# JCA03 series

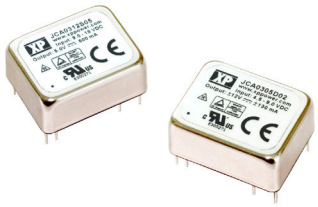
XP Power

## 3W

DC-DC converters

The JCA03 series is housed in a 25.4 x 20.3 x 10.2 mm (1" x 0.8" x 0.4") PCB mount metal case. Featuring a 2:1 input voltage range of 4.5 to 9VDC, 9 to 18VDC, 18 to 36VDC or 36 to 75VDC with regulated single outputs of 3.3, 5, 12 & 15VDC and dual outputs ±5, ±12 or ±15VDC.

The 3W JCA03 has 1.5kVDC isolation between input and output, over voltage, overload & short circuit protection is standard. The operating temperature range is from -40°C to +100°C, with derating above +75°C.



### Features

- Regulated single & dual outputs
- 2:1 input range
- Single outputs 3.3 to 15VDC
- Dual outputs ±5.0 to ±15VDC
- 25.4 x 20.3mm (1.0" x 0.8") metal case
- Industry standard pinout
- 1.5kVDC isolation
- -40°C to +100°C operating temperature
- Full power to +75°C
- 3 year warranty

### Applications

Autonomous equipment

Industrial

Technology

Instrumentation

Robotics

### Dimensions

25.4 x 20.3 x 10.1mm (1.00" x 0.80" x 0.40")

### Documentation

For further information click the link or scan the code

→ xppower.com

### Models & ratings

| Model number | Input voltage[1] | Output voltage | Output current | Efficiency | Input current[2] | |
|---|---|---|---|---|---|---|
| | | | | | No load | Full load |
| JCA0305S03 | 4.5-9.0VDC | 3.3VDC | 0.910A | 68% | 28mA | 873mA |
| JCA0305S05 | | 5.0VDC | 0.600A | 74% | 10mA | 835mA |
| JCA0305S12 | | 12.0VDC | 0.260A | 75% | 15mA | 805mA |
| JCA0305S15 | | 15.0VDC | 0.200A | 74% | 26mA | 804mA |
| JCA0305D01 | | ±5.0VDC | ±0.300A | 74% | 15mA | 778mA |
| JCA0305D02 | | ±12.0VDC | ±0.130A | 74% | 19mA | 793mA |
| JCA0305D03 | | ±15.0VDC | ±0.100A | 73% | 25mA | 820mA |

**Continued on page 2**

**Notes:**

1. Nominal input voltage 5, 12, 24 or 48VDC
2. Input current is at nominal input voltage
3. Efficiency is measured at nominal input and full load at +25°C

# JCA03 series

## Models & ratings

| Model number | Input voltage[1] | Output voltage | Output current | Efficiency | Input current[2] | |
|---|---|---|---|---|---|---|
| | | | | | No load | Full load |
| JCA0312S03 | 9-18VDC | 3.3VDC | 0.910A | 74% | 8mA | 333mA |
| JCA0312S05 | | 5.0VDC | 0.600A | 75% | 5mA | 324mA |
| JCA0312S12 | | 12.0VDC | 0.260A | 78% | 5mA | 315mA |
| JCA0312S15 | | 15.0VDC | 0.200A | 77% | 7mA | 322mA |
| JCA0312D01 | | ±5.0VDC | ±0.300A | 75% | 10mA | 325mA |
| JCA0312D02 | | ±12.0VDC | ±0.130A | 75% | 9mA | 313mA |
| JCA0312D03 | | ±15.0VDC | ±0.100A | 73% | 11mA | 322mA |
| JCA0324S03 | 18-36VDC | 3.3VDC | 0.910A | 74% | 3mA | 165mA |
| JCA0324S05 | | 5.0VDC | 0.600A | 77% | 3mA | 157mA |
| JCA0324S12 | | 12.0VDC | 0.260A | 77% | 4mA | 154mA |
| JCA0324S15 | | 15.0VDC | 0.200A | 77% | 4mA | 157mA |
| JCA0324D01 | | ±5.0VDC | ±0.300A | 77% | 3mA | 156mA |
| JCA0324D02 | | ±12.0VDC | ±0.130A | 77% | 5mA | 154mA |
| JCA0324D03 | | ±15.0VDC | ±0.100A | 75% | 6mA | 160mA |
| JCA0348S03 | 36-75VDC | 3.3VDC | 0.910A | 73% | 3mA | 82mA |
| JCA0348S05 | | 5.0VDC | 0.600A | 74% | 5mA | 82mA |
| JCA0348S12 | | 12.0VDC | 0.260A | 75% | 6mA | 79mA |
| JCA0348S15 | | 15.0VDC | 0.200A | 75% | 6mA | 81mA |
| JCA0348D01 | | ±5.0VDC | ±0.300A | 76% | 2mA | 79mA |
| JCA0348D02 | | ±12.0VDC | ±0.130A | 76% | 3mA | 78mA |
| JCA0348D03 | | ±15.0VDC | ±0.100A | 74% | 3mA | 82mA |

**Notes:**

1. Nominal input voltage 5, 12, 24 or 48VDC.
2. Input current is at nominal input voltage.
3. Efficiency is measured at nominal input and full load at +25°C.

## Input

| Characteristic | Minimum | Typical | Maximum | Units | Notes & conditions |
|---|---|---|---|---|---|
| Input voltage range | 4.5 | | 9 | VDC | 5VDC nominal |
| | 9 | | 18 | | 12VDC nominal |
| | 18 | | 36 | | 24VDC nominal |
| | 36 | | 75 | | 48VDC nominal |
| Input current | See models & ratings table | | | | |
| Input filter | Pi network | | | | |
| Input reflected ripple | | 80 | | mA | 5VDC input models, 30mA all others, 12µH inductor, 5Hz to 20MHz |
| Input surge | | 10 | | VDC | 5VDC models (for 1s max) |
| | | 25 | | | 12VDC models (for 1s max) |
| | | 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 | | | ±1 | % | Single outputs models only |
| Minimum load | 0 | | | % | No minimum load required |
| Line regulation | | ±0.3 | | % | |
| Load regulation | | ±1 | | % | |
| Cross regulation | | ±5.0 | | % | Dual output models |
| Start up delay | | 30 | | ms | |
| Start up rise time | | 3.5 | | ms | |
| Transient response | | | 4 | % | Deviation, recovery to within 1% in <500µs for a 25% load change at 1A/µs |
| Ripple & noise | | 50 | | mV | Measured with 20MHz bandwidth |
| Overcurrent protection | | 150 | | % | Trip and restart (hiccup mode) |
| Short circuit protection | Continuous with auto recovery | | | | |
| Temperature coefficient | | ±0.05 | | %/°C | |
| Overvoltage protection | | 150 | | % | Recycle input to reset |
| Temperature coefficient | | ±0.05 | | %/°C | |

## General

| Characteristic | Minimum | Typical | Maximum | Units | Notes & conditions |
|---|---|---|---|---|---|
| Efficiency | See models & ratings table | | | | |
| Isolation: input to output | | 1500 | | VDC | Basic insulation |
| Isolation: input to case | | 500 | | | |
| Isolation: output to case | | 500 | | | |
| Switching frequency | | 300 | | kHz | |
| Power density | | 0.57 (6.25) | | $W/cm^3$ ($W/in^3$) | |
| Mean time between failure | | 2 | | Mhrs | MIL-HDBK-217F, +25°C GB |

## Environmental

| Characteristic | Minimum | Typical | Maximum | Units | Notes & conditions |
|---|---|---|---|---|---|
| Operating temperature | -40 | | +100 | °C | Output power derates from 100% load at +75°C linearly to 0% load at +100°C |
| Storage temperature | -55 | | +125 | °C | |
| Case temperature | | | +100 | °C | |
| Cooling | Convection cooled | | | | |
| Operating humidity | | | 95 | % | RH, non condensing |

## Safety approvals

| Certification | Standard | Notes & conditions |
|---|---|---|
| UL | UL62368-1, IEC62368-1 | |
| EN | EN62368-1 | |
| CE | Meets all applicable directives | |
| UKCA | Meets all applicable legislation | |

## Emissions - EMC

| Phenomenon | Standard | Test level | Notes & conditions |
|---|---|---|---|
| Conducted | EN55032 | Level A | Level B with external components, see application note |
| Radiated | EN55032 | Level B | |

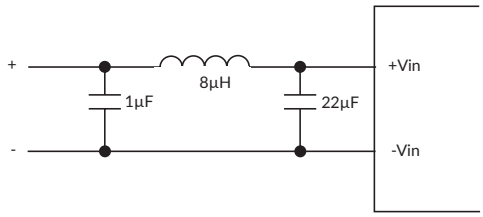
## Immunity - EMC

| Phenomenon | Standard | Test level | Criteria | Notes & conditions |
|---|---|---|---|---|
| ESD immunity | EN61000-4-2 | Level 2 | A | |
| Radiated immunity | EN61000-4-3 | 3V/m | A | |
| Conducted immunity | EN61000-4-6 | 3Vrms | A | |
| Magnetic fields | EN61000-4-8 | 10A/m | A | |

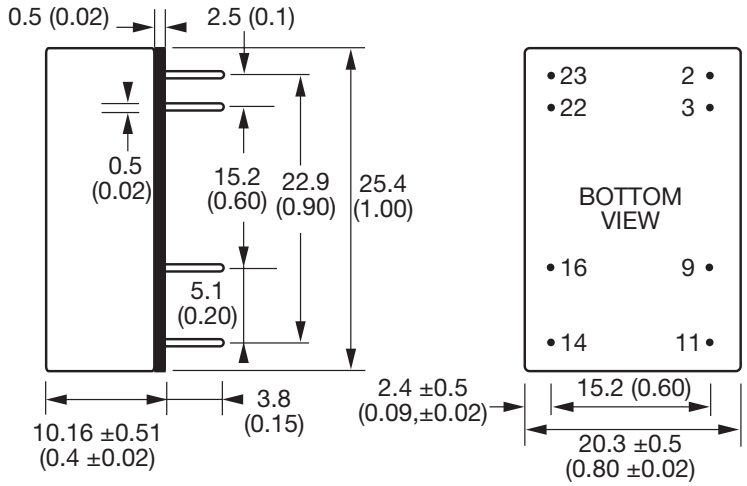
## Application notes

### Input filter

To meet level B conducted emissions.




## Mechanical details




| Pin connections | | |
|---|---|---|
| **Pin** | **Single** | **Dual** |
| 2 | -Vin | -Vin |
| 3 | -Vin | -Vin |
| 9 | No pin | 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: 12g (0.03lbs)
3. Pin diameter tolerance: ±0.02 (±0.00079)
4. Pin pitch tolerance: ±0.25 (±0.01)
5. Case tolerance: ±0.5 (±0.02)