

JTF Series



- High Power Density
- Wide 4:1 Input Range
- Operating Temperature -40 °C to +100 °C
- Single & Dual Outputs
- Standard Remote On/Off
- 1600 VDC Isolation
- High Efficiency - up to 90%

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 | <ul style="list-style-type: none"> • 20 mA pk-pk through 12 μH inductor, 5 Hz to 20 MHz |
| Input Surge | <ul style="list-style-type: none"> • 24 V models: 50 VDC for 1000 ms • 48 V models: 100 VDC for 1000 ms |

Output

| | |
|--------------------------|--|
| Output Voltage | <ul style="list-style-type: none"> • See table |
| Output Voltage Balance | <ul style="list-style-type: none"> • $\pm 1\%$ max, dual output models |
| Minimum Load | <ul style="list-style-type: none"> • No minimum load required |
| Initial Set Accuracy | <ul style="list-style-type: none"> • $\pm 1.2\%$ max |
| Start Up Delay | <ul style="list-style-type: none"> • <20 ms |
| Start Up Rise Time | <ul style="list-style-type: none"> • <10 ms |
| Line Regulation | <ul style="list-style-type: none"> • $\pm 0.2\%$ max |
| 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 BW, with 1 μF ceramic capacitor, see note 3 |
| Overload Protection | <ul style="list-style-type: none"> • >170% |
| Overvoltage Protection | <ul style="list-style-type: none"> • 3.3 V models: 3.9 V typical • 5 V models: 6.2 V typical • 12 V models: 15 V typical • 15 V models: 18 V typical • ± 12 V models: ± 15 V typical • ± 15 V models: ± 18 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 tables |
| 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 = 3-12 V or open circuit • Off <1.2 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"> • 1500 pF max |
| Switching Frequency | <ul style="list-style-type: none"> • 270 kHz typical |
| MTBF | <ul style="list-style-type: none"> • >1 Mhrs to MIL-STD-217F |

Environmental

| | |
|-----------------------|--|
| Operating Temperature | <ul style="list-style-type: none"> • -40 °C to +105 °C, derate from 100% load at +60 °C to no load at +105 °C |
| Case Temperature | <ul style="list-style-type: none"> • +105 °C max |
| Storage Temperature | <ul style="list-style-type: none"> • -40 °C to +125 °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"> • EN55022 Class A conducted with external components - see application note |
| ESD Immunity | <ul style="list-style-type: none"> • EN61000-4-2, 4 kV contact discharge Perf Criteria B |
| Radiated Immunity | <ul style="list-style-type: none"> • EN61000-4-3, 3 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, 3 Vrms Perf Criteria A |
| Magnetic Field | <ul style="list-style-type: none"> • EN61000-4-8, 1 A/m Perf Criteria A |

*See note 4.

| Input Voltage | Output Voltage | Output Current | Input Current ⁽¹⁾ | | Maximum Capacitive Load | Efficiency | Model Number |
|---------------|----------------|----------------|------------------------------|-----------|-------------------------|------------|--------------|
| | | | No Load | Full Load | | | |
| 9-36 V | 3.3 V | 3.5 A | 15 mA | 573 mA | 2000 µF | 87% | JTF1224S3V3 |
| | 5.1 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 |
| 18-75 V | ±15.0 V | ±0.4 A | 15 mA | 574 mA | ±120 µF | 90% | JTF1224D15 |
| | 3.3 V | 3.5 A | 15 mA | 286 mA | 2000 µF | 87% | JTF1248S3V3 |
| | 5.1 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 | 12 mA | 287 mA | ±200 µF | 90% | JTF1248D12 |
| | ±15.0 V | ±0.4 A | 15 mA | 287 mA | ±120 µF | 90% | JTF1248D15 |

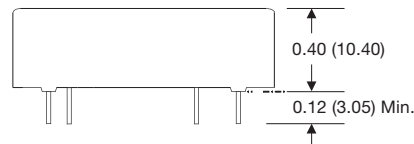
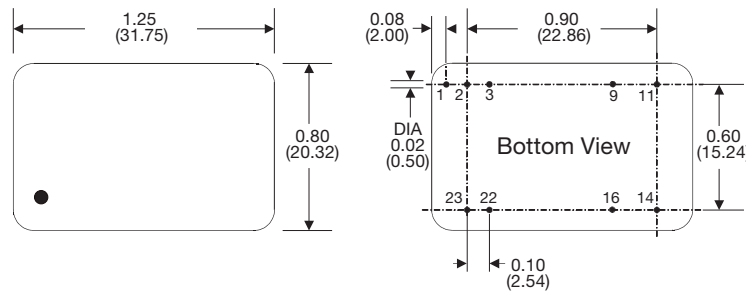
Notes

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.
4. External input capacitor required, Nippon Chemi-Con KY series, 330 µF/ 100 V or equivalent.

Mechanical Details

All dimensions are in inches (mm) Weight: 0.04 lbs (20 g) approx.

24 Pin DIL Package - Nickel Coated Copper

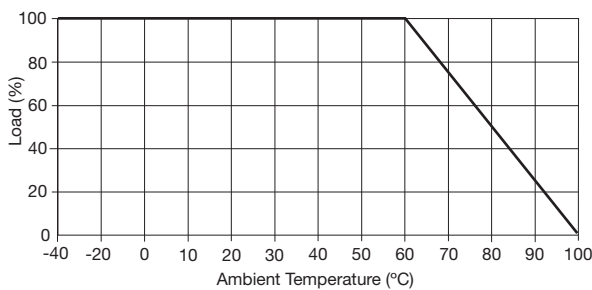


- Notes:
1. Pin diameter: 0.02 ±0.002 (0.5 ±0.05)
 2. Pin pitch tolerance: ±0.014 (±0.35)
 3. Case Tolerance: ±0.02 (±0.5)

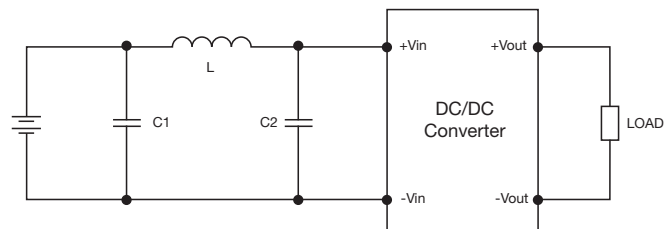
| Pin Connections | | |
|-----------------|---------------|---------------|
| Pin | Single | Dual |
| 1 | Remote On/Off | Remote On/Off |
| 2 | -Vin | -Vin |
| 3 | -Vin | -Vin |
| 9 | No Pin | Common |
| 11 | Not Connected | -Vout |
| 14 | +Vout | +Vout |
| 16 | -Vout | Common |
| 22 | +Vin | +Vin |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

Application Notes

Derating Curve



Input Filter



| Model | C1 | L | C2 |
|-------|---------------|-------|---------------|
| 24 V | 2.2 µF, 100 V | 12 µH | 2.2 µF, 100 V |
| 48 V | 2.2 µF, 100 V | 12 µH | 2.2 µF, 100 V |

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