30 Watts

JCK Series



- 2:1 Input Range
- Operating Temperature –40 °C to +105 °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 uH 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	• ±10% on single outputs models only
Start Up Delay	• 30 ms max
Minimum Load	• No minimum load required
Line Regulation	• ±0.5% max
Load Regulation	• Single output models: ±0.5% max Dual output models: ±1% max balanced outputs
Cross Regulation	• ±5% (see note 2)
Setpoint Accuracy	• ±1%
Ripple & Noise	• 100 mV pk-pk, 20 MHz bandwidth (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
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 W/in^3
MTBF	• 430 kHrs min to MIL-HDBK-217F at 25 °C, GB

Environmental

Operating Temperature	• -40 °C to 105 °C, derate from 100% load at 50 °C to no load at 105 °C
Case Temperature	• +105 °C max
Cooling	• Convection-cooled
Operating Humidity	• 5-95% RH, non-condensing
Storage Temperature	• -40 °C to +125 °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

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 µF	89%	JCK3012S3V3†^
	5.0 V	6.00 A	180 mA	2874 mA	14000 µF	91%	JCK3012S05†^
	5.1 V	6.00 A	160 mA	2874 mA	14000 µF	92%	JCK3012S5V1
	12.0 V	2.50 A	30 mA	2809 mA	2000 µF	91%	JCK3012S12†^
	15.0 V	2.00 A	30 mA	2809 mA	2000 µF	92%	JCK3012S15†^
	±5.0 V	±3.00 A	180 mA	2874 mA	±3000 µF	89%	JCK3012D05†^
	±12.0 V	±1.25 A	50 mA	2874 mA	±1250 µF	90%	JCK3012D12†^
	±15.0 V	±1.00 A	50 mA	2874 mA	±1000 µF	91%	JCK3012D15†^
18-36 VDC	3.3 V	8.00 A	70 mA	1185 mA	20000 µF	91%	JCK3024S3V3†^
	5.0 V	6.00 A	100 mA	1420 mA	14000 µF	92%	JCK3024S05†^
	5.1 V	6.00 A	100 mA	1448 mA	14000 µF	92%	JCK3024S5V1
	12.0 V	2.50 A	20 mA	1436 mA	2000 µF	92%	JCK3024S12†^
	15.0 V	2.00 A	40 mA	1420 mA	2000 µF	92%	JCK3024S15†^
	±5.0 V	±3.00 A	100 mA	1437 mA	±3000 µF	90%	JCK3024D05†^
	±12.0 V	±1.25 A	40 mA	1453 mA	±1250 µF	91%	JCK3024D12†^
	±15.0 V	±1.00 A	50 mA	1437 mA	±1000 µF	91%	JCK3024D15†^
36-75 VDC	3.3 V	8.00 A	50 mA	593 mA	20000 µF	90%	JCK3048S3V3†^
	5.0 V	6.00 A	70 mA	702 mA	14000 µF	91%	JCK3048S05†^
	5.1 V	6.00 A	70 mA	724 mA	14000 µF	91%	JCK3048S5V1
	12.0 V	2.50 A	30 mA	718 mA	2000 µF	91%	JCK3048S12†^
	15.0 V	2.00 A	30 mA	710 mA	2000 µF	91%	JCK3048S15†^
	±5.0 V	±3.00 A	70 mA	710 mA	±3000 µF	90%	JCK3048D05†^
	±12.0 V	±1.25 A	50 mA	718 mA	±1250 µF	90%	JCK3048D12†^
	±15.0 V	±1.00 A	40 mA	718 mA	±1000 µF	90%	JCK3048D15†^

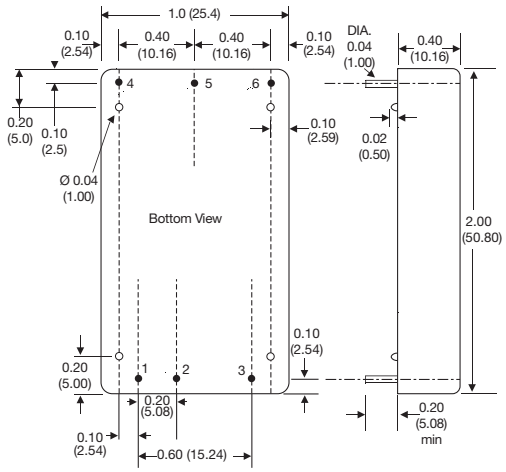
Notes

1. *Input current specified at nominal input.*
2. *Cross regulation for duals is ±5% when one output is at 100% and the other is varied between 25% and 100%.*
3. *Measured with 1 µF ceramic capacitor across output rails.*
4. *A 220 µF/250 V capacitor across the input is required in order to meet EN61000-4-4 and EN61000-4-5.*

† Available from Farnell & element14. See pages 284-290.

^ Available from Newark. See pages 291-296

Mechanical Details



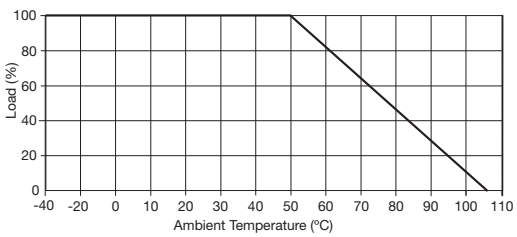
PIN CONNECTIONS		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	Remote On/Off	Remote On/Off
4	+Vout	+Vout
5	-Vout	Com
6	Trim	-Vout

Notes

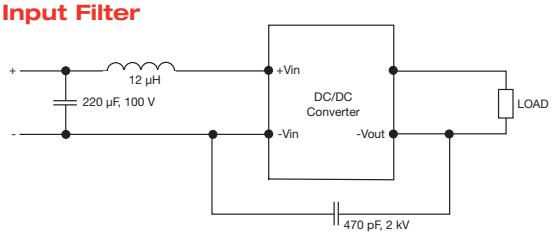
1. All dimensions are in inches (mm).
2. Weight: 0.07 lbs (31 g) approx
3. Pin diameter: 0.04 ±0.002 (1.0 ±0.05)
4. Pin pitch tolerance: ±0.014 (±0.35)
5. Case tolerance: ±0.02 (±0.5)

Application Notes

Derating Curve



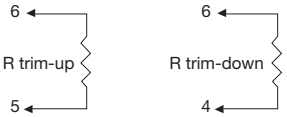
Input Filter



Remote On/Off Control

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

External Output Trim



Output can be externally trimmed using this method.

Contact sales for details.