

JCK Series



- 2:1 Input Range
- Operating Temperature -40°C to $+75^{\circ}\text{C}$
- Single and Dual Outputs
- High Efficiency – Up to 92%
- Remote On/Off
- 1600 VDC Isolation
- 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
Undervoltage 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 Reflected Ripple Current	• 20 mA pk-pk through 12 μH inductor
Input Surge	• 12 V models 25 VDC for 100 ms • 24 V models 50 VDC for 100 ms • 48 V models 100 VDC for 100 ms
Input Filter	• Pi network

Output

Output Voltage	• See table
Output Voltage Trim	• $\pm 10\%$ on single outputs models only
Start Up Delay	• 30 ms max
Minimum Load	• No minimum load required
Line Regulation	• $\pm 0.5\%$ max
Load Regulation	• Single output models: $\pm 0.5\%$ max • Dual output models: $\pm 1\%$ max balanced outputs
Cross Regulation	• $\pm 5\%$ (see note 2)
Setpoint Accuracy	• $\pm 1\%$
Ripple & Noise	• 100 mV pk-pk, 20 MHz bandwidth (see note 3)
Transient Response	• 3% max deviation, recovery to within 1% in $<250\ \mu\text{s}$ for a 25% load change
Temperature Coefficient	• $0.02\%/^{\circ}\text{C}$
Overvoltage Protection	• 3.3 V models: 3.9 V typical • 5 V models: 6.2 V typical • 12 V models: 15 V typical • 15 V models: 18 V typical • ± 5 V models: ± 6.2 V typical • ± 12 V models: ± 15 V typical • ± 15 V models: ± 18 V typical
Overload Protection	• $>150\%$ of full load
Short Circuit Protection	• Trip & restart (Hiccup mode), auto recovery
Remote On/Off	• See application notes
Maximum Capacitive Load	• See table

General

Efficiency	• See table
Isolation	• 1600 VDC Input to Output • 1600 VDC Input to Case • 1600 VDC Output to Case
Isolation Capacitance	• 1500 pF typical
Switching Frequency	• 330 kHz typical
Power Density	• $37.5\ \text{W/in}^3$
MTBF	• 430 kHrs min to MIL-HDBK-217F at 25°C, GB

Environmental

Operating Temperature	• -40°C to 75°C, see derating curve
Case Temperature	• $+105^{\circ}\text{C}$ max
Cooling	• Convection-cooled
Operating Humidity	• 5-95% RH, non-condensing
Storage Temperature	• -40°C to $+125^{\circ}\text{C}$

EMC

Emissions	• EN55022 level A conducted & radiated with external components, see application notes
ESD Immunity	• EN61000-4-2, level 3, Perf Criteria A
EFT/Burst	• EN61000-4-4, level 3, Perf Criteria A⁽⁴⁾
Surge	• EN61000-4-5, installation class 3, Perf Criteria A⁽⁴⁾
Conducted Immunity	• EN61000-4-6, 10 Vrms, Perf Criteria A
Magnetic Field	• EN61000-4-8, 1 A/m, Perf Criteria A

Models and Ratings

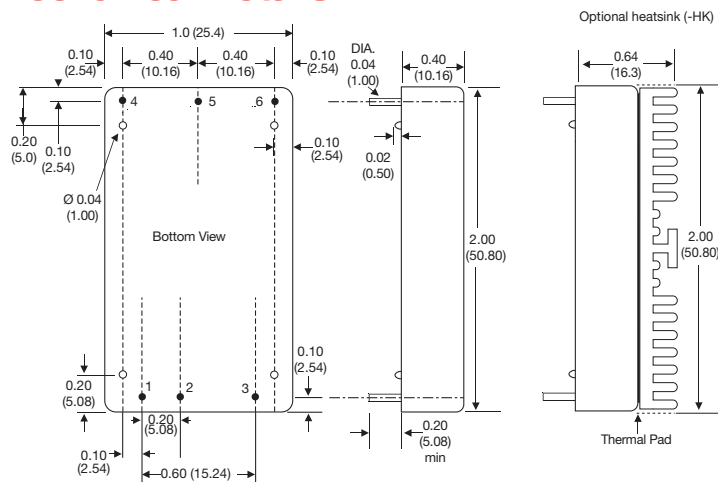
JCK30 XP

Input Voltage	Output Voltage	Output Current	Input Current ⁽¹⁾		Maximum Capacitive Load	Efficiency	Model Number
			No Load	Full Load			
9-18 VDC	3.3 V	8.00 A	80 mA	2426 mA	20000 μ F	89%	JCK3012S3V3
	5.0 V	6.00 A	180 mA	2874 mA	14000 μ F	91%	JCK3012S05
	5.1 V	6.00 A	160 mA	2874 mA	14000 μ F	92%	JCK3012S5V1
	12.0 V	2.50 A	30 mA	2809 mA	2000 μ F	91%	JCK3012S12
	15.0 V	2.00 A	30 mA	2809 mA	2000 μ F	92%	JCK3012S15
	± 5.0 V	± 3.00 A	180 mA	2874 mA	± 3000 μ F	89%	JCK3012D05
	± 12.0 V	± 1.25 A	50 mA	2874 mA	± 1250 μ F	90%	JCK3012D12
18-36 VDC	3.3 V	8.00 A	70 mA	1185 mA	20000 μ F	91%	JCK3024S3V3
	5.0 V	6.00 A	100 mA	1420 mA	14000 μ F	92%	JCK3024S05
	5.1 V	6.00 A	100 mA	1448 mA	14000 μ F	92%	JCK3024S5V1
	12.0 V	2.50 A	20 mA	1436 mA	2000 μ F	92%	JCK3024S12
	15.0 V	2.00 A	40 mA	1420 mA	2000 μ F	92%	JCK3024S15
	± 5.0 V	± 3.00 A	100 mA	1437 mA	± 3000 μ F	90%	JCK3024D05
	± 12.0 V	± 1.25 A	40 mA	1453 mA	± 1250 μ F	91%	JCK3024D12
36-75 VDC	3.3 V	8.00 A	50 mA	593 mA	20000 μ F	90%	JCK3048S3V3
	5.0 V	6.00 A	70 mA	702 mA	14000 μ F	91%	JCK3048S05
	5.1 V	6.00 A	70 mA	724 mA	14000 μ F	91%	JCK3048S5V1
	12.0 V	2.50 A	30 mA	718 mA	2000 μ F	91%	JCK3048S12
	15.0 V	2.00 A	30 mA	710 mA	2000 μ F	91%	JCK3048S15
	± 5.0 V	± 3.00 A	70 mA	710 mA	± 3000 μ F	90%	JCK3048D05
	± 12.0 V	± 1.25 A	50 mA	718 mA	± 1250 μ F	90%	JCK3048D12
	± 15.0 V	± 1.00 A	40 mA	718 mA	± 1000 μ F	90%	JCK3048D15

Notes

1. Input current specified at nominal input.
2. Cross regulation for duals is $\pm 5\%$ when one output is at 100% and the other is varied between 25% and 100%.
3. Measured with 1 μ F ceramic capacitor across output rails.
4. A 220 μ F/250 V capacitor across the input is required in order to meet EN61000-4-4 and EN61000-4-5.
5. For heatsink option add '-HK' to the end of the part number.

Mechanical Details



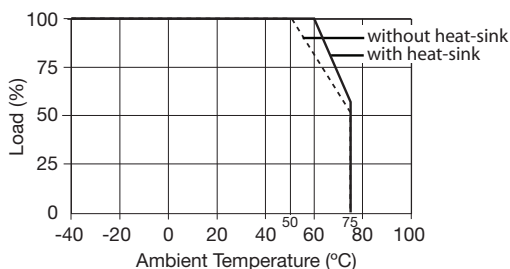
PIN CONNECTIONS		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	Remote On/Off	Remote On/Off
4	+Vout	+Vout
5	-Vout	Com
6	Trim	-Vout

Notes

1. All dimensions are in inches (mm).
2. Weight: 0.07 lbs (31 g) approx
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

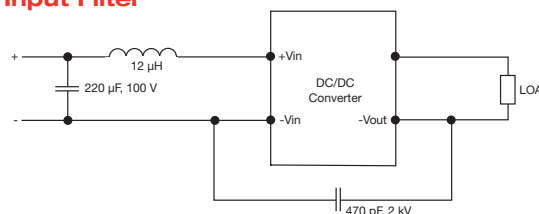
Derating Curve



Remote On/Off Control

Output On >3.0 VDC or open circuit
Output Off <1.2 VDC or short circuit pins 2 & 3

Input Filter



External Output Trim

