15 Watts

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	• 12 V (9-18 VDC) 24 V (18-36 VDC) 48 V (36-75 VDC)
Input Current	• See table
Input Reflected Ripple Current	• 20 mA rms through 12 µH inductor, 5 Hz to 20 MHz
Under Voltage Lockout	• 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	• 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	• See table
Minimum Load	• No minimum load required
Line Regulation	• ±0.5% max
Load Regulation	• ±0.5% max for single and ±1% max for dual outputs
Cross Regulation	• ±5% max on dual output models (see note 2)
Setpoint Accuracy	• ±1.0% max
Start Up Delay	• <20 ms
Start Up Rise Time	• <5 ms
Ripple & Noise	• 75 mV pk-pk max (see note 3)
Transient Response	• ±3% max deviation, recovery to within 1% in 250 µs for a 25% load change
Temperature Coefficient	• 0.02%/°C
Overload Protection	• >140% of full load at nominal input
Short Circuit Protection	• Trip & restart (hiccup mode) with auto recovery
Maximum Capacitive Load	• See table

General

Efficiency	• See table
Isolation Voltage	• 1600 VDC Input to Output, optional 3500 V (see note 4) 1600 VDC Input to Case 1600 VDC Output to Case
Isolation Capacitance	• 1200 pF typical
Isolation Resistance	• 10^9 Ω min
Switching Frequency	• 300 kHz typical
Power Density	• 18.75 W/in^3
MTBF	• >1.1 MHrs to MIL-HDBK-217F at 25 °C, GB

Environmental

Operating Temperature	• -40 °C to +100 °C, derate from 100% load at +70 °C to 0% load at +100 °C
Case Temperature	• +100 °C max
Storage Temperature	• -40 °C to +125 °C
Cooling	• Convection-cooled
Operating Humidity	• Up to 95% RH, non-condensing

EMC

Emissions	• EN55022, Class A conducted & radiated with external components, see application note
ESD Immunity	• EN61000-4-2, 8 kV air, 6 kV contact, Perf Criteria A
Radiated Immunity	• EN61000-4-3 10 V/m, Perf Criteria A
EFT/Burst	• EN61000-4-4 level 3, Perf Criteria B*
Surge	• EN61000-4-5 level 2, Perf Criteria B*
Conducted Immunity	• EN61000-4-6 10 V/rms,Perf Criteria A
Magnetic Field	• EN61000-4-8 1 A/m, Perf Criteria A

Safety

Safety Approvals	• CE (Meets all applicable directives), UKCA (Meets all applicable legislation)

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

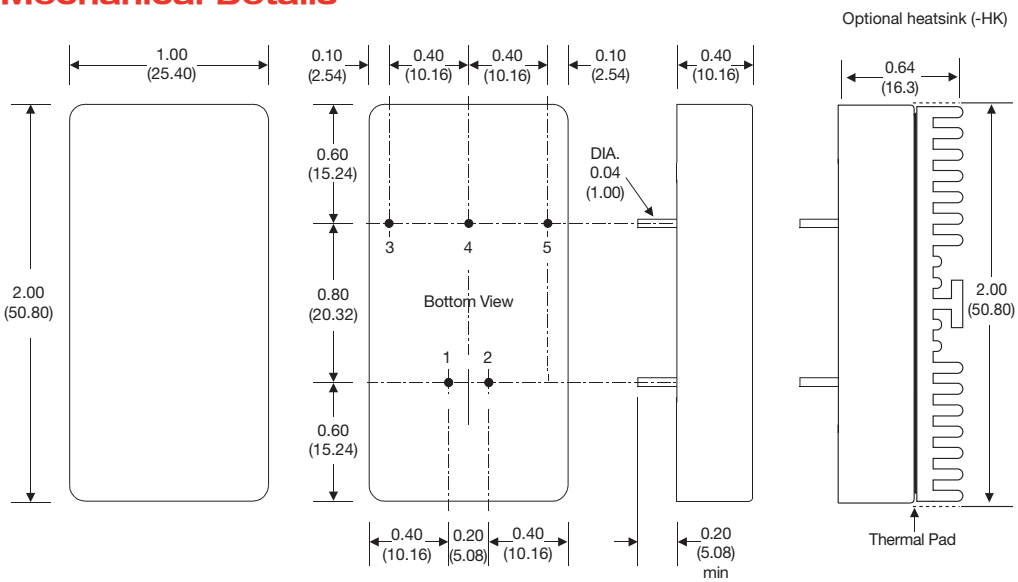
Models and Ratings

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
	±15.0 V	±0.500 A	30 mA	1.45 A	±330 µF	88%	JCK1512D15
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
	±15.0 V	±0.500 A	25 mA	0.72 A	±330 µF	88%	JCK1524D15
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



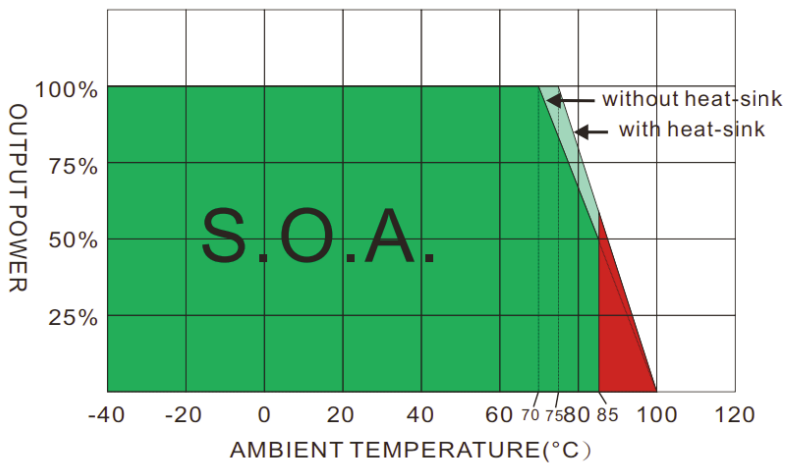
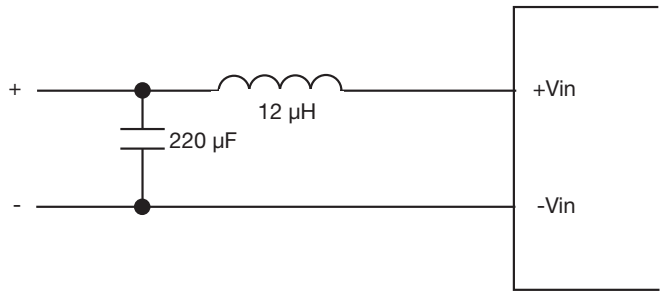
PIN CONNECTIONS		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	No Pin	Com
5	-Vout	-Vout

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