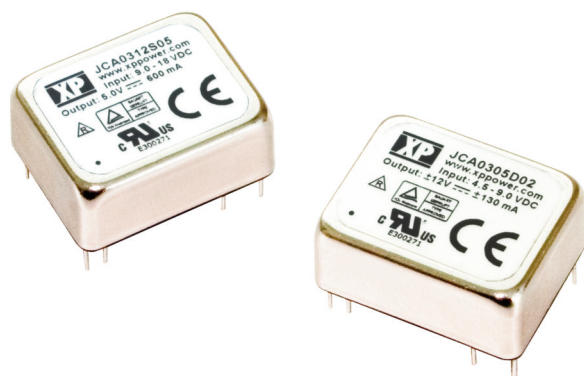


## JCA Series



- Compact 1.0" x 0.8" Metal Package
- Industry Standard Pin Out
- 2:1 Input Range
- Single & Dual Outputs
- Operating Temperature -40 °C to +100 °C
- UL & TUV Approved
- 3 Year Warranty

## Specification

## Input

|                     |                                                                                                                                                                                                                                                        |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Input Voltage Range | <ul style="list-style-type: none"> <li>• 5 V (4.5-9.0 VDC)</li> <li>• 12 V (9-18 VDC)</li> <li>• 24 V (18-36 VDC)</li> <li>• 48 V (36-75 VDC)</li> <li>• Turn On at &gt;90-95% of rated input</li> <li>• Turn Off at &lt;80% of rated input</li> </ul> |
| Input Current       | <ul style="list-style-type: none"> <li>• See table</li> </ul>                                                                                                                                                                                          |
| Input Filter        | <ul style="list-style-type: none"> <li>• Pi network</li> </ul>                                                                                                                                                                                         |
| Input Reflected     | <ul style="list-style-type: none"> <li>• 80 mA, 5 V input models, 30 mA all others</li> </ul>                                                                                                                                                          |
| Ripple Current      | <ul style="list-style-type: none"> <li>• 12 <math>\mu</math>H inductor, 5 Hz to 20 MHz</li> </ul>                                                                                                                                                      |
| Input Surge         | <ul style="list-style-type: none"> <li>• 5 V models 10 V for 1 s max,</li> <li>• 12 V models 25 V for 1 s max,</li> <li>• 24 V models 50 V for 1 s max,</li> <li>• 48 V models 100 V for 1 s max</li> </ul>                                            |

## Output

|                          |                                                                                                                                                                         |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Output Voltage           | <ul style="list-style-type: none"> <li>• See table</li> </ul>                                                                                                           |
| Initial Set Accuracy     | <ul style="list-style-type: none"> <li>• <math>\pm 1\%</math> max</li> </ul>                                                                                            |
| Start Up Delay           | <ul style="list-style-type: none"> <li>• 30 ms max</li> </ul>                                                                                                           |
| Start Up Rise Time       | <ul style="list-style-type: none"> <li>• 3.5 ms typical</li> </ul>                                                                                                      |
| Minimum Load             | <ul style="list-style-type: none"> <li>• No minimum load required</li> </ul>                                                                                            |
| Line Regulation          | <ul style="list-style-type: none"> <li>• <math>\pm 0.3\%</math></li> </ul>                                                                                              |
| Load Regulation          | <ul style="list-style-type: none"> <li>• <math>\pm 1\%</math></li> </ul>                                                                                                |
| Cross Regulation         | <ul style="list-style-type: none"> <li>• <math>\pm 5\%</math> on dual output models</li> </ul>                                                                          |
| Transient Response       | <ul style="list-style-type: none"> <li>• 4% max deviation, recovery to within 1% in &lt;500 <math>\mu</math>s for a 25% load change at 1 A/<math>\mu</math>s</li> </ul> |
| Ripple & Noise           | <ul style="list-style-type: none"> <li>• 50 mV pk-pk, 20 MHz bandwidth</li> </ul>                                                                                       |
| Overcurrent Protection   | <ul style="list-style-type: none"> <li>• 150% typical, trip and restart (hiccup mode)</li> </ul>                                                                        |
| Short Circuit Protection | <ul style="list-style-type: none"> <li>• Continuous with auto recovery</li> </ul>                                                                                       |
| Overvoltage Protection   | <ul style="list-style-type: none"> <li>• 150% typical, Recycle input to reset</li> </ul>                                                                                |
| Temperature Coefficient  | <ul style="list-style-type: none"> <li>• <math>\pm 0.05\%/^{\circ}\text{C}</math></li> </ul>                                                                            |

## General

|                     |                                                                                                                                                                   |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Efficiency          | <ul style="list-style-type: none"> <li>• See table</li> </ul>                                                                                                     |
| Isolation           | <ul style="list-style-type: none"> <li>• 1500 VDC Input to Output, basic insulation</li> <li>• 500 VDC Input to Case</li> <li>• 500 VDC Output to Case</li> </ul> |
| Switching Frequency | <ul style="list-style-type: none"> <li>• 300 kHz typical</li> </ul>                                                                                               |
| Power Density       | <ul style="list-style-type: none"> <li>• JCA02: 6.25 W/in<sup>3</sup>, JCA03: 9.38 W/in<sup>3</sup></li> </ul>                                                    |
| MTBF                | <ul style="list-style-type: none"> <li>• &gt;2 Mhrs to MIL-HDBK-217F at 25 °C, GB</li> </ul>                                                                      |

## Environmental

|                       |                                                                                                                                                    |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating Temperature | <ul style="list-style-type: none"> <li>• -40 °C to +100 °C output power derates from 100% load at +75 °C linearly to 0% load at +100 °C</li> </ul> |
| Case Temperature      | <ul style="list-style-type: none"> <li>• +100 °C max</li> </ul>                                                                                    |
| Storage Temperature   | <ul style="list-style-type: none"> <li>• -55 °C to +125 °C</li> </ul>                                                                              |
| Cooling               | <ul style="list-style-type: none"> <li>• Convection cooled</li> </ul>                                                                              |
| Operating Humidity    | <ul style="list-style-type: none"> <li>• Up to 95% RH, non-condensing</li> </ul>                                                                   |

## EMC &amp; Safety

|                    |                                                                                                                                                           |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Emissions          | <ul style="list-style-type: none"> <li>• EN55022, level A conducted (level B with external components, see application note), level B radiated</li> </ul> |
| ESD Immunity       | <ul style="list-style-type: none"> <li>• EN61000-4-2, level 2 Perf Criteria A</li> </ul>                                                                  |
| Radiated Immunity  | <ul style="list-style-type: none"> <li>• EN61000-4-3, 3 V/m Perf Criteria A</li> </ul>                                                                    |
| Conducted Immunity | <ul style="list-style-type: none"> <li>• EN61000-4-6, 3 V rms Perf Criteria A</li> </ul>                                                                  |
| Magnetic Fields    | <ul style="list-style-type: none"> <li>• EN61000-4-8, 10 A/m, Perf Criteria A</li> </ul>                                                                  |
| Safety Approvals   | <ul style="list-style-type: none"> <li>• EN60950-1, UL60950-1, CSA C22.2 No. 60950-1-03, CE Mark LVD</li> </ul>                                           |

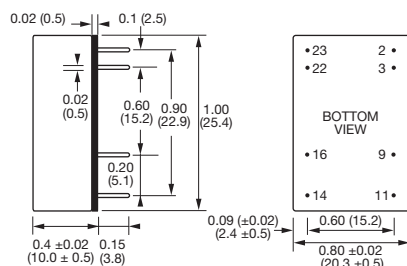
| Input Voltage <sup>(1)</sup> | Output Voltage | Output Current | Input Current <sup>(2)</sup> |           | Efficiency | Model Number |
|------------------------------|----------------|----------------|------------------------------|-----------|------------|--------------|
|                              |                |                | No Load                      | Full Load |            |              |
| 4.5-9.0 VDC                  | 3.3 VDC        | 0.600 A        | 28 mA                        | 560 mA    | 69%        | JCA0205S03   |
|                              | 5.0 VDC        | 0.400 A        | 10 mA                        | 535 mA    | 73%        | JCA0205S05   |
|                              | 12.0 VDC       | 0.170 A        | 15 mA                        | 526 mA    | 74%        | JCA0205S12   |
|                              | 15.0 VDC       | 0.140 A        | 26 mA                        | 559 mA    | 74%        | JCA0205S15   |
|                              | ±5.0 VDC       | ±0.200 A       | 15 mA                        | 502 mA    | 74%        | JCA0205D01   |
|                              | ±12.0 VDC      | ±0.085 A       | 19 mA                        | 537 mA    | 73%        | JCA0205D02   |
|                              | ±15.0 VDC      | ±0.070 A       | 25 mA                        | 560 mA    | 70%        | JCA0205D03   |
| 9-18 VDC                     | 3.3 VDC        | 0.600 A        | 8 mA                         | 225 mA    | 72%        | JCA0212S03   |
|                              | 5.0 VDC        | 0.400 A        | 5 mA                         | 224 mA    | 74%        | JCA0212S05   |
|                              | 12.0 VDC       | 0.170 A        | 5 mA                         | 223 mA    | 74%        | JCA0212S12   |
|                              | 15.0 VDC       | 0.140 A        | 7 mA                         | 227 mA    | 74%        | JCA0212S15   |
|                              | ±5.0 VDC       | ±0.200 A       | 10 mA                        | 219 mA    | 74%        | JCA0212D01   |
|                              | ±12.0 VDC      | ±0.085 A       | 9 mA                         | 223 mA    | 74%        | JCA0212D02   |
|                              | ±15.0 VDC      | ±0.070 A       | 11 mA                        | 232 mA    | 73%        | JCA0212D03   |
| 18-36 VDC                    | 3.3 VDC        | 0.600 A        | 3 mA                         | 112 mA    | 73%        | JCA0224S03   |
|                              | 5.0 VDC        | 0.400 A        | 3 mA                         | 107 mA    | 75%        | JCA0224S05   |
|                              | 12.0 VDC       | 0.170 A        | 4 mA                         | 109 mA    | 75%        | JCA0224S12   |
|                              | 15.0 VDC       | 0.140 A        | 4 mA                         | 111 mA    | 75%        | JCA0224S15   |
|                              | ±5.0 VDC       | ±0.200 A       | 3 mA                         | 107 mA    | 76%        | JCA0224D01   |
|                              | ±12.0 VDC      | ±0.085 A       | 5 mA                         | 108 mA    | 76%        | JCA0224D02   |
|                              | ±15.0 VDC      | ±0.070 A       | 6 mA                         | 115 mA    | 73%        | JCA0224D03   |
| 36-75 VDC                    | 3.3 VDC        | 0.600 A        | 3 mA                         | 62 mA     | 71%        | JCA0248S03   |
|                              | 5.0 VDC        | 0.400 A        | 5 mA                         | 58 mA     | 70%        | JCA0248S05   |
|                              | 12.0 VDC       | 0.170 A        | 3 mA                         | 58 mA     | 70%        | JCA0248S12   |
|                              | 15.0 VDC       | 0.140 A        | 3 mA                         | 59 mA     | 72%        | JCA0248S15   |
|                              | ±5.0 VDC       | ±0.200 A       | 2 mA                         | 56 mA     | 73%        | JCA0248D01   |
|                              | ±12.0 VDC      | ±0.085 A       | 3 mA                         | 57 mA     | 73%        | JCA0248D02   |
|                              | ±15.0 VDC      | ±0.070 A       | 3 mA                         | 60 mA     | 70%        | JCA0248D03   |

| Input Voltage <sup>(1)</sup> | Output Voltage | Output Current | Input Current <sup>(2)</sup> |           | Efficiency | Model Number |
|------------------------------|----------------|----------------|------------------------------|-----------|------------|--------------|
|                              |                |                | No Load                      | Full Load |            |              |
| 4.5-9.0 VDC                  | 3.3 VDC        | 0.910 A        | 28 mA                        | 873 mA    | 68%        | JCA0305S03   |
|                              | 5.0 VDC        | 0.600 A        | 10 mA                        | 835 mA    | 74%        | JCA0305S05   |
|                              | 12.0 VDC       | 0.260 A        | 15 mA                        | 805 mA    | 75%        | JCA0305S12   |
|                              | 15.0 VDC       | 0.200 A        | 26 mA                        | 804 mA    | 74%        | JCA0305S15   |
|                              | ±5.0 VDC       | ±0.300 A       | 15 mA                        | 778 mA    | 74%        | JCA0305D01   |
|                              | ±12.0 VDC      | ±0.130 A       | 19 mA                        | 793 mA    | 74%        | JCA0305D02   |
|                              | ±15.0 VDC      | ±0.100 A       | 25 mA                        | 820 mA    | 73%        | JCA0305D03   |
| 9-18 VDC                     | 3.3 VDC        | 0.910 A        | 8 mA                         | 333 mA    | 74%        | JCA0312S03   |
|                              | 5.0 VDC        | 0.600 A        | 5 mA                         | 324 mA    | 75%        | JCA0312S05   |
|                              | 12.0 VDC       | 0.260 A        | 5 mA                         | 315 mA    | 78%        | JCA0312S12   |
|                              | 15.0 VDC       | 0.200 A        | 7 mA                         | 322 mA    | 77%        | JCA0312S15   |
|                              | ±5.0 VDC       | ±0.300 A       | 10 mA                        | 325 mA    | 75%        | JCA0312D01   |
|                              | ±12.0 VDC      | ±0.130 A       | 9 mA                         | 313 mA    | 75%        | JCA0312D02   |
|                              | ±15.0 VDC      | ±0.100 A       | 11 mA                        | 322 mA    | 73%        | JCA0312D03   |
| 18-36 VDC                    | 3.3 VDC        | 0.910 A        | 3 mA                         | 165 mA    | 74%        | JCA0324S03   |
|                              | 5.0 VDC        | 0.600 A        | 3 mA                         | 157 mA    | 77%        | JCA0324S05   |
|                              | 12.0 VDC       | 0.260 A        | 4 mA                         | 154 mA    | 77%        | JCA0324S12   |
|                              | 15.0 VDC       | 0.200 A        | 4 mA                         | 157 mA    | 77%        | JCA0324S15   |
|                              | ±5.0 VDC       | ±0.300 A       | 3 mA                         | 156 mA    | 77%        | JCA0324D01   |
|                              | ±12.0 VDC      | ±0.130 A       | 5 mA                         | 154 mA    | 77%        | JCA0324D02   |
|                              | ±15.0 VDC      | ±0.100 A       | 6 mA                         | 160 mA    | 75%        | JCA0324D03   |
| 36-75 VDC                    | 3.3 VDC        | 0.910 A        | 3 mA                         | 82 mA     | 73%        | JCA0348S03   |
|                              | 5.0 VDC        | 0.600 A        | 5 mA                         | 82 mA     | 74%        | JCA0348S05   |
|                              | 12.0 VDC       | 0.260 A        | 6 mA                         | 79 mA     | 75%        | JCA0348S12   |
|                              | 15.0 VDC       | 0.200 A        | 6 mA                         | 81 mA     | 75%        | JCA0348S15   |
|                              | ±5.0 VDC       | ±0.300 A       | 2 mA                         | 79 mA     | 76%        | JCA0348D01   |
|                              | ±12.0 VDC      | ±0.130 A       | 3 mA                         | 78 mA     | 76%        | JCA0348D02   |
|                              | ±15.0 VDC      | ±0.100 A       | 3 mA                         | 82 mA     | 74%        | JCA0348D03   |

**Notes**

1. Nominal input voltage 5, 12, 24 or 48 VDC.
2. Input current is at nominal input voltage.

3. Efficiency is measured at nominal input and full load at 25 °C.

**Mechanical Details and Application Note**

| PIN CONNECTIONS |               |             |
|-----------------|---------------|-------------|
| Pin             | Single Output | Dual Output |
| 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        |

1. All dimensions in inches (mm)
2. Weight: 0.03 lbs (12 g)
3. Pin diameter tolerance: ±0.00079 (±0.02)
4. Pin pitch tolerance: ±0.01 (±0.25)
5. Case tolerance: ±0.02 (±0.5)

**Input Filter**

To meet level B conducted emissions.

