

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

Output

Output Voltage	<ul style="list-style-type: none"> • See table
Minimum Load	<ul style="list-style-type: none"> • No minimum load required
Line Regulation	<ul style="list-style-type: none"> • $\pm 0.5\%$ max
Load Regulation	<ul style="list-style-type: none"> • $\pm 0.5\%$ max for single and dual outputs except $\pm 0.8\%$ for D03 versions
Cross Regulation	<ul style="list-style-type: none"> • $\pm 5\%$ max on dual output models (see note 2)
Setpoint Accuracy	<ul style="list-style-type: none"> • $\pm 1.0\%$ max
Start Up Delay	<ul style="list-style-type: none"> • <20 ms
Start Up Rise Time	<ul style="list-style-type: none"> • <5 ms
Ripple & Noise	<ul style="list-style-type: none"> • 75 mV pk-pk max (see note 3)
Transient Response	<ul style="list-style-type: none"> • $\pm 3\%$ max deviation, recovery to within 1% in 250 μs for a 25% load change
Temperature Coefficient	<ul style="list-style-type: none"> • 0.02%/°C
Overload Protection	<ul style="list-style-type: none"> • >140% of full load at nominal input
Short Circuit Protection	<ul style="list-style-type: none"> • Trip & restart (hiccup mode) with auto recovery
Maximum Capacitive Load	<ul style="list-style-type: none"> • See table

General

Efficiency	<ul style="list-style-type: none"> • See table
Isolation Voltage	<ul style="list-style-type: none"> • 1600 VDC Input to Output, optional 3500 V (see note 4) • 1600 VDC Input to Case • 1600 VDC Output to Case
Isolation Capacitance	<ul style="list-style-type: none"> • 1200 pF typical
Isolation Resistance	<ul style="list-style-type: none"> • $10^9 \Omega$ min
Switching Frequency	<ul style="list-style-type: none"> • 300 kHz typical
Power Density	<ul style="list-style-type: none"> • 18.75 W/in³
MTBF	<ul style="list-style-type: none"> • >1.1 Mhrs to MIL-HDBK-217F at 25 °C, GB

Environmental

Operating Temperature	<ul style="list-style-type: none"> • -40 °C to +100 °C, derate from 100% load at +70 °C to 0% load at +100 °C
Case Temperature	<ul style="list-style-type: none"> • +100 °C max
Storage Temperature	<ul style="list-style-type: none"> • -40 °C to +125 °C
Cooling	<ul style="list-style-type: none"> • Convection-cooled
Operating Humidity	<ul style="list-style-type: none"> • Up to 95% RH, non-condensing

EMC

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

*External input capacitor required 220 μ F/100 V.

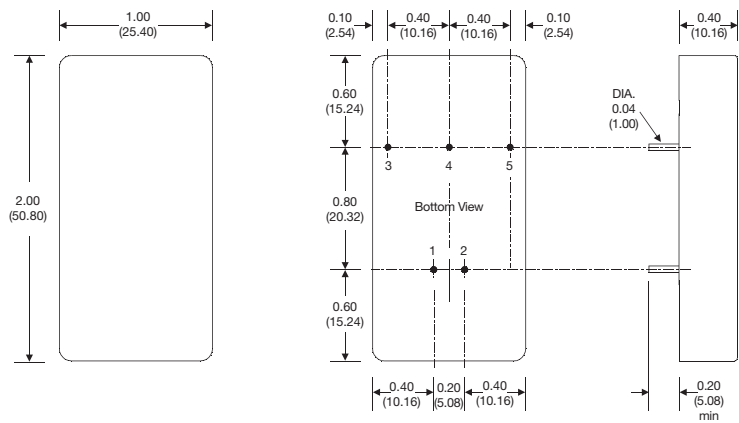
Models and Ratings

Input Voltage	Output Voltage	Output Current	Input Current ⁽¹⁾		Maximum Capacitive Load	Efficiency	Model Number ⁽⁴⁾
			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.
- † Available from Farnell & element14. See pages 284-290. ^ Available from Newark. See pages 291-296

Mechanical Details



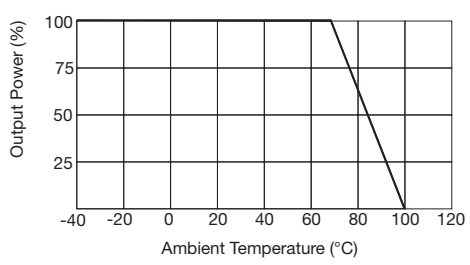
PIN CONNECTIONS		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	No Pin	Com
5	-Vout	-Vout

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

