

## JTF Series



- 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: 3 to 12 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

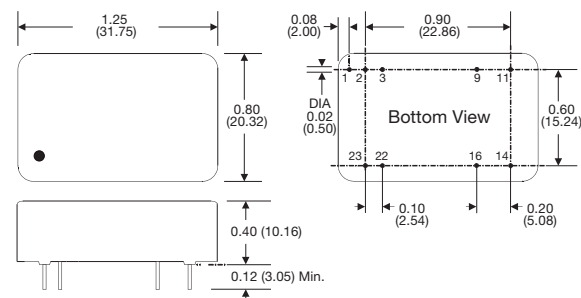
|                    |                                                                                                                               |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------|
| 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 $\mu$ 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   |

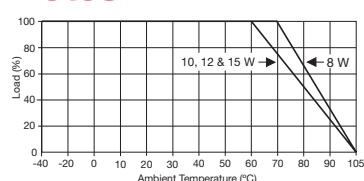
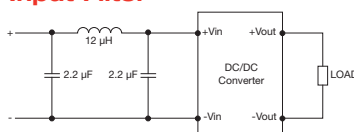
**Notes**

- 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).
- 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 Connections |               |               |
|-----------------|---------------|---------------|
| Pin             | 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