

## Excellent Integrated System Limited

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# 15 Watts

## JCK Series



- 2:1 Input Range
- Industry Standard Package
- 1500 VDC Isolation
- Continuous Short Circuit Protection
- High Efficiency – up to 89%
- -40 °C to +100 °C Operating Temperature
- 3 Year Warranty

### Specification

#### Input

- |                                |   |
|--------------------------------|---|
| Input Voltage Range            | <ul style="list-style-type: none"> <li>• 12 V (9-18 VDC)</li> <li>• 24 V (18-36 VDC)</li> <li>• 48 V (36-75 VDC)</li> </ul>   |
| Input Current                  | <ul style="list-style-type: none"> <li>• See table</li> </ul>   |
| Input Reflected Ripple Current | <ul style="list-style-type: none"> <li>• 20 mA rms through 12 µH inductor, 5 Hz to 20 MHz</li> </ul>  |
| Under Voltage Lockout          | <ul style="list-style-type: none"> <li>• 12 V models On 8.6 V, Off 7.9 V typical</li> <li>• 24 V models On 17.8 V, Off 16 V typical</li> <li>• 48 V models On 33.5 V, Off 30.5 V typical</li> </ul> |
| Input Surge                    | <ul style="list-style-type: none"> <li>• 12 V models 30 VDC for 100 ms</li> <li>• 24 V models 50 VDC for 100 ms</li> <li>• 48 V models 100 VDC for 100 ms</li> </ul>                                |

#### Output

- |                          |  |
|--------------------------|--|
| Output Voltage           | <ul style="list-style-type: none"> <li>• See table</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>• ±0.5% max</li> </ul>  |
| Load Regulation          | <ul style="list-style-type: none"> <li>• ±0.5% max for single and dual outputs except ±0.8% for D03 versions</li> </ul>      |
| Cross Regulation         | <ul style="list-style-type: none"> <li>• ±5% max on dual output models (see note 2)</li> </ul>                               |
| Setpoint Accuracy        | <ul style="list-style-type: none"> <li>• ±1.0% max</li> </ul>  |
| Start Up Delay           | <ul style="list-style-type: none"> <li>• &lt;20 ms</li> </ul>  |
| Start Up Rise Time       | <ul style="list-style-type: none"> <li>• &lt;5 ms</li> </ul>   |
| Ripple & Noise           | <ul style="list-style-type: none"> <li>• 75 mV pk-pk max (see note 3)</li> </ul>   |
| Transient Response       | <ul style="list-style-type: none"> <li>• ±3% max deviation, recovery to within 1% in 250 µs for a 25% load change</li> </ul> |
| Temperature Coefficient  | <ul style="list-style-type: none"> <li>• 0.02%/°C</li> </ul>   |
| Overload Protection      | <ul style="list-style-type: none"> <li>• &gt;140% of full load at nominal input</li> </ul>                                   |
| Short Circuit Protection | <ul style="list-style-type: none"> <li>• Trip &amp; restart (hiccup mode) with auto recovery</li> </ul>                      |
| Maximum Capacitive Load  | <ul style="list-style-type: none"> <li>• See table</li> </ul>  |

#### General

- |                       |   |
|-----------------------|---|
| Efficiency            | <ul style="list-style-type: none"> <li>• See table</li> </ul>   |
| Isolation Voltage     | <ul style="list-style-type: none"> <li>• 1600 VDC Input to Output, optional 3500 V (see note 4)</li> <li>• 1600 VDC Input to Case</li> <li>• 1600 VDC Output to Case</li> </ul> |
| Isolation Capacitance | <ul style="list-style-type: none"> <li>• 1200 pF typical</li> </ul>   |
| Isolation Resistance  | <ul style="list-style-type: none"> <li>• 10<sup>9</sup> Ω min</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>• 18.75 W/in<sup>3</sup></li> </ul>  |
| MTBF                  | <ul style="list-style-type: none"> <li>• &gt;1.1 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, derate from 100% load at +70 °C 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>• -40 °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

- |                             |  |
|-----------------------------|--|
| Emissions                   | <ul style="list-style-type: none"> <li>• EN55022, Class A conducted &amp; radiated with external components, see application note</li> </ul> |
| ESD Immunity                | <ul style="list-style-type: none"> <li>• EN61000-4-2, 8 kV air, 6 kV contact, Perf Criteria A</li> </ul>                                     |
| Radiated Immunity EFT/Burst | <ul style="list-style-type: none"> <li>• EN61000-4-3 10 V/m, Perf Criteria A</li> <li>• EN61000-4-4 level 3, Perf Criteria B*</li> </ul>     |
| Surge                       | <ul style="list-style-type: none"> <li>• EN61000-4-5 level 2, Perf Criteria B*</li> </ul>  |
| Conducted Immunity          | <ul style="list-style-type: none"> <li>• EN61000-4-6 10 V/rms, Perf Criteria A</li> </ul>  |
| Magnetic Field              | <ul style="list-style-type: none"> <li>• EN61000-4-8 1 A/m, Perf Criteria A</li> </ul>   |

\*External input capacitor required 220 µF/100 V.

**Models and Ratings**

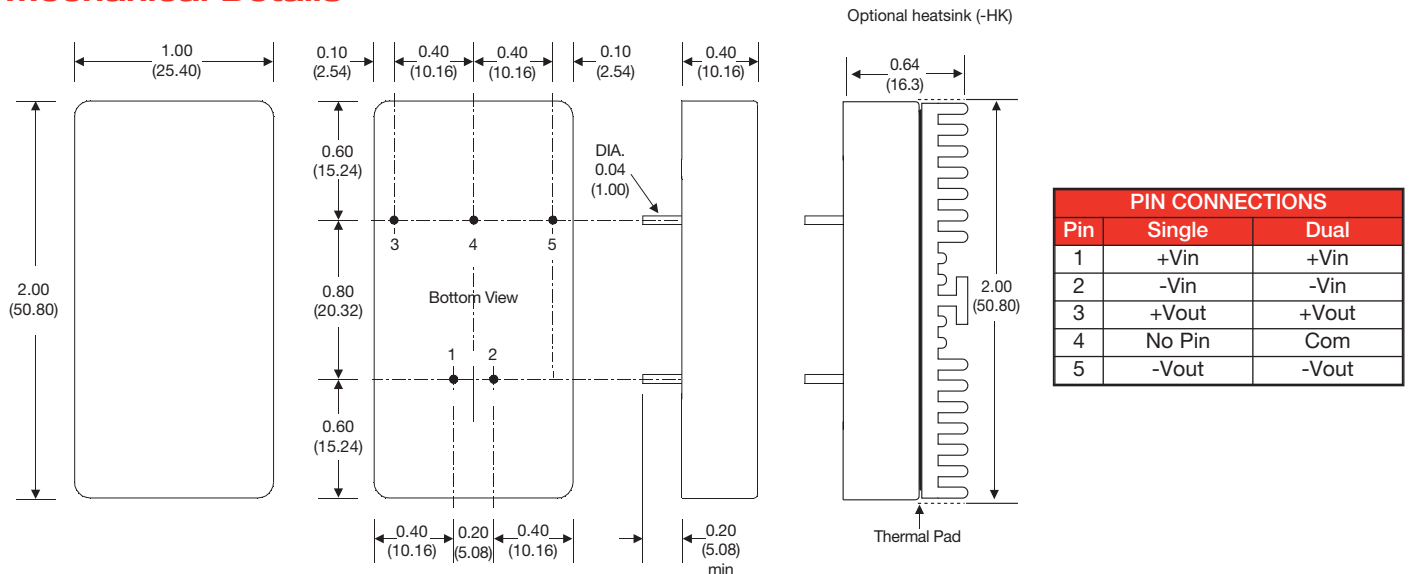
**JCK15 XP**

Input Voltage	Output Voltage	Output Current	Input Current <sup>(1)</sup>		Maximum Capacitive Load	Efficiency	Model Number <sup>(4)</sup>
			No Load	Full Load			
9-18 VDC	3.3 V	3.00 A	30 mA	1.03 A	3300 µF	82%	JCK1512S3V3
	5.0 V	3.00 A	30 mA	1.52 A	3300 µF	84%	JCK1512S05
	12.0 V	1.250 A	30 mA	1.45 A	1000 µF	88%	JCK1512S12
	15.0 V	1.000 A	30 mA	1.44 A	680 µF	89%	JCK1512S15
	±3.3 V	±1.500 A	30 mA	1.03 A	±1000 µF	82%	JCK1512D03
	±5.0 V	±1.500 A	30 mA	1.50 A	±1000 µF	85%	JCK1512D05
	±12.0 V	±0.625 A	30 mA	1.45 A	±470 µF	88%	JCK1512D12
18-36 VDC	3.3 V	3.000 A	25 mA	0.52 A	3300 µF	82%	JCK1524S3V3
	5.0 V	3.000 A	25 mA	0.75 A	3300 µF	85%	JCK1524S05
	12.0 V	1.250 A	25 mA	0.72 A	1000 µF	89%	JCK1524S12
	15.0 V	1.000 A	25 mA	0.72 A	680 µF	89%	JCK1524S15
	±3.3 V	±1.500 A	25 mA	0.52 A	±1000 µF	82%	JCK1524D03
	±5.0 V	±1.500 A	25 mA	0.75 A	±1000 µF	85%	JCK1524D05
	±12.0 V	±0.625 A	25 mA	0.72 A	±470 µF	88%	JCK1524D12
36-75 VDC	3.3 V	3.000 A	20 mA	0.26 A	3300 µF	82%	JCK1548S3V3
	5.0 V	3.000 A	20 mA	0.38 A	3300 µF	85%	JCK1548S05
	12.0 V	1.250 A	20 mA	0.36 A	1000 µF	89%	JCK1548S12
	15.0 V	1.000 A	20 mA	0.36 A	680 µF	89%	JCK1548S15
	±3.3 V	±1.500 A	20 mA	0.26 A	±1000 µF	82%	JCK1548D03
	±5.0 V	±1.500 A	20 mA	0.38 A	±1000 µF	85%	JCK1548D05
	±12.0 V	±0.625 A	20 mA	0.36 A	±470 µF	88%	JCK1548D12
	±15.0 V	±0.500 A	20 mA	0.36 A	±330 µF	88%	JCK1548D15

**Notes**

1. Measured at nominal input voltage.
2. When one output is set at 100% load and other varied between 25% and 100% load.
3. Measured with 20 MHz bandwidth and 1 µF ceramic capacitor across output rails.
4. For optional 3.5 kV isolation version, add suffix -H to part number eg. JCK1524S12-H.
5. For heatsink option add '-HK' to the end of the part number.

**Mechanical Details**



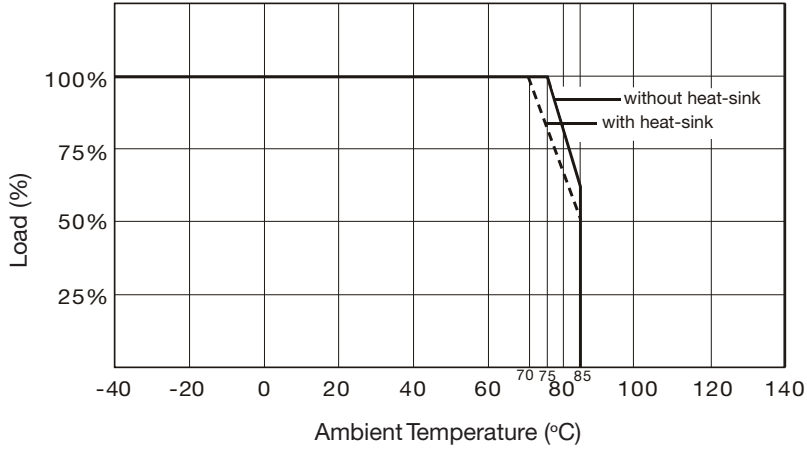
**Notes**

1. All dimensions are in inches (mm).
2. Weight: 0.07 lbs (30 g)
3. Pin diameter: 0.04 ±0.002 (1.0 ±0.05)
4. Pin pitch tolerance: ±0.014 (±0.35)
5. Case tolerance: ±0.02 (±0.5)

**Application Notes**



**Derating Curve**



**Input Filter**

