

## JCK Series



- 2:1 Input Range
- Industry Standard Package
- 1600 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 <math>\mu</math>H inductor, 5 Hz to 20 MHz</li> </ul>
Under Voltage Lockout	<ul style="list-style-type: none"> <li>• 12 V models On 8.6V, 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>• <math>\pm 0.5\%</math> max</li> </ul>
Load Regulation	<ul style="list-style-type: none"> <li>• <math>\pm 0.5\%</math> max for single and <math>\pm 1\%</math> max for dual outputs</li> </ul>
Cross Regulation	<ul style="list-style-type: none"> <li>• <math>\pm 5\%</math> max on dual output models (see note 2)</li> </ul>
Setpoint Accuracy	<ul style="list-style-type: none"> <li>• <math>\pm 1.0\%</math> 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>• <math>\pm 3\%</math> max deviation, recovery to within 1% in 250 <math>\mu</math>s 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>• <math>10^9 \Omega</math> 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	<ul style="list-style-type: none"> <li>• EN61000-4-3 10 V/m, Perf Criteria A</li> </ul>
EFT/Burst	<ul style="list-style-type: none"> <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  $\mu$ F/100 V.

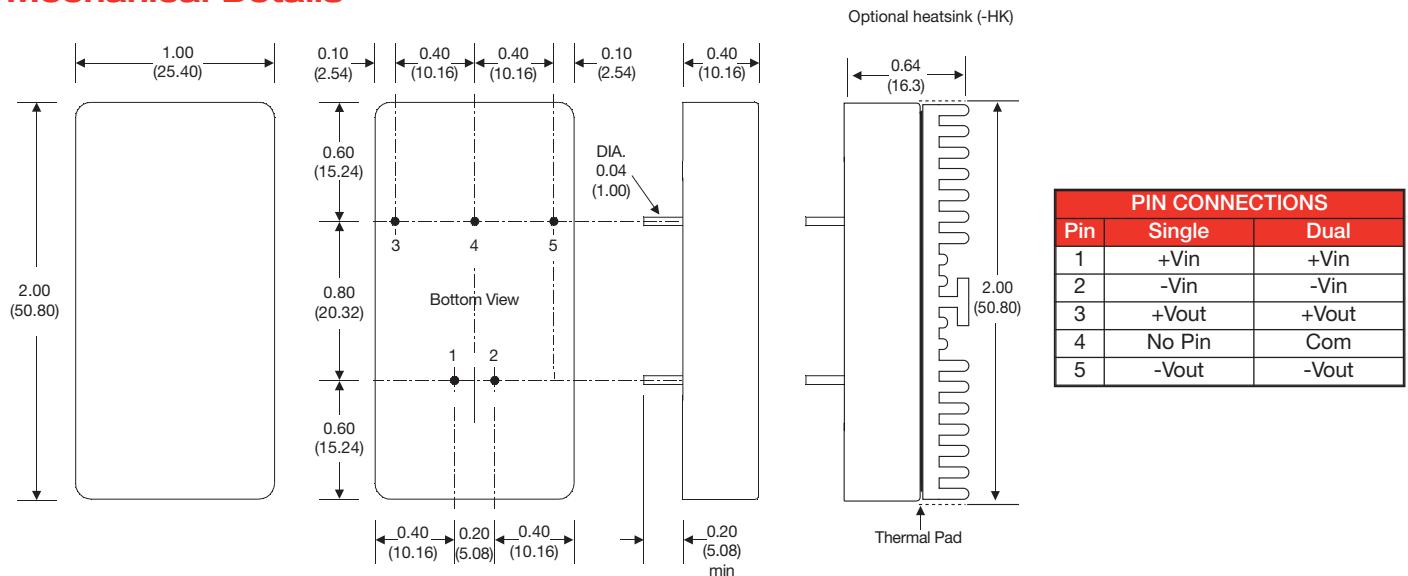
## Models and Ratings

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	3.3V	3.00 A	30 mA	1.03 A	3300 µF	82%	JCK1512S3V3
	5.0V	3.00 A	30 mA	1.52 A	3300 µF	84%	JCK1512S05
	12.0V	1.250 A	30 mA	1.45 A	1000 µF	88%	JCK1512S12
	15.0V	1.000 A	30 mA	1.44 A	680 µF	89%	JCK1512S15
	±3.3V	±1.500 A	30 mA	1.03 A	±1000 µF	82%	JCK1512D03
	±5.0V	±1.500 A	30 mA	1.50 A	±1000 µF	85%	JCK1512D05
	±12.0V	±0.625 A	30 mA	1.45 A	±470 µF	88%	JCK1512D12
	±15.0V	±0.500 A	30 mA	1.45 A	±330 µF	88%	JCK1512D15
18-36 VDC	3.3V	3.000 A	25 mA	0.52 A	3300 µF	82%	JCK1524S3V3
	5.0V	3.000 A	25 mA	0.75 A	3300 µF	85%	JCK1524S05
	12.0V	1.250 A	25 mA	0.72 A	1000 µF	89%	JCK1524S12
	15.0V	1.000 A	25 mA	0.72 A	680 µF	89%	JCK1524S15
	±3.3V	±1.500 A	25 mA	0.52 A	±1000 µF	82%	JCK1524D03
	±5.0V	±1.500 A	25 mA	0.75 A	±1000 µF	85%	JCK1524D05
	±12.0V	±0.625 A	25 mA	0.72 A	±470 µF	88%	JCK1524D12
	±15.0V	±0.500 A	25 mA	0.72 A	±330 µF	88%	JCK1524D15
36-75 VDC	3.3V	3.000 A	20 mA	0.26 A	3300 µF	82%	JCK1548S3V3
	5.0V	3.000 A	20 mA	0.38 A	3300 µF	85%	JCK1548S05
	12.0V	1.250 A	20 mA	0.36 A	1000 µF	89%	JCK1548S12
	15.0V	1.000 A	20 mA	0.36 A	680 µF	89%	JCK1548S15
	±3.3V	±1.500 A	20 mA	0.26 A	±1000 µF	82%	JCK1548D03
	±5.0V	±1.500 A	20 mA	0.38 A	±1000 µF	85%	JCK1548D05
	±12.0V	±0.625 A	20 mA	0.36 A	±470 µF	88%	JCK1548D12
	±15.0V	±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.

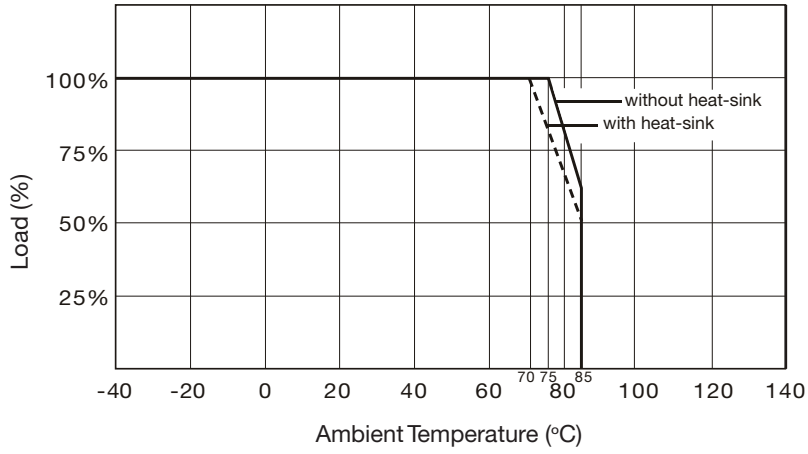
## Mechanical Details



### 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)

Derating Curve



Input Filter

