



- 4:1 Input Range
- 1500 VDC Isolation
- Efficiency up to 86%
- -40 °C to +100 °C Operating Temperature
- UL Approved
- Optional Remote On/Off
- Single & Dual Outputs
- 3 Year Warranty

## Specification

### Input

|                                |                                                                                                                                                |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Input Voltage Range            | <ul style="list-style-type: none"> <li>• 24 V (9-36 VDC)</li> <li>• 48 V (18-72 VDC)</li> </ul>                                                |
| Input Current                  | <ul style="list-style-type: none"> <li>• See table</li> </ul>                                                                                  |
| Input Filter                   | <ul style="list-style-type: none"> <li>• Pi network</li> </ul>                                                                                 |
| Input Reflected Ripple Current | <ul style="list-style-type: none"> <li>• 35 mA rms through 12 <math>\mu</math>H inductor</li> </ul>                                            |
| Input Surge                    | <ul style="list-style-type: none"> <li>• 24 V models 40 VDC for 100 ms</li> <li>• 48 V models 80 VDC for 100 ms</li> </ul>                     |
| Undervoltage Lockout           | <ul style="list-style-type: none"> <li>• 24 V models ON 8.6 V, OFF 8 VDC typical</li> <li>• 48 V models ON 16.0 V, OFF 14 V typical</li> </ul> |

### Output

|                          |                                                                                                                                          |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Output Voltage           | <ul style="list-style-type: none"> <li>• See table</li> </ul>                                                                            |
| Minimum Load             | <ul style="list-style-type: none"> <li>• No minimum load required</li> </ul>                                                             |
| Line Regulation          | <ul style="list-style-type: none"> <li>• <math>\pm 0.5\%</math></li> </ul>                                                               |
| Load Regulation          | <ul style="list-style-type: none"> <li>• <math>\pm 0.5\%</math> 10-100% load,</li> <li>• <math>\pm 1.0\%</math> 10% load</li> </ul>      |
| Cross Regulation         | <ul style="list-style-type: none"> <li>• <math>\pm 5\%</math> on dual output models (see note 3)</li> </ul>                              |
| Setpoint Accuracy        | <ul style="list-style-type: none"> <li>• <math>\pm 1\%</math></li> </ul>                                                                 |
| Start Up Delay           | <ul style="list-style-type: none"> <li>• &lt;10 ms</li> </ul>                                                                            |
| Start Up Rise Time       | <ul style="list-style-type: none"> <li>• &lt;20 ms</li> </ul>                                                                            |
| Ripple & Noise           | <ul style="list-style-type: none"> <li>• 75 mV pk-pk 20 MHz bandwidth</li> </ul>                                                         |
| Transient Response       | <ul style="list-style-type: none"> <li>• 3% max deviation, recovery to within 1% in 200 <math>\mu</math>s for 25% load change</li> </ul> |
| Temperature Coefficient  | <ul style="list-style-type: none"> <li>• 0.02%/°C</li> </ul>                                                                             |
| Overvoltage Protection   | <ul style="list-style-type: none"> <li>• None</li> </ul>                                                                                 |
| Overcurrent Protection   | <ul style="list-style-type: none"> <li>• 140% typical of full load at nominal input</li> </ul>                                           |
| Short Circuit Protection | <ul style="list-style-type: none"> <li>• Trip &amp; restart (hiccup mode), auto recovery</li> </ul>                                      |
| Remote On/Off            | <ul style="list-style-type: none"> <li>• Optional (see application note)</li> </ul>                                                      |
| Maximum Capacitive Load  | <ul style="list-style-type: none"> <li>• See table</li> </ul>                                                                            |

### General

|                       |                                                                                                                                                |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Efficiency            | <ul style="list-style-type: none"> <li>• See table</li> </ul>                                                                                  |
| Isolation             | <ul style="list-style-type: none"> <li>• 1500VDC Input to Output</li> <li>• 1000VDC Input to Case</li> <li>• 1000VDC Output to Case</li> </ul> |
| Isolation Resistance  | <ul style="list-style-type: none"> <li>• <math>10^9\Omega</math></li> </ul>                                                                    |
| Isolation Capacitance | <ul style="list-style-type: none"> <li>• 1200 pF typical</li> </ul>                                                                            |
| Switching Frequency   | <ul style="list-style-type: none"> <li>• 300 kHz typical</li> </ul>                                                                            |
| Power Density         | <ul style="list-style-type: none"> <li>• 18.75 W/in<sup>3</sup></li> </ul>                                                                     |
| MTBF                  | <ul style="list-style-type: none"> <li>• &gt;1.21 Mhrs to MIL-HDBK-217F at 25 °C, GB</li> </ul>                                                |

### Environmental

|                       |                                                                                                                              |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------|
| Operating Temperature | <ul style="list-style-type: none"> <li>• -40 °C to +100 °C, derate from 100% load at +60 °C to 0% load at +100 °C</li> </ul> |
| Case Temperature      | <ul style="list-style-type: none"> <li>• 100 °C max</li> </ul>                                                               |
| Cooling               | <ul style="list-style-type: none"> <li>• Convection-cooled</li> </ul>                                                        |
| Operating Humidity    | <ul style="list-style-type: none"> <li>• Up to 95% RH, non-condensing</li> </ul>                                             |
| Storage Temperature   | <ul style="list-style-type: none"> <li>• -40 °C to +125 °C</li> </ul>                                                        |

### EMC

|                    |                                                                                                                                             |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Emissions          | <ul style="list-style-type: none"> <li>• EN55022 class A conducted &amp; radiated with external components, see application note</li> </ul> |
| ESD Immunity       | <ul style="list-style-type: none"> <li>• EN61000-4-2, 8 kV air discharge Perf Criteria A, 4 kV contact discharge Perf Criteria A</li> </ul> |
| EFT/Burst          | <ul style="list-style-type: none"> <li>• EN61000-4-4, level 1 Perf Criteria A*</li> </ul>                                                   |
| Surge              | <ul style="list-style-type: none"> <li>• EN61000-4-5, installation class 1, Perf Criteria A*</li> </ul>                                     |
| Conducted Immunity | <ul style="list-style-type: none"> <li>• EN61000-4-6, 3 Vrms Perf Criteria A</li> </ul>                                                     |
| Magnetic Field     | <ul style="list-style-type: none"> <li>• EN61000-4-8, 1 A/m Perf Criteria A</li> </ul>                                                      |

### Safety

|                  |                                                                                                    |
|------------------|----------------------------------------------------------------------------------------------------|
| Safety Approvals | <ul style="list-style-type: none"> <li>• UL60950-1, CAN/CSA C22.2 No.60950-1, UL62368-1</li> </ul> |
|------------------|----------------------------------------------------------------------------------------------------|

\*External input capacitor required 220  $\mu$ F/100 V

## Models and Ratings

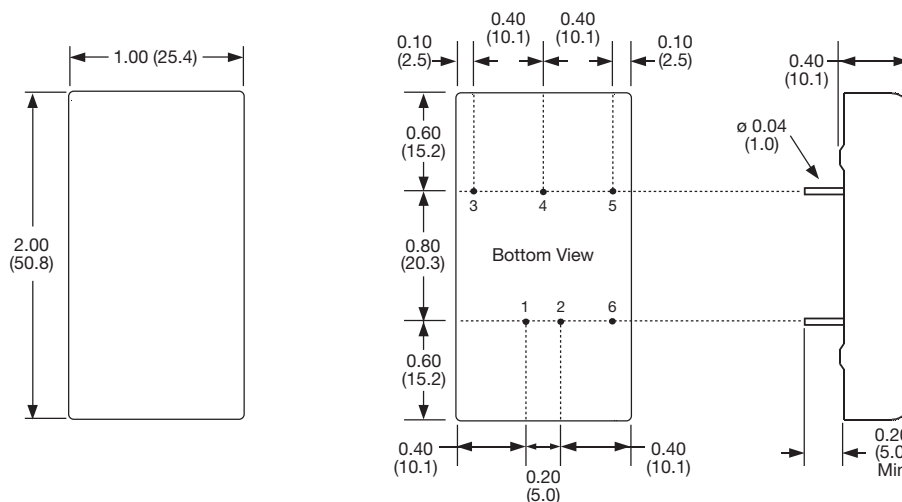
**JTH15 XP**

| 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 $\mu$ F         | JTH1524S3V3                 |
|                     | 5.0 V          | 3000 mA        | 25 mA                        | 753 mA    | 83%        | 3300 $\mu$ F         | JTH1524S05                  |
|                     | 12.0 V         | 1250 mA        | 25 mA                        | 735 mA    | 85%        | 680 $\mu$ F          | JTH1524S12                  |
|                     | 15.0 V         | 1000 mA        | 25 mA                        | 726 mA    | 86%        | 470 $\mu$ F          | JTH1524S15                  |
|                     | $\pm 5.0$ V    | $\pm 1500$ mA  | 25 mA                        | 753 mA    | 83%        | $\pm 2200$ $\mu$ F   | JTH1524D05                  |
|                     | $\pm 12.0$ V   | $\pm 625$ mA   | 25 mA                        | 735 mA    | 85%        | $\pm 470$ $\mu$ F    | JTH1524D12                  |
|                     | $\pm 15.0$ V   | $\pm 500$ mA   | 25 mA                        | 726 mA    | 86%        | $\pm 330$ $\mu$ F    | JTH1524D15                  |
| 18-72 VDC           | 3.3 V          | 3000 mA        | 20 mA                        | 257 mA    | 80%        | 3300 $\mu$ F         | JTH1548S3V3                 |
|                     | 5.0 V          | 3000 mA        | 20 mA                        | 376 mA    | 83%        | 3300 $\mu$ F         | JTH1548S05                  |
|                     | 12.0 V         | 1250 mA        | 20 mA                        | 367 mA    | 85%        | 680 $\mu$ F          | JTH1548S12                  |
|                     | 15.0 V         | 1000 mA        | 20 mA                        | 363 mA    | 86%        | 470 $\mu$ F          | JTH1548S15                  |
|                     | $\pm 5.0$ V    | $\pm 1500$ mA  | 20 mA                        | 376 mA    | 83%        | $\pm 2200$ $\mu$ F   | JTH1548D05                  |
|                     | $\pm 12.0$ V   | $\pm 625$ mA   | 20 mA                        | 367 mA    | 85%        | $\pm 470$ $\mu$ F    | JTH1548D12                  |
|                     | $\pm 15.0$ V   | $\pm 500$ mA   | 20 mA                        | 363 mA    | 86%        | $\pm 330$ $\mu$ F    | JTH1548D15                  |

### Notes

1. Measured at nominal input voltage.
2. For optional Remote On/Off, add suffix '-R' to model number.
3. Cross regulations is  $\pm 5\%$  when one output is at 100% and the other is varied between 25% and 100%.

## Mechanical Details



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

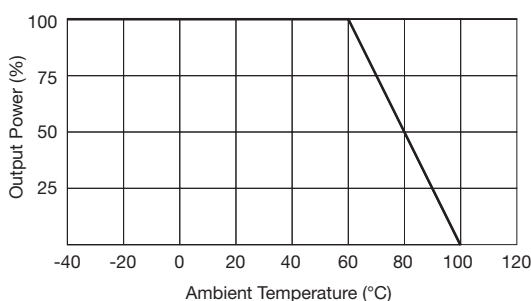
\* Pin 6 only present with optional Remote On/Off

### Notes

1. All dimensions are in inches (mm).
2. Weight: 0.07 lbs (30 g)
3. Pin diameter: 0.04  $\pm$  0.002 (1.0  $\pm$  0.05)
4. Pin pitch tolerance:  $\pm$  0.014 ( $\pm$  0.35)
5. Case tolerance:  $\pm$  0.02 ( $\pm$  0.5)

## 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

