

# JTF SERIES

DC/DC Single & Dual Output: 8 ~12 Watts



## Features

- High Power Density
- Wide 4:1 Input Range
- Operating Temperature  $-40^{\circ}\text{C}$  to  $+105^{\circ}\text{C}$
- 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\text{H}</math> inductor and 47 <math>\mu\text{F}</math> 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 1.0\%</math> max for JTF15, <math>\pm 1.2\%</math> for others</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 single, <math>\pm 0.5\%</math> dual</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\text{s}</math> for a 25% load change</li></ul>
Ripple & Noise	<ul style="list-style-type: none"><li>• 85 mV pk-pk, 20 MHz bandwidth for JTF08, JTF10 and JTF12, 60 mV pk-pk 20 MHz bandwidth for JTF15 (see note 3)</li></ul>
Overload Protection	<ul style="list-style-type: none"><li>• 150% of full load typical for JTF08 &amp; JTF15, 170% of full load typical for JTF10 &amp; JTF12</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>• 2000 pF max for JTF15, 1500 pF max for others</li></ul>
Switching Frequency	<ul style="list-style-type: none"><li>• 330 kHz typical for JTF15, 270 kHz typical for others</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>, JTF15: 37.5 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 <math>^{\circ}\text{C}</math>, GB</li></ul>

### Environmental

Operating Temperature	<ul style="list-style-type: none"><li>• <math>-40^{\circ}\text{C}</math> to <math>+105^{\circ}\text{C}</math>, derate from 100% load at <math>+60^{\circ}\text{C}</math> to no load at <math>+105^{\circ}\text{C}</math> for 10 W, 12 W and 15 W versions and from 100% load at <math>70^{\circ}\text{C}</math> to no load at <math>105^{\circ}\text{C}</math> for 8 W version</li></ul>
Case Temperature	<ul style="list-style-type: none"><li>• <math>+105^{\circ}\text{C}</math> max</li></ul>
Storage Temperature	<ul style="list-style-type: none"><li>• <math>-40^{\circ}\text{C}</math> to <math>+125^{\circ}\text{C}</math></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>

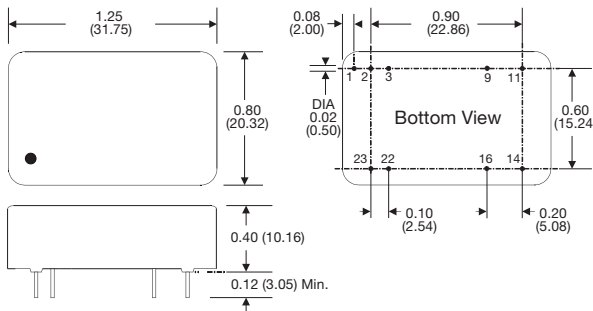
\* External input capacitor required, 330  $\mu\text{F}/100$  V.

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† <sup>A</sup>
	5.0 V	1.5 A	10 mA	365 mA	1330 µF	86%	JTF0824S05† <sup>A</sup>
	12.0 V	0.665 A	15 mA	385 mA	288 µF	87%	JTF0824S12† <sup>A</sup>
	15.0 V	0.535 A	15 mA	385 mA	200 µF	87%	JTF0824S15† <sup>A</sup>
	±5.0 V	±0.8 A	10 mA	400 mA	±900 µF	84%	JTF0824D05† <sup>A</sup>
	±12.0 V	±0.335 A	15 mA	390 mA	±133 µF	86%	JTF0824D12† <sup>A</sup>
	±15.0 V	±0.265 A	10 mA	385 mA	±90 µF	87%	JTF0824D15† <sup>A</sup>
18-75 V	3.3 V	2.0 A	10 mA	170 mA	1330 µF	82%	JTF0848S3V3† <sup>A</sup>
	5.0 V	1.5 A	10 mA	185 mA	1330 µF	86%	JTF0848S05† <sup>A</sup>
	12.0 V	0.665 A	10 mA	195 mA	288 µF	87%	JTF0848S12† <sup>A</sup>
	15.0 V	0.535 A	10 mA	195 mA	200 µF	87%	JTF0848S15† <sup>A</sup>
	±5.0 V	±0.8 A	10 mA	200 mA	±900 µF	84%	JTF0848D05† <sup>A</sup>
	±12.0 V	±0.335 A	10 mA	195 mA	±133 µF	87%	JTF0848D12† <sup>A</sup>
	±15.0 V	±0.265 A	10 mA	195 mA	±90 µF	87%	JTF0848D15† <sup>A</sup>
9-36 V	3.3 V	2.7 A	15 mA	440 mA	1330 µF	85%	JTF1024S3V3† <sup>A</sup>
	5.0 V	2.0 A	15 mA	475 mA	1330 µF	87%	JTF1024S05† <sup>A</sup>
	12.0 V	0.833 A	15 mA	475 mA	288 µF	88%	JTF1024S12† <sup>A</sup>
	15.0 V	0.667 A	15 mA	480 mA	200 µF	88%	JTF1024S15† <sup>A</sup>
	±5.0 V	±1.0 A	15 mA	495 mA	±900 µF	85%	JTF1024D05† <sup>A</sup>
	±12.0 V	±0.417 A	15 mA	480 mA	±133 µF	87%	JTF1024D12† <sup>A</sup>
	±15.0 V	±0.33 A	15 mA	480 mA	±90 µF	87%	JTF1024D15† <sup>A</sup>
18-75 V	3.3 V	2.7 A	15 mA	225 mA	1330 µF	84%	JTF1048S3V3† <sup>A</sup>
	5.0 V	2.0 A	15 mA	240 mA	1330 µF	87%	JTF1048S05† <sup>A</sup>
	12.0 V	0.833 A	15 mA	240 mA	288 µF	87%	JTF1048S12† <sup>A</sup>
	15.0 V	0.667 A	15 mA	240 mA	200 µF	87%	JTF1048S15† <sup>A</sup>
	±5.0 V	±1.0 A	15 mA	250 mA	±900 µF	85%	JTF1048D05† <sup>A</sup>
	±12.0 V	±0.417 A	15 mA	245 mA	±133 µF	88%	JTF1048D12† <sup>A</sup>
	±15.0 V	±0.33 A	15 mA	240 mA	±90 µF	88%	JTF1048D15† <sup>A</sup>
9-36 V	3.3 V	3.5 A	15 mA	573 mA	2000 µF	87%	JTF1224S3V3† <sup>A</sup>
	5.0 V	2.4 A	15 mA	581 mA	2000 µF	89%	JTF1224S05† <sup>A</sup>
	12.0 V	1.0 A	15 mA	574 mA	430 µF	90%	JTF1224S12† <sup>A</sup>
	15.0 V	0.8 A	15 mA	574 mA	300 µF	90%	JTF1224S15† <sup>A</sup>
	±5.0 V	±1.2 A	15 mA	595 mA	±1250 µF	87%	JTF1224D05† <sup>A</sup>
	±12.0 V	±0.5 A	15 mA	574 mA	±200 µF	90%	JTF1224D12† <sup>A</sup>
	±15.0 V	±0.4 A	15 mA	574 mA	±120 µF	90%	JTF1224D15† <sup>A</sup>
18-75 V	3.3 V	3.5 A	15 mA	286 mA	2000 µF	87%	JTF1248S3V3† <sup>A</sup>
	5.0 V	2.4 A	15 mA	290 mA	2000 µF	89%	JTF1248S05† <sup>A</sup>
	12.0 V	1.0 A	15 mA	287 mA	430 µF	90%	JTF1248S12† <sup>A</sup>
	15.0 V	0.8 A	15 mA	287 mA	300 µF	90%	JTF1248S15† <sup>A</sup>
	±5.0 V	±1.2 A	15 mA	297 mA	±1250 µF	87%	JTF1248D05† <sup>A</sup>
	±12.0 V	±0.5 A	15 mA	287 mA	±200 µF	90%	JTF1248D12† <sup>A</sup>
	±15.0 V	±0.4 A	15 mA	287 mA	±120 µF	90%	JTF1248D15† <sup>A</sup>
9-36 V	3.3 V	4.0 A	10 mA	647 mA	4700 µF	87%	JTF1524S3V3† <sup>A</sup>
	5.1 V	3.0 A	10 mA	732 mA	3300 µF	89%	JTF1524S05† <sup>A</sup>
	12.0 V	1.25 A	10 mA	710 mA	600 µF	90%	JTF1524S12† <sup>A</sup>
	15.0 V	1.0 A	10 mA	710 mA	400 µF	90%	JTF1524S15† <sup>A</sup>
	±5.0 V	±1.5 A	10 mA	744 mA	±1500 µF	86%	JTF1524D05† <sup>A</sup>
	±12.0 V	±0.625 A	10 mA	718 mA	±288 µF	89%	JTF1524D12† <sup>A</sup>
	±15.0 V	±0.5 A	10 mA	710 mA	±200 µF	90%	JTF1524D15† <sup>A</sup>
18-75 V	3.3 V	4.0 A	5 mA	327 mA	4700 µF	86%	JTF1548S3V3† <sup>A</sup>
	5.1 V	3.0 A	5 mA	370 mA	3300 µF	88%	JTF1548S05† <sup>A</sup>
	12.0 V	1.25 A	5 mA	355 mA	600 µF	90%	JTF1548S12† <sup>A</sup>
	15.0 V	1.0 A	5 mA	359 mA	400 µF	89%	JTF1548S15† <sup>A</sup>
	±5.0 V	±1.5 A	5 mA	372 mA	±1500 µF	86%	JTF1548D05† <sup>A</sup>
	±12.0 V	±0.625 A	5 mA	359 mA	±288 µF	89%	JTF1548D12† <sup>A</sup>
	±15.0 V	±0.5 A	5 mA	355 mA	±200 µF	90%	JTF1548D15† <sup>A</sup>

Notes

1. Input current measured at nominal 24 V and 48 V input.
2. When one output is set to 100% load & the other varies between 25% & 100% load.
3. Measured with 1 µF ceramic capacitor across output rails.

Mechanical Details



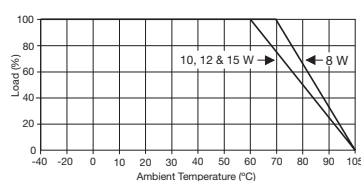
Notes

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.

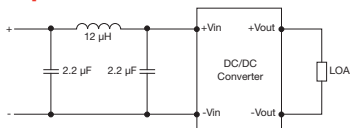
Pin	Pin Connections	
	Single	Dual
1	Remote On/Off	Remote On/Off
2	-Vin	-Vin
3	-Vin	-Vin
9	No Pin	Common
11	Not Connected	-Vout
14	+Vout	+Vout
16	-Vout	Common
22	+Vin	+Vin
23	+Vin	+Vin

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