

JTH Series



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

Output

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

General

Efficiency	<ul style="list-style-type: none"> • See table
Isolation	<ul style="list-style-type: none"> • 1500 VDC Input to Output • 1000 VDC Input to Case • 1000 VDC Output to Case
Isolation Resistance	<ul style="list-style-type: none"> • $10^9 \Omega$
Isolation Capacitance	<ul style="list-style-type: none"> • 1200 pF typical
Switching Frequency	<ul style="list-style-type: none"> • 300 kHz typical
Power Density	<ul style="list-style-type: none"> • 18.75 W/in³
MTBF	<ul style="list-style-type: none"> • >1.21 Mhrs to MIL-HDBK-217F at 25 °C, GB

Environmental

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

EMC

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

Safety

Safety Approvals	<ul style="list-style-type: none"> • UL60950-1, CAN/CSA C22.2 No.60950-1, UL62368-1
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*External input capacitor required 220 μ F/100 V

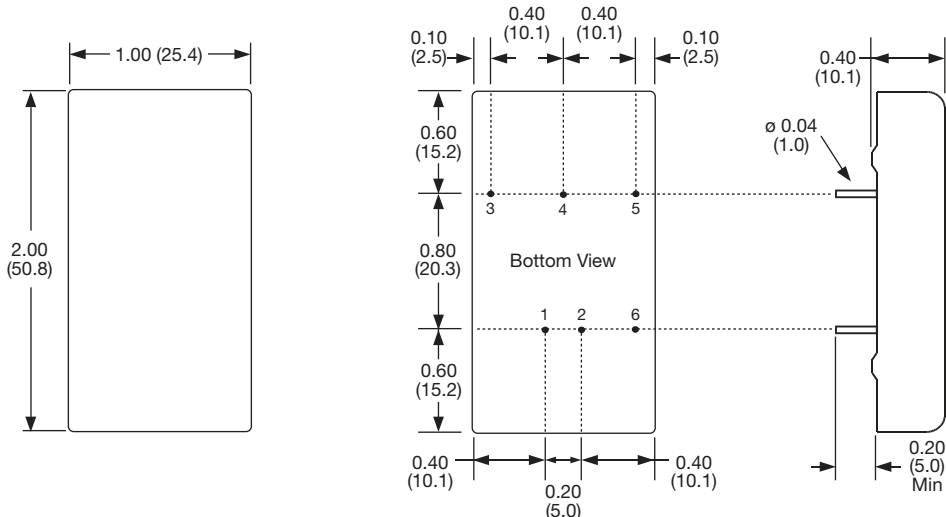
Models and Ratings

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

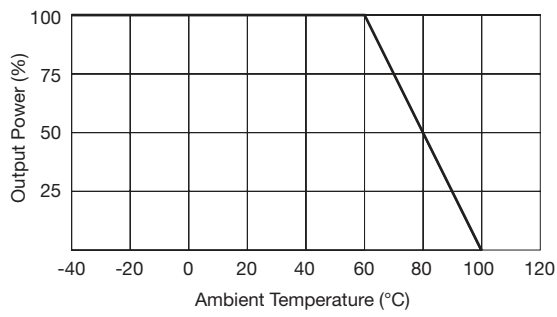
* Pin 6 only present with optional Remote On/Off

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

