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# JTE03 series

XP Power

## 3W

DC-DC converters

The JTE03 series is housed in a DIP24 PCB mount plastic case. Featuring a 2:1 input voltage range of 9 to 18VDC, 18 to 36VDC or 36 to 75VDC with regulated single outputs of 3.3, 5, 9, 12, 15 & 24VDC and dual outputs ±3.3, ±5, ±9, ±12, ±15 or ±24VDC.

The 3W JTE03 has 1.5kVDC isolation (3KV optional) between input and output, short circuit protection is standard. The operating temperature range is from -40°C to +100°C, with derating above +85°C.



### Features

- Regulated single & dual outputs
- 2:1 input range
- Single outputs 3.3 to 24VDC
- Dual outputs ±3.3 to ±24VDC
- DIP24 package
- 1.5kVDC isolation, 3.0kVDC option
- -40°C to +100°C operating temperature
- Full power to +85°C
- 3 year warranty

### Applications

Autonomous equipment

Industrial

Technology

Instrumentation

Robotics

### Dimensions

31.75 x 20.32 x 10.16mm (1.25” x 0.80” x 0.40”)

### Documentation

For further information click the link or scan the code

→ xppower.com

### Models & ratings

| Model number[3] | Input voltage | Output voltage | Output current | Efficiency | Input current[1] | | Maximum Capacitive Load[2] |
|---|---|---|---|---|---|---|---|
| | | | | | No load | Full load | |
| JTE0312S3V3 | 9-36VDC | 3.3VDC | 900 mA | 75% | 10mA | 167mA | 470µF |
| JTE0312S05 | | 5.0VDC | 600 mA | 79% | 10mA | 160mA | 470µF |
| JTE0312S12 | | 12.0VDC | 250 mA | 81% | 10mA | 156mA | 100µF |
| JTE0312S15 | | 15.0VDC | 200 mA | 82% | 10mA | 154mA | 100µF |
| JTE0312S24 | | 24.0VDC | 125 mA | 82% | 10mA | 154mA | 47µF |
| JTE0312D03 | | ±3.3VDC | ±450 mA | 75% | 10mA | 167mA | ±220µF |
| JTE0312D05 | | ±5.0VDC | ±300 mA | 79% | 10mA | 160mA | ±220µF |
| JTE0312D12 | | ±12.0VDC | ±125 mA | 81% | 10mA | 156mA | ±100µF |
| JTE0312D15 | | ±15.0VDC | ±100 mA | 81% | 15mA | 156mA | ±100µF |
| JTE0312D24 | | ±24.0VDC | ±63 mA | 80% | 20mA | 159mA | ±47µF |

Continued on page 2

**Notes:**

1. Input currents measured at nominal input voltage.
2. Maximum capacitive load is per output.
3. For optional 3000VDC isolation add suffix ‘-H’ to model number.

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DC-DC converters

## Models & ratings

| Model number[3] | Input voltage | Output voltage | Output current | Efficiency | Input current[1] | | Maximum Capacitive Load[2] |
|---|---|---|---|---|---|---|---|
| | | | | | No load | Full load | |
| JTE0324S3V3 | 18-36VDC | 3.3VDC | 900 mA | 73% | 7mA | 84mA | 470µF |
| JTE0324S05 | | 5.0VDC | 600 mA | 77% | 7mA | 80mA | 470µF |
| JTE0324S12 | | 12.0VDC | 250 mA | 81% | 7mA | 78mA | 100µF |
| JTE0324S15 | | 15.0VDC | 200 mA | 81% | 7mA | 77mA | 100µF |
| JTE0324S24 | | 24.0VDC | 125 mA | 81% | 7mA | 77mA | 47µF |
| JTE0324D03 | | ±3.3VDC | ±450 mA | 75% | 7mA | 84mA | ±220µF |
| JTE0324D05 | | ±5.0VDC | ±300 mA | 79% | 7mA | 78mA | ±220µF |
| JTE0324D12 | | ±12.0VDC | ±125 mA | 81% | 7mA | 78mA | ±100µF |
| JTE0324D15 | | ±15.0VDC | ±100 mA | 81% | 7mA | 78mA | ±100µF |
| JTE0324D24 | | ±24.0VDC | ±63 mA | 81% | 10mA | 81mA | ±47µF |

**Notes:**

1. Input currents measured at nominal input voltage.
2. Maximum capacitive load is per output.
3. For optional 3000 VDC isolation add suffix '-H' to model number.

## Input

| Characteristic | Minimum | Typical | Maximum | Units | Notes & conditions |
|---|---|---|---|---|---|
| Input voltage range | 9 | | 18 | VDC | 24VDC nominal |
| | 18 | | 36 | | 48VDC nominal |
| Input filter | Pi network | | | | |
| Input reflected ripple | | | 20 | mA pk-pk | Through 12µH inductor and 47µF capacitor |
| Input surge | | | 50 | | 24VDC models (for 1s max) |
| | | | 100 | | 48VDC models (for 1s max) |

## Output

| Characteristic | Minimum | Typical | Maximum | Units | Notes & conditions |
|---|---|---|---|---|---|
| Output voltage | See models & ratings table | | | | |
| Initial set accuracy | | | ±2 | % | |
| Minimum load | 0 | | | A | No minimum load required |
| Line regulation | | | ±0.5 | % | |
| Load regulation | | | ±1.2 | % | |
| Cross regulation | | | ±5 | % | On dual output models when one load is varied between 25% and 100% and other is fixed at 100% |
| Transient response | | | 3 | % deviation | Recovery within 2% in less than 2ms for a 25% load change. S3V3 versions: 5% max |
| Ripple & noise | | | 80 | mV pk-pk | 20 MHz bandwidth. Measured using 1µF ceramic capacitor D24 vesions: 100mV pk-pk |
| Short circuit protection | Continuous, with auto recovery | | | | |
| Maximum capacitive load | See models and ratings table | | | | |
| Temperature coefficient | | | 0.02 | %/°C | Trip and restart (hiccup mode) |

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DC-DC converters

## General

| Characteristic | Minimum | Typical | Maximum | Units | Notes & conditions |
|---|---|---|---|---|---|
| Efficiency | | 81 | | % | See models and ratings table |
| Isolation: input to output | | | 1500 | VDC | 3000 VDC option, add '-H' to model number |
| Switching frequency | | 330 | | kHz | |
| Isolation resistance | $10^9$ | | | Ω | |
| Isolation capacitance | | 1000 | | pF | |
| Power density | | | 7.5 | W/cm³ (W/in³) | |
| Mean time between failure | 800 | | | khrs | MIL-HDBK-217F, +25 °C GB |
| Weight | | 13.0 (0.03) | | g (lb) | |

## Environmental

| Characteristic | Minimum | Typical | Maximum | Units | Notes & conditions |
|---|---|---|---|---|---|
| Operating temperature | -40 | | +100 | °C | Derate from 100% load at +85°C to no load at +100°C |
| Storage temperature | -55 | | +125 | °C | |
| Case temperature | | | +100 | °C | |
| Humidity | | | 95 | % | RH, non condensing |
| Cooling | Natural convection | | | | |

## Safety approvals

| Certification | Standard | Notes & conditions |
|---|---|---|
| UL | UL60950-1 | Information technology |
| CSA | CAN/CSA C22.2 No.60950-1 | |
| CE | Meets all applicable directives | |
| UKCA | Meets all applicable legislation | |

## Emissions - EMC

| Phenomenon | Standard | Test level | Notes & conditions |
|---|---|---|---|
| Conducted | EN55022 | Class A | Class B with external components, see application notes |
| Radiated | EN55022 | Class A | |

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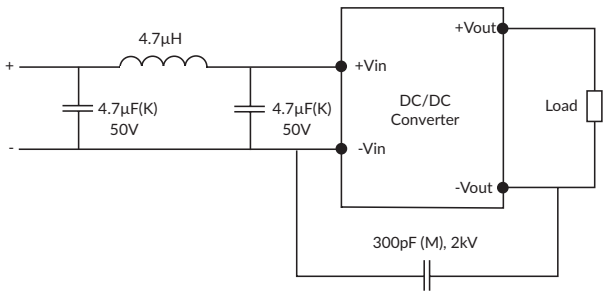


## Immunity - EMC

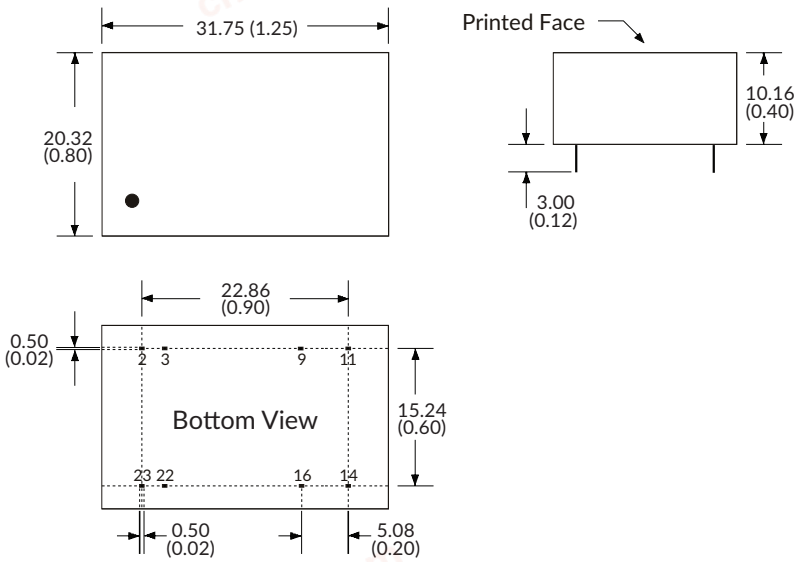
| Phenomenon | Standard | Test level | Criteria | Notes & conditions |
|---|---|---|---|---|
| ESD Immunity | EN61000-4-2 | 3 | A | |
| Radiated Immunity | EN61000-4-3 | 20 Vrms | A | |
| EFT/Burst | EN61000-4-4 | 3 | A | |
| Surges | EN61000-4-5 | Installation class 2 | A | External input capacitor required 330µF/100V |
| Conducted Immunity | EN61000-4-6 | 3 V rms | A | |
| Magnetic Fields | EN61000-4-8 | 1 A/m | A | |

## Application notes

### Class B conducted emissions filter




## Mechanical details




| Pin connections | | |
|---|---|---|
| **Pin** | **Single** | **Dual** |
| 2 | -Vin | -Vin |
| 3 | -Vin | -Vin |
| 9 | N.P. | Common |
| 11 | N.C. | -Vout |
| 14 | +Vout | +Vout |
| 16 | -Vout | Common |
| 22 | +Vin | +Vin |
| 23 | +Vin | +Vin |

**Notes:**

1. All dimensions in mm (inches)
2. Weight: 13g (0.03lbs)
3. Pin diameter: 0.5±0.05 (0.02±0.002)
4. Pin pitch tolerance: ±0.35 (±0.014)
5. Case tolerance: ±0.5 (±0.02)