

## JTF Series



- High Power Density
- Wide 4:1 Input Range
- Operating Temperature -40 °C to +105 °C
- Single & Dual Outputs
- Standard Remote On/Off
- 1600 VDC Isolation
- 3 Year Warranty

## Specification

## Input

Input Voltage Range	<ul style="list-style-type: none"> <li>• 24 V (9-36 VDC)</li> <li>• 48 V (18-75 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>• 20 mA pk-pk through 12 <math>\mu</math>H inductor and 47 <math>\mu</math>F capacitor, 5 Hz to 20 MHz</li> </ul>
Input Surge	<ul style="list-style-type: none"> <li>• 24 V models: 50 VDC for 100 ms (1 second for 12 W versions)</li> <li>• 48 V models: 100 VDC for 100 ms (1 second for 12 W versions)</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>
Initial Set Accuracy	<ul style="list-style-type: none"> <li>• <math>\pm 1.2\%</math> max</li> </ul>
Start Up Delay	<ul style="list-style-type: none"> <li>• 20 ms typical</li> </ul>
Line Regulation	<ul style="list-style-type: none"> <li>• <math>\pm 0.2\%</math> max</li> </ul>
Load Regulation	<ul style="list-style-type: none"> <li>• <math>\pm 0.5\%</math> max single, <math>\pm 1.0\%</math> max dual</li> </ul>
Cross Regulation	<ul style="list-style-type: none"> <li>• <math>\pm 5\%</math> on dual output models (see note 2)</li> </ul>
Transient Response	<ul style="list-style-type: none"> <li>• <math>&lt; 3\%</math> max deviation, recovery to within 1% in 250 <math>\mu</math>s for a 25% load change</li> </ul>
Ripple & Noise	<ul style="list-style-type: none"> <li>• 75 mV pk-pk, 20 MHz bandwidth for 8 W versions,</li> <li>• 85 mV pk-pk, 20 MHz bandwidth for 10 W and 12 W versions (see note 3)</li> </ul>
Overload Protection	<ul style="list-style-type: none"> <li>• 150% of full load typical for 8 W versions, 170% of full load typical for 10 W and 12 W versions</li> </ul>
Overvoltage Protection	<ul style="list-style-type: none"> <li>• 3.3 V models: 3.9 V typical</li> <li>• 5 V models: 6.2 V typical</li> <li>• 12 V models: 15 V typical</li> <li>• 15 V models: 18 V typical</li> <li>• <math>\pm 5</math> V models: <math>\pm 6.2</math> V typical</li> <li>• <math>\pm 12</math> V models: <math>\pm 15</math> V typical</li> <li>• <math>\pm 15</math> V models: <math>\pm 18</math> V typical</li> </ul>
Short Circuit Protection	<ul style="list-style-type: none"> <li>• Trip &amp; restart (hiccup) with auto recovery</li> </ul>
Maximum Capacitive Load	<ul style="list-style-type: none"> <li>• See table</li> </ul>
Temperature Coefficient	<ul style="list-style-type: none"> <li>• <math>\pm 0.02/^\circ\text{C}</math> max</li> </ul>
Remote On/Off	<ul style="list-style-type: none"> <li>• On <math>&gt; 3.0</math> VDC or open circuit</li> <li>• Off <math>&lt; 1.2</math> VDC or short circuit pins 1, 2 &amp; 3</li> </ul>

## General

Efficiency	<ul style="list-style-type: none"> <li>• See tables</li> </ul>
Isolation	<ul style="list-style-type: none"> <li>• 1600 VDC Input to Output</li> <li>• 1600 VDC Input to Case</li> <li>• 1600 VDC Output to Case</li> </ul>
Isolation Capacitance	<ul style="list-style-type: none"> <li>• 1500 pF max</li> </ul>
Switching Frequency	<ul style="list-style-type: none"> <li>• 270 kHz typical</li> </ul>
Power Density	<ul style="list-style-type: none"> <li>• JTF08: 20 W/in<sup>3</sup>, JTF10: 25 W/in<sup>3</sup>, JTF12: 30 W/in<sup>3</sup></li> </ul>
MTBF	<ul style="list-style-type: none"> <li>• <math>&gt; 1</math> Mhrs to MIL-HDBK-217F at 25 °C, GB</li> </ul>

## Environmental

Operating Temperature	<ul style="list-style-type: none"> <li>• -40 °C to +105 °C, derate from 100% load at +60 °C to no load at +105 °C for 10 W and 12 W versions and from 100% load at 70 °C to no load at 105 °C for 8 W version</li> </ul>
Case Temperature	<ul style="list-style-type: none"> <li>• +105 °C max</li> </ul>
Storage Temperature	<ul style="list-style-type: none"> <li>• -40 °C to +125 °C</li> </ul>
Humidity	<ul style="list-style-type: none"> <li>• Up to 90%, non-condensing</li> </ul>
Cooling	<ul style="list-style-type: none"> <li>• Natural convection</li> </ul>

## EMC

Emissions	<ul style="list-style-type: none"> <li>• EN55022 class A conducted with external components - see application note</li> </ul>
ESD Immunity	<ul style="list-style-type: none"> <li>• EN61000-4-2, level 3, Perf Criteria B</li> </ul>
Radiated Immunity	<ul style="list-style-type: none"> <li>• EN61000-4-3, 10 V/m Perf Criteria A</li> </ul>
EFT/Burst	<ul style="list-style-type: none"> <li>• EN61000-4-4, level 3 Perf Criteria B*</li> </ul>
Surge	<ul style="list-style-type: none"> <li>• EN61000-4-5, level 2 Perf Criteria B*</li> </ul>
Conducted Immunity	<ul style="list-style-type: none"> <li>• EN61000-4-6, 10 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>

\*External input capacitor required, 330  $\mu$ F/100 V.

Input Voltage	Output Voltage	Output Current	Input Current <sup>(1)</sup>		Max. Capacitive Load	Efficiency	Model Number
			No Load	Full Load			
9-36 V	3.3 V	2.0 A	10 mA	335 mA	1330 µF	83%	JTF0824S3V3†^
	5.0 V	1.5 A	10 mA	365 mA	1330 µF	86%	JTF0824S05†^
	12.0 V	0.665 A	15 mA	385 mA	288 µF	87%	JTF0824S12†^
	15.0 V	0.535 A	15 mA	385 mA	200 µF	87%	JTF0824S15†^
	±5.0 V	±0.8 A	10 mA	400 mA	±900 µF	84%	JTF0824D05†^
	±12.0 V	±0.335 A	15 mA	390 mA	±133 µF	86%	JTF0824D12†^
	±15.0 V	±0.265 A	10 mA	385 mA	±90 µF	87%	JTF0824D15†^
18-75 V	3.3 V	2.0 A	10 mA	170 mA	1330 µF	82%	JTF0848S3V3†^
	5.0 V	1.5 A	10 mA	185 mA	1330 µF	86%	JTF0848S05†^
	12.0 V	0.665 A	10 mA	195 mA	288 µF	87%	JTF0848S12†^
	15.0 V	0.535 A	10 mA	195 mA	200 µF	87%	JTF0848S15†^
	±5.0 V	±0.8 A	10 mA	200 mA	±900 µF	84%	JTF0848D05†^
	±12.0 V	±0.335 A	10 mA	195 mA	±133 µF	87%	JTF0848D12†^
	±15.0 V	±0.265 A	10 mA	195 mA	±90 µF	87%	JTF0848D15†^
9-36 V	3.3 V	2.7 A	15 mA	440 mA	1330 µF	85%	JTF1024S3V3†^
	5.0 V	2.0 A	15 mA	475 mA	1330 µF	87%	JTF1024S05†^
	12.0 V	0.833 A	15 mA	475 mA	288 µF	88%	JTF1024S12†^
	15.0 V	0.667 A	15 mA	480 mA	200 µF	88%	JTF1024S15†^
	±5.0 V	±1.0 A	15 mA	495 mA	±900 µF	85%	JTF1024D05†^
	±12.0 V	±0.417 A	15 mA	480 mA	±133 µF	87%	JTF1024D12†^
	±15.0 V	±0.33 A	15 mA	480 mA	±90 µF	87%	JTF1024D15†^
18-75 V	3.3 V	2.7 A	15 mA	225 mA	1330 µF	84%	JTF1048S3V3†^
	5.0 V	2.0 A	15 mA	240 mA	1330 µF	87%	JTF1048S05†^
	12.0 V	0.833 A	15 mA	240 mA	288 µF	87%	JTF1048S12†^
	15.0 V	0.667 A	15 mA	240 mA	200 µF	87%	JTF1048S15†^
	±5.0 V	±1.0 A	15 mA	250 mA	±900 µF	85%	JTF1048D05†^
	±12.0 V	±0.417 A	15 mA	245 mA	±133 µF	88%	JTF1048D12†^
	±15.0 V	±0.33 A	15 mA	240 mA	±90 µF	88%	JTF1048D15†^
9-36 V	3.3 V	3.5 A	15 mA	573 mA	2000 µF	87%	JTF1224S3V3†^
	5.0 V	2.4 A	15 mA	581 mA	2000 µF	89%	JTF1224S05†^
	12.0 V	1.0 A	15 mA	574 mA	430 µF	90%	JTF1224S12†^
	15.0 V	0.8 A	15 mA	574 mA	300 µF	90%	JTF1224S15†^
	±5.0 V	±1.2 A	15 mA	595 mA	±1250 µF	87%	JTF1224D05†^
	±12.0 V	±0.5 A	15 mA	574 mA	±200 µF	90%	JTF1224D12†^
	±15.0 V	±0.4 A	15 mA	574 mA	±120 µF	90%	JTF1224D15†^
18-75 V	3.3 V	3.5 A	15 mA	286 mA	2000 µF	87%	JTF1248S3V3†^
	5.0 V	2.4 A	15 mA	290 mA	2000 µF	89%	JTF1248S05†^
	12.0 V	1.0 A	15 mA	287 mA	430 µF	90%	JTF1248S12†^
	15.0 V	0.8 A	15 mA	287 mA	300 µF	90%	JTF1248S15†^
	±5.0 V	±1.2 A	15 mA	297 mA	±1250 µF	87%	JTF1248D05†^
	±12.0 V	±0.5 A	15 mA	287 mA	±200 µF	90%	JTF1248D12†^
	±15.0 V	±0.4 A	15 mA	287 mA	±120 µF	90%	JTF1248D15†^

**Notes**

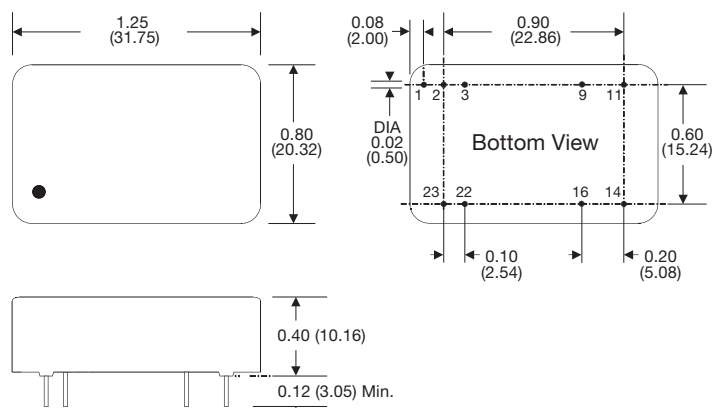
1. Input current measured at nominal 24 V and 48 V input.
2. When one output is set to 100% load, and the other varies between 25% and 100% load.

3. Measured with 1 µF ceramic capacitor across output rails.

† Available from Farnell & element14. See pages 284-290.

^ Available from Newark. See pages 291-296

**Mechanical Details**



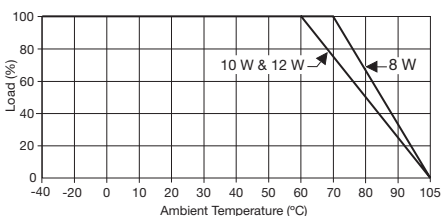
Pin	Pin Connections	
	Single	Dual
1	Remote On/Off	Remote On/Off
2	-Vin	-Vin
3	-Vin	-Vin
9	No Pin	Common
11	Not Connected	-Vout
14	+Vout	+Vout
16	-Vout	Common
22	+Vin	+Vin
23	+Vin	+Vin

**Notes**

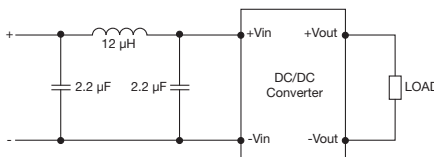
1. All dimensions are in inches (mm)
2. Weight: 0.04 lbs (18 g).
3. Pin diameter: 0.02 ±0.002 (0.5 ±0.05)
4. Pin pitch tolerance: ±0.014 (±0.35)
5. Case tolerance: ±0.02 (±0.5)
6. Package: 24 pin DIL nickel-coated copper.

**Application Notes**

**Derating Curve**



**Input Filter**



**Remote On/Off**

Standard ROF logic is positive  
 Output On >3.0 VDC or open circuit  
 Output Off <1.2 VDC or short circuit pins 1, 2 & 3