

## JTF Series



- High Power Density
- Wide 4:1 Input Range
- Operating Temperature  $-40\text{ }^{\circ}\text{C}$  to  $+85\text{ }^{\circ}\text{C}$
- Single & Dual Outputs
- Standard Remote On/Off
- 1600 VDC Isolation
- 3 Year Warranty

### Specification

#### Input

- |                                   |   |
|-----------------------------------|---|
| Input Voltage Range               | • 24 V (9-36 VDC)<br>48 V (18-75 VDC)   |
| Input Current                     | • See table   |
| Input Filter                      | • Pi network  |
| Input Reflected<br>Ripple Current | • 20 mA pk-pk through 12 $\mu\text{H}$ inductor and<br>47 $\mu\text{F}$ capacitor, 5 Hz to 20 MHz                                   |
| Input Surge                       | • 24 V models: 50 VDC for 100 ms<br>(1 second for 12 W versions)<br>48 V models: 100 VDC for 100 ms<br>(1 second for 12 W versions) |

#### Output

- |                            |   |
|----------------------------|---|
| Output Voltage             | • See table   |
| Minimum Load               | • No minimum load required  |
| Initial Set Accuracy       | • $\pm 1.0\%$ max for JTF15, $\pm 1.2\%$ for others   |
| Start Up Delay             | • 20 ms typical   |
| Line Regulation            | • $\pm 0.2\%$ max single, $\pm 0.5\%$ dual  |
| Load Regulation            | • $\pm 0.5\%$ max single, $\pm 1.0\%$ max dual  |
| Cross Regulation           | • $\pm 5\%$ on dual output models (see note 2)  |
| Transient Response         | • $< 3\%$ max deviation, recovery to within 1%<br>in 250 $\mu\text{s}$ for a 25% load change  |
| Ripple & Noise             | • 85 mV pk-pk, 20 MHz bandwidth for<br>JTF08, JTF10 and JTF12, 60 mV pk-pk<br>20 MHz bandwidth for JTF15 (see note 3)   |
| Overload Protection        | • 150% of full load typical for JTF08 & JTF15,<br>170% of full load typical for JTF10 & JTF12   |
| Overvoltage Protection     | • 3.3V models: 3.9 V typical<br>5V models: 6.2 V typical<br>12 V models: 15 V typical<br>15 V models: 18 V typical<br>$\pm 5\text{ V}$ models: $\pm 6.2\text{ V}$ typical<br>$\pm 12\text{ V}$ models: $\pm 15\text{ V}$ typical<br>$\pm 15\text{ V}$ models: $\pm 18\text{ V}$ typical |
| Short Circuit Protection   | • Trip & restart (hiccup) with auto recovery  |
| Maximum Capacitive<br>Load | • See table   |
| Temperature<br>Coefficient | • $\pm 0.02/^{\circ}\text{C}$ max   |
| Remote On/Off              | • On: 3 to 12 VDC or open circuit<br>Off: $< 1.2\text{ VDC}$ or short circuit pins 1, 2 & 3   |

#### General

- |                       |  |
|-----------------------|--|
| Efficiency            | • See tables   |
| Isolation             | • 1600 VDC Input to Output<br>1600 VDC Input to Case<br>1600 VDC Output to Case  |
| Isolation Capacitance | • 2000 pF max for JTF15,<br>1500 pF max for others   |
| Switching Frequency   | • 330 kHz typical for JTF15,<br>270 kHz typical for others   |
| Power Density         | • JTF08: 20 W/in <sup>3</sup> , JTF10: 25 w/in <sup>3</sup> ,<br>JTF12: 30 W/in <sup>3</sup> , JTF15: 37.5 w/in <sup>3</sup> , |
| MTBF                  | • $> 1\text{ Mhrs}$ to MIL-HDBK-217F at 25 $^{\circ}\text{C}$ , GB   |

#### Environmental

- |                       |  |
|-----------------------|--|
| Operating Temperature | • $-40\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$ , derate from 100% load<br>at $+60\text{ }^{\circ}\text{C}$ to no load at $+105\text{ }^{\circ}\text{C}$ for 10 W,<br>12 W and 15 W versions and from 100%<br>load at 70 $^{\circ}\text{C}$ to no load at 105 $^{\circ}\text{C}$ for 8 W<br>version |
| Case Temperature      | • $+105\text{ }^{\circ}\text{C}$ max   |
| Storage Temperature   | • $-40\text{ }^{\circ}\text{C}$ to $+125\text{ }^{\circ}\text{C}$  |
| Humidity              | • Up to 90%, non-condensing  |
| Cooling               | • Natural convection   |

#### EMC

- |                    |  |
|--------------------|--|
| Emissions          | • EN55032 class A conducted with external<br>components - see application note |
| ESD Immunity       | • EN61000-4-2, level 3, Perf Criteria B  |
| Radiated Immunity  | • EN61000-4-3, 10 V/m Perf Criteria A  |
| EFT/Burst          | • EN61000-4-4, level 3 Perf Criteria B*  |
| Surge              | • EN61000-4-5, level 2 Perf Criteria B*  |
| Conducted Immunity | • EN61000-4-6, 10 Vrms Perf Criteria A*  |
| Magnetic Field     | • EN61000-4-8, 1 A/m Perf Criteria A   |

#### Safety

- |                  |   |
|------------------|---|
| Safety Approvals | • UL60950-1 & UL62368-1<br>(JTF08, JTF10, and JTF12 only) |
|------------------|---|

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

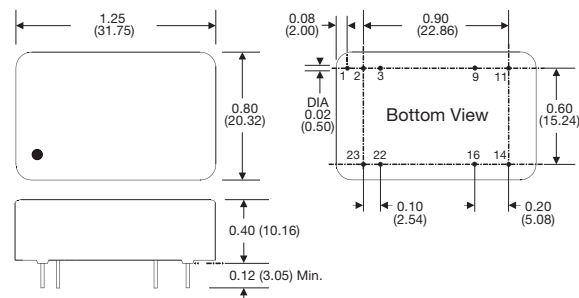
## Models and Ratings

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 $\mu$ F	83%	JTF0824S3V3
	5.0 V	1.5 A	10 mA	365 mA	1330 $\mu$ F	86%	JTF0824S05
	12.0 V	0.665 A	15 mA	385 mA	288 $\mu$ F	87%	JTF0824S12
	15.0 V	0.535 A	15 mA	385 mA	200 $\mu$ F	87%	JTF0824S15
	$\pm 5.0$ V	$\pm 0.8$ A	10 mA	400 mA	$\pm 900$ $\mu$ F	84%	JTF0824D05
	$\pm 12.0$ V	$\pm 0.335$ A	15 mA	390 mA	$\pm 133$ $\mu$ F	86%	JTF0824D12
	$\pm 15.0$ V	$\pm 0.265$ A	10 mA	385 mA	$\pm 90$ $\mu$ F	87%	JTF0824D15
18-75 V	3.3 V	2.0 A	10 mA	170 mA	1330 $\mu$ F	82%	JTF0848S3V3
	5.0 V	1.5 A	10 mA	185 mA	1330 $\mu$ F	86%	JTF0848S05
	12.0 V	0.665 A	10 mA	195 mA	288 $\mu$ F	87%	JTF0848S12
	15.0 V	0.535 A	10 mA	195 mA	200 $\mu$ F	87%	JTF0848S15
	$\pm 5.0$ V	$\pm 0.8$ A	10 mA	200 mA	$\pm 900$ $\mu$ F	84%	JTF0848D05
	$\pm 12.0$ V	$\pm 0.335$ A	10 mA	195 mA	$\pm 133$ $\mu$ F	87%	JTF0848D12
	$\pm 15.0$ V	$\pm 0.265$ A	10 mA	195 mA	$\pm 90$ $\mu$ F	87%	JTF0848D15
9-36 V	3.3 V	2.7 A	15 mA	440 mA	1330 $\mu$ F	85%	JTF1024S3V3
	5.0 V	2.0 A	15 mA	475 mA	1330 $\mu$ F	87%	JTF1024S05
	12.0 V	0.833 A	15 mA	475 mA	288 $\mu$ F	88%	JTF1024S12
	15.0 V	0.667 A	15 mA	480 mA	200 $\mu$ F	88%	JTF1024S15
	$\pm 5.0$ V	$\pm 1.0$ A	15 mA	495 mA	$\pm 900$ $\mu$ F	85%	JTF1024D05
	$\pm 12.0$ V	$\pm 0.417$ A	15 mA	480 mA	$\pm 133$ $\mu$ F	87%	JTF1024D12
	$\pm 15.0$ V	$\pm 0.33$ A	15 mA	480 mA	$\pm 90$ $\mu$ F	87%	JTF1024D15
18-75 V	3.3 V	2.7 A	15 mA	225 mA	1330 $\mu$ F	84%	JTF1048S3V3
	5.0 V	2.0 A	15 mA	240 mA	1330 $\mu$ F	87%	JTF1048S05
	12.0 V	0.833 A	15 mA	240 mA	288 $\mu$ F	87%	JTF1048S12
	15.0 V	0.667 A	15 mA	240 mA	200 $\mu$ F	87%	JTF1048S15
	$\pm 5.0$ V	$\pm 1.0$ A	15 mA	250 mA	$\pm 900$ $\mu$ F	85%	JTF1048D05
	$\pm 12.0$ V	$\pm 0.417$ A	15 mA	245 mA	$\pm 133$ $\mu$ F	88%	JTF1048D12
	$\pm 15.0$ V	$\pm 0.33$ A	15 mA	240 mA	$\pm 90$ $\mu$ F	88%	JTF1048D15
9-36 V	3.3 V	3.5 A	15 mA	573 mA	2000 $\mu$ F	87%	JTF1224S3V3
	5.0 V	2.4 A	15 mA	581 mA	2000 $\mu$ F	89%	JTF1224S05
	12.0 V	1.0 A	15 mA	574 mA	430 $\mu$ F	90%	JTF1224S12
	15.0 V	0.8 A	15 mA	574 mA	300 $\mu$ F	90%	JTF1224S15
	$\pm 5.0$ V	$\pm 1.2$ A	15 mA	595 mA	$\pm 1250$ $\mu$ F	87%	JTF1224D05
	$\pm 12.0$ V	$\pm 0.5$ A	15 mA	574 mA	$\pm 200$ $\mu$ F	90%	JTF1224D12
	$\pm 15.0$ V	$\pm 0.4$ A	15 mA	574 mA	$\pm 120$ $\mu$ F	90%	JTF1224D15
18-75 V	3.3 V	3.5 A	15 mA	286 mA	2000 $\mu$ F	87%	JTF1248S3V3
	5.0 V	2.4 A	15 mA	290 mA	2000 $\mu$ F	89%	JTF1248S05
	12.0 V	1.0 A	15 mA	287 mA	430 $\mu$ F	90%	JTF1248S12
	15.0 V	0.8 A	15 mA	287 mA	300 $\mu$ F	90%	JTF1248S15
	$\pm 5.0$ V	$\pm 1.2$ A	15 mA	297 mA	$\pm 1250$ $\mu$ F	87%	JTF1248D05
	$\pm 12.0$ V	$\pm 0.5$ A	15 mA	287 mA	$\pm 200$ $\mu$ F	90%	JTF1248D12
	$\pm 15.0$ V	$\pm 0.4$ A	15 mA	287 mA	$\pm 120$ $\mu$ F	90%	JTF1248D15
9-36 V	3.3 V	4.0 A	10 mA	647 mA	4700 $\mu$ F	87%	JTF1524S3V3
	5.1 V	3.0 A	10 mA	732 mA	3300 $\mu$ F	89%	JTF1524S05
	12.0 V	1.25 A	10 mA	710 mA	600 $\mu$ F	90%	JTF1524S12
	15.0 V	1.0 A	10 mA	710 mA	400 $\mu$ F	90%	JTF1524S15
	$\pm 5.0$ V	$\pm 1.5$ A	10 mA	744 mA	$\pm 1500$ $\mu$ F	86%	JTF1524D05
	$\pm 12.0$ V	$\pm 0.625$ A	10 mA	718 mA	$\pm 288$ $\mu$ F	89%	JTF1524D12
	$\pm 15.0$ V	$\pm 0.5$ A	10 mA	710 mA	$\pm 200$ $\mu$ F	90%	JTF1524D15
18-75 V	3.3 V	4.0 A	5 mA	327 mA	4700 $\mu$ F	86%	JTF1548S3V3
	5.1 V	3.0 A	5 mA	370 mA	3300 $\mu$ F	88%	JTF1548S05
	12.0 V	1.25 A	5 mA	355 mA	600 $\mu$ F	90%	JTF1548S12
	15.0 V	1.0 A	5 mA	359 mA	400 $\mu$ F	89%	JTF1548S15
	$\pm 5.0$ V	$\pm 1.5$ A	5 mA	372 mA	$\pm 1500$ $\mu$ F	86%	JTF1548D05
	$\pm 12.0$ V	$\pm 0.625$ A	5 mA	359 mA	$\pm 288$ $\mu$ F	89%	JTF1548D12
	$\pm 15.0$ V	$\pm 0.5$ A	5 mA	355 mA	$\pm 200$ $\mu$ F	90%	JTF1548D15

### Notes

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

### Mechanical Details



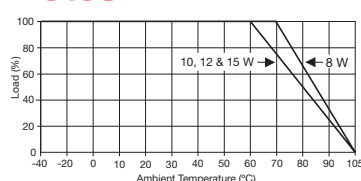
### Notes

- All dimensions are in inches (mm)
- Weight: 0.04 lbs (18 g). 15W: 0.04 (20 g)
- Pin diameter: 0.02  $\pm$  0.002 (0.5  $\pm$  0.05)
- Pin pitch tolerance:  $\pm$  0.014 ( $\pm$  0.35)
- Case tolerance:  $\pm$  0.02 ( $\pm$  0.5)
- Package: 24 pin DIL nickel-coated copper.

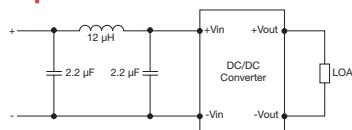
Pin	Pin Connections	
	Single	Dual
1	Remote On/Off	Remote On/Off
2	-Vin	-Vin
3	-Vin	-Vin
9	No Pin	Common
11	Not Connected	-Vout
14	+Vout	+Vout
16	-Vout	Common
22	+Vin	+Vin
23	+Vin	+Vin

### Application Notes

#### Derating Curve



#### Input Filter



#### Remote On/Off

- Standard ROF logic is positive
- Output On: 3 to 12 VDC or open circuit
- Output Off: <1.2 VDC or short circuit pins 1, 2 & 3