions          | • EN55022 Class A conducted & radiated<br>with external components, see<br>application note.    |
| ESD Immunity       | • EN61000-4-2,<br>8 kV air discharge Perf Criteria A,<br>4 kV contact discharge Perf Criteria A |
| Radiated Immunity  | • EN61000-4-3, Level 2 3 V/m<br>Perf Criteria A   |
| EFT/Burst          | • EN61000-4-4, Level 1 Perf Criteria B  |
| Conducted Immunity | • EN61000-4-6, 3 V Perf Criteria A  |
| Magnetic Field     | • EN61000-4-8, 1 A/m Perf Criteria A  |

## Models and Ratings

| Input Voltage Range | Output Voltage | Output Current | Input Current <sup>(1)</sup> |           | Efficiency | Max Capacitive Load | Model Number <sup>(2)</sup> |
|---------------------|----------------|----------------|------------------------------|-----------|------------|---------------------|-----------------------------|
|                     |                |                | No Load                      | Full Load |            |                     |                             |
| 9-36 VDC            | 3.3 V          | 3000 mA        | 25 mA                        | 515 mA    | 80%        | 3300 µF             | JTH1524S3V3 <sup>^</sup>    |
|                     | 5.0 V          | 3000 mA        | 25 mA                        | 753 mA    | 83%        | 3300 µF             | JTH1524S05 <sup>^</sup>     |
|                     | 12.0 V         | 1250 mA        | 25 mA                        | 735 mA    | 85%        | 680 µF              | JTH1524S12 <sup>^</sup>     |
|                     | 15.0 V         | 1000 mA        | 25 mA                        | 726 mA    | 86%        | 470 µF              | JTH1524S15 <sup>^</sup>     |
|                     | ±5.0 V         | ±1500 mA       | 25 mA                        | 753 mA    | 83%        | ±2200 µF            | JTH1524D05 <sup>^</sup>     |
|                     | ±12.0 V        | ±625 mA        | 25 mA                        | 735 mA    | 85%        | ±470 µF             | JTH1524D12 <sup>^</sup>     |
|                     | ±15.0 V        | ±500 mA        | 25 mA                        | 726 mA    | 86%        | ±330 µF             | JTH1524D15 <sup>^</sup>     |
| 18-72 VDC           | 3.3 V          | 3000 mA        | 20 mA                        | 257 mA    | 80%        | 3300 µF             | JTH1548S3V3 <sup>^</sup>    |
|                     | 5.0 V          | 3000 mA        | 20 mA                        | 376 mA    | 83%        | 3300 µF             | JTH1548S05 <sup>^</sup>     |
|                     | 12.0 V         | 1250 mA        | 20 mA                        | 367 mA    | 85%        | 680 µF              | JTH1548S12 <sup>^</sup>     |
|                     | 15.0 V         | 1000 mA        | 20 mA                        | 363 mA    | 86%        | 470 µF              | JTH1548S15 <sup>^</sup>     |
|                     | ±5.0 V         | ±1500 mA       | 20 mA                        | 376 mA    | 83%        | ±2200 µF            | JTH1548D05 <sup>^</sup>     |
|                     | ±12.0 V        | ±625 mA        | 20 mA                        | 367 mA    | 85%        | ±470 µF             | JTH1548D12 <sup>^</sup>     |
|                     | ±15.0 V        | ±500 mA        | 20 mA                        | 363 mA    | 86%        | ±330 µF             | JTH1548D15 <sup>^</sup>     |

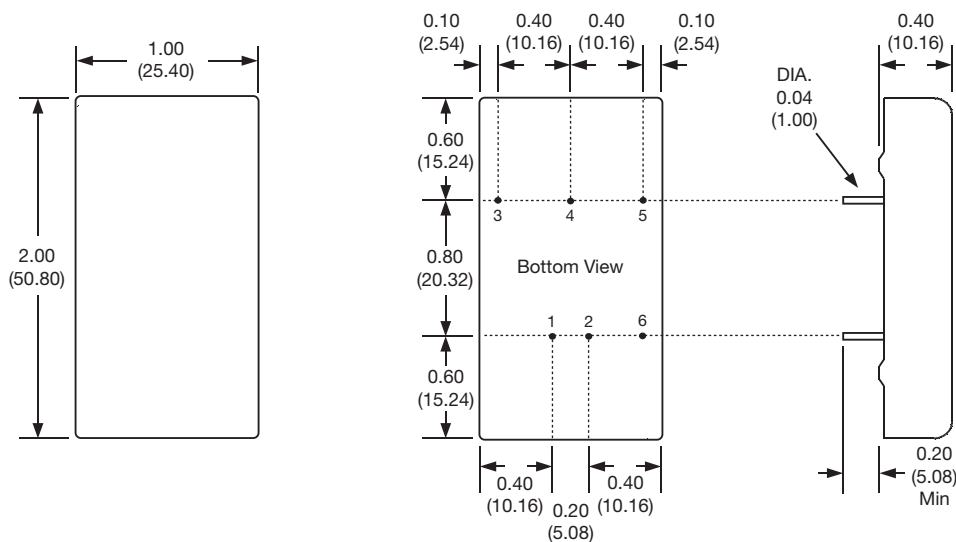
### Notes

1. Measured at nominal input voltage.
2. For optional Remote On/Off, add suffix '-R' to model number.

<sup>^</sup> Available from Newark. See pages 207-208.

## Mechanical Details

All dimensions are in inches (mm).  
Tolerance x.xx = ±0.10 (±0.25).  
Weight 0.07 lbs (30 g).

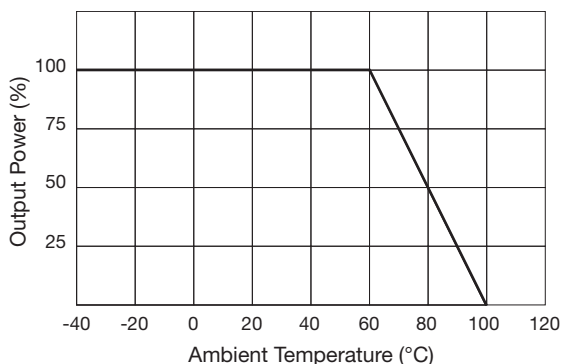


| PIN CONNECTIONS |        |        |
|-----------------|--------|--------|
| Pin             | Single | Dual   |
| 1               | +Vin   | +Vin   |
| 2               | -Vin   | -Vin   |
| 3               | +Vout  | +Vout  |
| 4               | No pin | Common |
| 5               | -Vout  | -Vout  |
| 6*              | ROF*   | ROF*   |

\* Pin 6 only present with optional Remote On/Off

## Application Notes

### Derating Curve

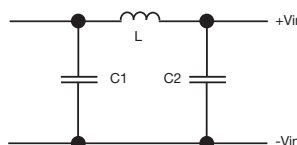


### Optional Remote On/Off

On = +2.5 to +5.5 VDC on pin 6 WRT pin 2 or open circuit  
Off = -0.7 to +0.8 VDC on pin 6 WRT pin 2 or short circuit pin 2 & 6

Input current is typically 2.5 mA when output is remotely switched off.

### Input Filter



L = 12 µH  
C1 = 47 µF  
C2 = 33 µF