

JTB03 Series



- 4:1 Input Range
- DIP-24 Metal Package
- Operating Temperature -25 °C to +100 °C
- Input Pi Filter
- Fully Regulated Single & Dual Outputs
- Optional 1500 VDC Isolation
- Continuous Short Circuit Protection

Specification

Input

| | |
|---------------------|---------------------------------------|
| Input Voltage Range | • 24 V (9-36 VDC) 48 V (18-72 VDC) |
| Input Current | • See table |
| Input Filter | • Pi network |

Output

| | |
|--------------------------|--|
| Output Voltage | • See table |
| Output Voltage Balance | • $\pm 1\%$ max, dual output models |
| Initial Set Accuracy | • $\pm 2\%$ max |
| Start Up Delay | • 90 ms max |
| Start Up Rise Time | • 35 ms typical |
| Line Regulation | • $\pm 0.5\%$ max (high line to low line) |
| Load Regulation | • $\pm 0.5\%$ max single output models, $\pm 1.0\%$ max for dual output models |
| Cross Regulation | • 2.2% on dual output models |
| Transient Response | • $< 1.5\%$ max deviation, recovery to within 1% in 200 μ s for a 50% load change |
| Ripple & Noise | • 100 mV or 1% pk-pk, whichever is greater, 20 MHz BW |
| Overcurrent Protection | • $> 170\%$ fold back at normal input voltage |
| Short Circuit Protection | • Continuous with auto recovery |
| Maximum Capacitive Load | • 30,000 μ F |
| Temperature Coefficient | • $\pm 0.05/^\circ\text{C}$ max |

General

| | |
|---------------------|--|
| Efficiency | • See table |
| Isolation | • 500 VDC Input to Output (1000 M Ω /80 pF) Optional high isolation version, 1500 VDC Input to Output, add suffix '-H' to model number |
| Switching Frequency | • Variable 100-700 kHz |
| MTBF | • 1,000 kHrs to MIL-HDBK-217F |

Environmental

| | |
|-----------------------|---|
| Operating Temperature | • -25 °C to +100 °C (see derating curve) |
| Case Temperature | • +100 °C max |
| Storage Temperature | • -40 °C to +100 °C |
| Shock | • 30 g, half sine wave 18 ms pulse applied 3 times on each of 6 axes |
| Vibration | • 5-500 Hz, 3 g, for 10 mins on each of 3 axes |

EMC

| | |
|--------------------|---|
| Emissions | • EN55022, level A conducted & radiated with external components - see application note |
| ESD Immunity | • EN61000-4-2, level 2 Perf Criteria A |
| Radiated Immunity | • EN61000-4-3, 3 V/m Perf Criteria A |
| Conducted Immunity | • EN61000-4-6, 3 V rms Perf Criteria A |

Models and Ratings

| Input Voltage ⁽¹⁾ | Output Voltage | Output Current | Input Current ⁽³⁾ | | Efficiency | Model Number ^(2, 4) |
|------------------------------|----------------|----------------|------------------------------|-----------|------------|--------------------------------|
| | | | No Load | Full Load | | |
| 9-36 VDC | 3.3 VDC | 600 mA | 15.0 mA | 117 mA | 70% | JTB0324S3V3 |
| | 5.0 VDC | 600 mA | 15.0 mA | 174 mA | 72% | JTB0324S05 |
| | 12.0 VDC | 250 mA | 15.0 mA | 165 mA | 76% | JTB0324S12 |
| | 15.0 VDC | 200 mA | 15.0 mA | 165 mA | 76% | JTB0324S15 |
| | ±5.0 VDC | ±300 mA | 25.0 mA | 179 mA | 70% | JTB0324D05 |
| | ±12.0 VDC | ±125 mA | 25.0 mA | 174 mA | 72% | JTB0324D12 |
| | ±15.0 VDC | ±100 mA | 25.0 mA | 174 mA | 72% | JTB0324D15 |
| 18-72 VDC | 3.3 VDC | 600 mA | 7.5 mA | 58 mA | 70% | JTB0348S3V3 |
| | 5.0 VDC | 600 mA | 7.5 mA | 87 mA | 72% | JTB0348S05 |
| | 12.0 VDC | 250 mA | 7.5 mA | 81 mA | 77% | JTB0348S12 |
| | 15.0 VDC | 200 mA | 7.5 mA | 81 mA | 77% | JTB0348S15 |
| | ±5.0 VDC | ±300 mA | 12.0 mA | 88 mA | 72% | JTB0348D05 |
| | ±12.0 VDC | ±125 mA | 12.0 mA | 87 mA | 72% | JTB0348D12 |
| | ±15.0 VDC | ±100 mA | 12.0 mA | 87 mA | 70% | JTB0348D15 |

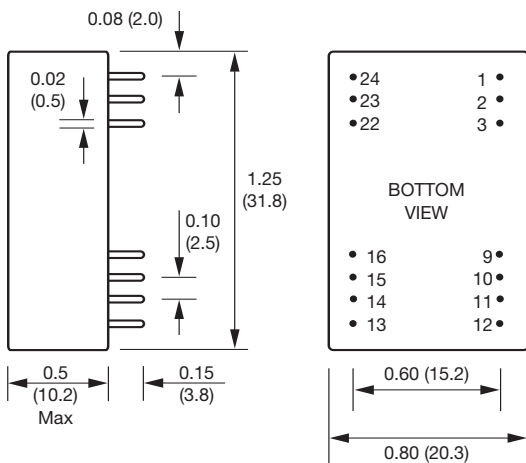
Notes

1. Nominal input voltage 24 or 48 VDC.
2. For optional 1500 VDC isolation add suffix '-H' to model number.
3. Input current is at nominal input voltage.
4. Surface mount versions with plastic case available in OEM quantities.

Mechanical Details

All dimensions are in inches (mm)

Weight: 0.04 lbs (20 g) approx.

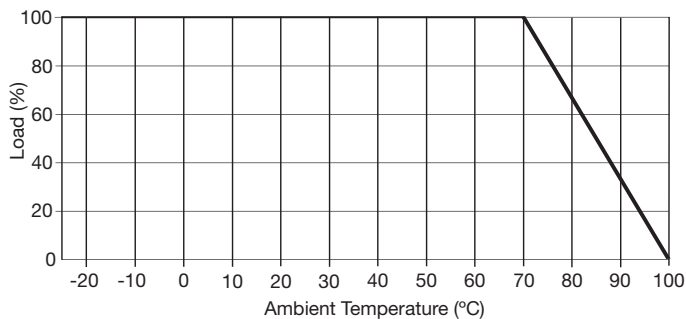


| PIN CONNECTIONS | | |
|-----------------|---------------|-------------|
| Pin | Single Output | Dual Output |
| 1 | +V input | +V input |
| 2 | N/C | -V output |
| 3 | N/C | Common |
| 9 | No pin | No pin |
| 10 | -V output | Common |
| 11 | +V output | +V output |
| 12 | -V input | -V input |
| 13 | -V input | -V input |
| 14 | +V output | +V output |
| 15 | -V output | Common |
| 16 | No pin | No pin |
| 22 | N/C | Common |
| 23 | N/C | -V output |
| 24 | +V input | +V input |

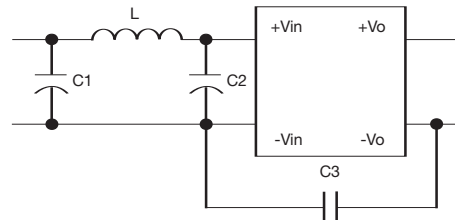
| OPTION '-H' PIN CONNECTIONS | | |
|-----------------------------|---------------|-------------|
| Pin | Single Output | Dual Output |
| 1 | No pin | No pin |
| 2 | -V input | -V input |
| 3 | -V input | -V input |
| 9 | N/C | Common |
| 10 | N/C | N/C |
| 11 | N/C | -V output |
| 12 | No pin | No pin |
| 13 | No pin | No pin |
| 14 | +V output | +V output |
| 15 | N/C | N/C |
| 16 | -V output | Common |
| 22 | +V input | +V input |
| 23 | +V input | +V input |
| 24 | No pin | No pin |

Application Notes

Derating Curve



Input Filter



| Model | C1 | C2 | L | C3 |
|---------|--------------|--------------|-------|------------|
| JTB0324 | | | | |
| Class A | Not fitted | 47 µF/ 50 V | Short | Not fitted |
| Class B | 47 µF/ 50 V | 47 µF/ 50 V | 5 µH | 1000 pF |
| JTB0348 | | | | |
| Class A | Not fitted | 47 µF/ 100 V | Short | Not fitted |
| Class B | 22 µF/ 100 V | 22 µF/ 100 V | 5 µH | Not fitted |