

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 | <ul style="list-style-type: none"> • 24 V (9-36 VDC) • 48 V (18-75 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"> • 20 mA pk-pk through 12 μH inductor and 47 μF capacitor, 5 Hz to 20 MHz |
| Input Surge | <ul style="list-style-type: none"> • 24 V models: 50 VDC for 100 ms (1 second for 12 W versions) • 48 V models: 100 VDC for 100 ms (1 second for 12 W versions) |

Output

| | |
|--------------------------|---|
| Output Voltage | <ul style="list-style-type: none"> • See table |
| Minimum Load | <ul style="list-style-type: none"> • No minimum load required |
| Initial Set Accuracy | <ul style="list-style-type: none"> • $\pm 1.0\%$ max for JTF15, $\pm 1.2\%$ for others |
| Start Up Delay | <ul style="list-style-type: none"> • 20 ms typical |
| Line Regulation | <ul style="list-style-type: none"> • $\pm 0.2\%$ max single, $\pm 0.5\%$ dual |
| Load Regulation | <ul style="list-style-type: none"> • $\pm 0.5\%$ max single, $\pm 1.0\%$ max dual |
| Cross Regulation | <ul style="list-style-type: none"> • $\pm 5\%$ on dual output models (see note 2) |
| Transient Response | <ul style="list-style-type: none"> • $< 3\%$ max deviation, recovery to within 1% in 250 μs for a 25% load change |
| Ripple & Noise | <ul style="list-style-type: none"> • 85 mV pk-pk, 20 MHz bandwidth for JTF08, JTF10 and JTF12, 60 mV pk-pk 20 MHz bandwidth for JTF15 (see note 3) |
| Overload Protection | <ul style="list-style-type: none"> • 150% of full load typical for JTF08 & JTF15, 170% of full load typical for JTF10 & JTF12 |
| Overvoltage Protection | <ul style="list-style-type: none"> • 3.3V models: 3.9 V typical • 5V models: 6.2 V typical • 12 V models: 15 V typical • 15 V models: 18 V typical • $\pm 5\text{ V}$ models: $\pm 6.2\text{ V}$ typical • $\pm 12\text{ V}$ models: $\pm 15\text{ V}$ typical • $\pm 15\text{ V}$ models: $\pm 18\text{ V}$ typical |
| Short Circuit Protection | <ul style="list-style-type: none"> • Trip & restart (hiccup) with auto recovery |
| Maximum Capacitive Load | <ul style="list-style-type: none"> • See table |
| Temperature Coefficient | <ul style="list-style-type: none"> • $\pm 0.02/^{\circ}\text{C}$ max |
| Remote On/Off | <ul style="list-style-type: none"> • On: 3 to 12 VDC or open circuit • Off: $< 1.2\text{ VDC}$ or short circuit pins 1, 2 & 3 |

General

| | |
|-----------------------|---|
| Efficiency | <ul style="list-style-type: none"> • See tables |
| Isolation | <ul style="list-style-type: none"> • 1600 VDC Input to Output • 1600 VDC Input to Case • 1600 VDC Output to Case |
| Isolation Capacitance | <ul style="list-style-type: none"> • 2000 pF max for JTF15, 1500 pF max for others |
| Switching Frequency | <ul style="list-style-type: none"> • 330 kHz typical for JTF15, 270 kHz typical for others |
| Power Density | <ul style="list-style-type: none"> • JTF08: 20 W/in³, JTF10: 25 w/in³, JTF12: 30 W/in³, JTF15: 37.5 w/in³, |
| MTBF | <ul style="list-style-type: none"> • $> 1\text{ Mhrs}$ to MIL-HDBK-217F at 25 $^{\circ}\text{C}$, GB |

Environmental

| | |
|-----------------------|---|
| Operating Temperature | <ul style="list-style-type: none"> • $-40\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$, derate from 100% load at $+60\text{ }^{\circ}\text{C}$ to no load at $+105\text{ }^{\circ}\text{C}$ for 10 W, 12 W and 15 W versions and from 100% load at 70 $^{\circ}\text{C}$ to no load at 105 $^{\circ}\text{C}$ for 8 W version |
| Case Temperature | <ul style="list-style-type: none"> • $+105\text{ }^{\circ}\text{C}$ max |
| Storage Temperature | <ul style="list-style-type: none"> • $-40\text{ }^{\circ}\text{C}$ to $+125\text{ }^{\circ}\text{C}$ |
| Humidity | <ul style="list-style-type: none"> • Up to 90%, non-condensing |
| Cooling | <ul style="list-style-type: none"> • Natural convection |

EMC

| | |
|--------------------|---|
| Emissions | <ul style="list-style-type: none"> • EN55032 class A conducted with external components - see application note |
| ESD Immunity | <ul style="list-style-type: none"> • EN61000-4-2, level 3, Perf Criteria B |
| Radiated Immunity | <ul style="list-style-type: none"> • EN61000-4-3, 10 V/m Perf Criteria A |
| EFT/Burst | <ul style="list-style-type: none"> • EN61000-4-4, level 3 Perf Criteria B* |
| Surge | <ul style="list-style-type: none"> • EN61000-4-5, level 2 Perf Criteria B* |
| Conducted Immunity | <ul style="list-style-type: none"> • EN61000-4-6, 10 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 & UL62368-1 (JTF08, JTF10, and JTF12 only) |
|------------------|--|

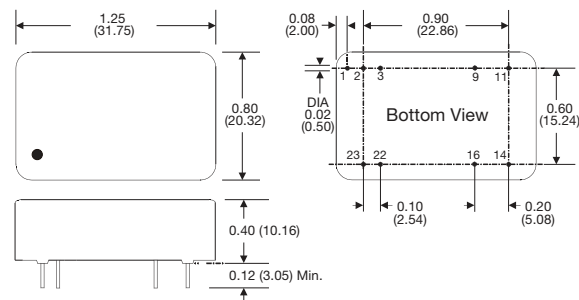
* External input capacitor required, 330 $\mu\text{F}/100\text{ V}$.

| Input Voltage | Output Voltage | Output Current | Input Current ⁽¹⁾ | | 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 |
| 9-36 V | 3.3 V | 4.0 A | 10 mA | 647 mA | 4700 µF | 87% | JTF1524S3V3 |
| | 5.1 V | 3.0 A | 10 mA | 732 mA | 3300 µF | 89% | JTF1524S05 |
| | 12.0 V | 1.25 A | 10 mA | 710 mA | 600 µF | 90% | JTF1524S12 |
| | 15.0 V | 1.0 A | 10 mA | 710 mA | 400 µF | 90% | JTF1524S15 |
| | ±5.0 V | ±1.5 A | 10 mA | 744 mA | ±1500 µF | 86% | JTF1524D05 |
| | ±12.0 V | ±0.625 A | 10 mA | 718 mA | ±288 µF | 89% | JTF1524D12 |
| | ±15.0 V | ±0.5 A | 10 mA | 710 mA | ±200 µF | 90% | JTF1524D15 |
| 18-75 V | 3.3 V | 4.0 A | 5 mA | 327 mA | 4700 µF | 86% | JTF1548S3V3 |
| | 5.1 V | 3.0 A | 5 mA | 370 mA | 3300 µF | 88% | JTF1548S05 |
| | 12.0 V | 1.25 A | 5 mA | 355 mA | 600 µF | 90% | JTF1548S12 |
| | 15.0 V | 1.0 A | 5 mA | 359 mA | 400 µF | 89% | JTF1548S15 |
| | ±5.0 V | ±1.5 A | 5 mA | 372 mA | ±1500 µF | 86% | JTF1548D05 |
| | ±12.0 V | ±0.625 A | 5 mA | 359 mA | ±288 µF | 89% | JTF1548D12 |
| | ±15.0 V | ±0.5 A | 5 mA | 355 mA | ±200 µF | 90% | JTF1548D15 |

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



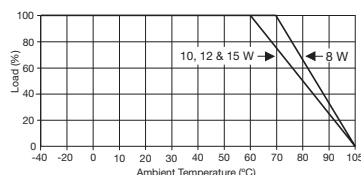
Notes

1. All dimensions are in inches (mm)
2. Weight: 0.04 lbs (18 g). 15W: 0.04 (20 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.

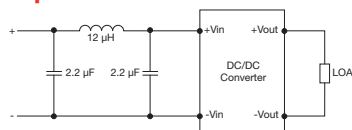
| Pin | Pin Connections | |
|-----|-----------------|---------------|
| | Single | Dual |
| 1 | Remote On/Off | Remote On/Off |
| 2 | -Vin | -Vin |
| 3 | -Vin | -Vin |
| 9 | No Pin | Common |
| 11 | Not Connected | -Vout |
| 14 | +Vout | +Vout |
| 16 | -Vout | Common |
| 22 | +Vin | +Vin |
| 23 | +Vin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

Application Notes

Derating Curve



Input Filter



Remote On/Off

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