

JCK Series



- 2:1 Input Range
- Operating Temperature $-40\text{ }^{\circ}\text{C}$ to $+75\text{ }^{\circ}\text{C}$
- Single and Dual Outputs
- High Efficiency – Up to 92%
- Remote On/Off
- 1600 VDC Isolation
- 3 Year Warranty

Specification

Input

Input Voltage Range	<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
Undervoltage 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 Reflected Ripple Current	<ul style="list-style-type: none"> • 20 mA pk-pk through 12 μH inductor
Input Surge	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Pi network

Output

Output Voltage	<ul style="list-style-type: none"> • See table
Output Voltage Trim	<ul style="list-style-type: none"> • $\pm 10\%$ on single outputs models only
Start Up Delay	<ul style="list-style-type: none"> • 30 ms max
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"> • Single output models: $\pm 0.5\%$ max • Dual output models: $\pm 1\%$ max balanced outputs
Cross Regulation	<ul style="list-style-type: none"> • $\pm 5\%$ (see note 2)
Setpoint Accuracy	<ul style="list-style-type: none"> • $\pm 1\%$
Ripple & Noise	<ul style="list-style-type: none"> • 100 mV pk-pk, 20 MHz bandwidth (see note 3)
Transient Response	<ul style="list-style-type: none"> • 3% max deviation, recovery to within 1% in $< 250\text{ }\mu\text{s}$ for a 25% load change
Temperature Coefficient	<ul style="list-style-type: none"> • $0.02\%/^{\circ}\text{C}$
Overvoltage Protection	<ul style="list-style-type: none"> • 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 • $\pm 5\text{ V}$ models: $\pm 6.2\text{ V}$ typical • $\pm 12\text{ V}$ models: $\pm 15\text{ V}$ typical • $\pm 15\text{ V}$ models: $\pm 18\text{ V}$ typical
Overload Protection	<ul style="list-style-type: none"> • $> 150\%$ of full load
Short Circuit Protection	<ul style="list-style-type: none"> • Trip & restart (Hiccup mode), auto recovery
Remote On/Off	<ul style="list-style-type: none"> • See application notes
Maximum Capacitive Load	<ul style="list-style-type: none"> • See table

General

Efficiency	<ul style="list-style-type: none"> • See table
Isolation	<ul style="list-style-type: none"> • 1600 VDC Input to Output • 1600 VDC Input to Case • 1600 VDC Output to Case
Isolation Capacitance	<ul style="list-style-type: none"> • 1500 pF typical
Switching Frequency	<ul style="list-style-type: none"> • 330 kHz typical
Power Density	<ul style="list-style-type: none"> • 37.5 W/in^3
MTBF	<ul style="list-style-type: none"> • 430 kHrs min to MIL-HDBK-217F at $25\text{ }^{\circ}\text{C}$, GB

Environmental

Operating Temperature	<ul style="list-style-type: none"> • $-40\text{ }^{\circ}\text{C}$ to $75\text{ }^{\circ}\text{C}$, see derating curve
Case Temperature	<ul style="list-style-type: none"> • $+105\text{ }^{\circ}\text{C}$ max
Cooling	<ul style="list-style-type: none"> • Convection-cooled
Operating Humidity	<ul style="list-style-type: none"> • 5-95% RH, non-condensing
Storage Temperature	<ul style="list-style-type: none"> • $-40\text{ }^{\circ}\text{C}$ to $+125\text{ }^{\circ}\text{C}$

EMC

Emissions	<ul style="list-style-type: none"> • EN55022 level A conducted & radiated with external components, see application notes
ESD Immunity	<ul style="list-style-type: none"> • EN61000-4-2, level 3, Perf Criteria A
EFT/Burst	<ul style="list-style-type: none"> • EN61000-4-4, level 3, Perf Criteria A⁽⁴⁾
Surge	<ul style="list-style-type: none"> • EN61000-4-5, installation class 3, Perf Criteria A⁽⁴⁾
Conducted Immunity	<ul style="list-style-type: none"> • EN61000-4-6, 10 Vrms, Perf Criteria A
Magnetic Field	<ul style="list-style-type: none"> • EN61000-4-8, 1 A/m, Perf Criteria A

Safety

Safety Approvals	<ul style="list-style-type: none"> • CE (Meets all applicable directives), UKCA (Meets all applicable legislation)
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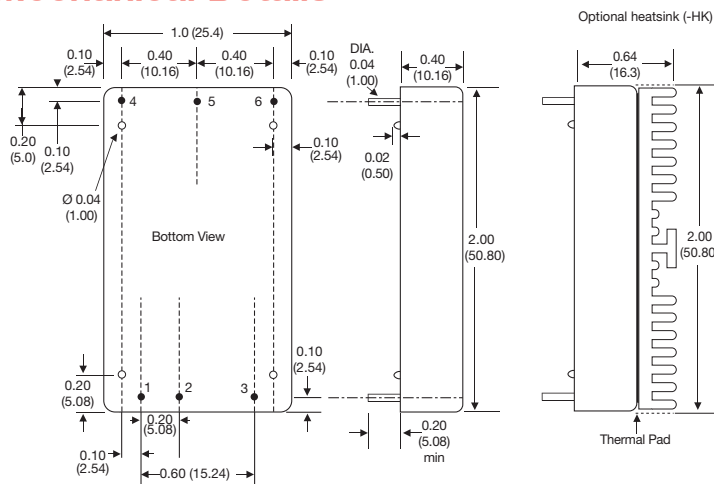
Models and Ratings

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
	± 15.0 V	± 1.00 A	50 mA	2874 mA	± 1000 μ F	91%	JCK3012D15
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
	± 15.0 V	± 1.00 A	50 mA	1437 mA	± 1000 μ F	91%	JCK3024D15
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

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

Mechanical Details



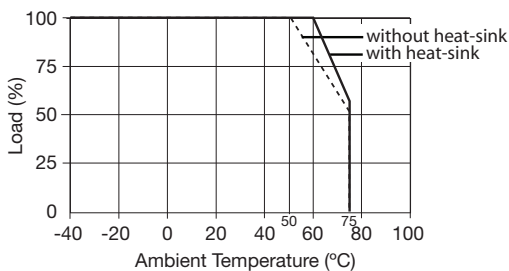
Pin	PIN CONNECTIONS	
	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	Remote On/Off	Remote On/Off
4	+Vout	+Vout
5	-Vout	Com
6	Trim	-Vout

Notes

- All dimensions are in inches (mm).
- Weight: 0.07 lbs (31 g) approx
- Pin diameter: 0.04 ± 0.002 (1.0 ± 0.05)
- Pin pitch tolerance: ± 0.014 (± 0.35)
- Case tolerance: ± 0.02 (± 0.5)

Application Notes

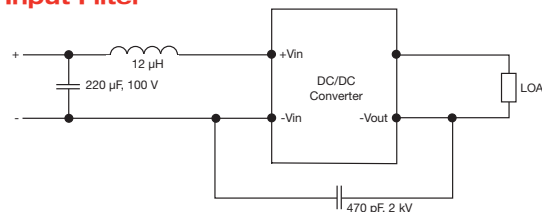
Derating Curve



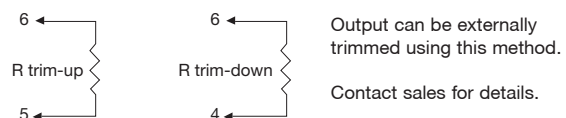
Remote On/Off Control

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

Input Filter



External Output Trim



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