

60 Watts JCK Series



- 2:1 Input Range
- Very High Power Density
- High Efficiency – Up to 92%
- Remote On/Off
- 1600 VDC Isolation
- OCP, OVP & OTP Functions
- 3 Year Warranty

Specification

Input

Input Voltage Range	• 24 V (18-36 VDC), 48 V (36-75 VDC)
Input Current	• See table
Input Reflected Ripple Current	• 20 mA pk-pk through 12 μH inductor, 5 Hz to 20 MHz
Undervoltage Lockout	• 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	• 24 V models 50 VDC for 100 ms • 48 V models 100 VDC for 100 ms

Output

Output Voltage	• See table
Output Voltage Trim	• $\pm 10\%$
Minimum Load	• No minimum load required
Line Regulation	• $\pm 0.5\%$ max
Load Regulation	• $\pm 0.5\%$ max
Setpoint Accuracy	• $\pm 1\%$
Start Up Time	• 30 ms typical
Ripple & Noise	• 75 mV for 3V3 +5 V models, 100 mV for other models (see note 3)
Transient Response	• 3% max deviation, recovery to within 1% in $<250 \mu$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
Overload Protection	• 115-130% of output current
Short Circuit Protection	• Trip & restart (Hiccup mode), auto recovery
Remote On/Off	• On = Logic High (>3.0) or Open • Off = Logic Low (<1.2 V) or short pin 2 to 3

General

Efficiency	• See table
Isolation	• 1600 VDC Input to Output • 1600 VDC Input to Case • 1600 VDC Output to Case
Isolation Capacitance	• 2000 pF typical
Switching Frequency	• 270 kHz typical
Power Density	• 37.5 W/in^3
MTBF	• 110 kHrs min to MIL-HDBK-217F at 25°C, GB

Environmental

Operating Temperature	• -40°C to $+85^{\circ}\text{C}$, derate from 100% load at 40°C to 25% load at 85°C
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 class A conducted & radiated with no external components
ESD Immunity	• EN61000-4-2, 4 kV contact discharge, Perf Criteria B
Radiated Immunity	• EN61000-4-3, 3 V/m, Perf Criteria A
EFT/Burst	• EN61000-4-4, level 1, Perf Criteria A*
Surge	• EN61000-4-5, level 1, Perf Criteria A
Conducted Immunity	• EN61000-4-6, 3 Vrms, Perf Criteria A
Magnetic Field	• EN61000-4-8, 1 A/m, Perf Criteria A

*External input capacitor required, 220 $\mu\text{F}/100 \text{ V}$.

Models and Ratings

JCK60 XP

Input Voltage	Output Voltage	Output Current	Input Current ⁽¹⁾		Maximum Capacitive Load	Efficiency	Model Number
			No Load	Full Load			
18-36 VDC	3.3 V	14.0 A	80 mA	2151 mA	36000 μ F	91%	JCK6024S3V3†^
	5.0 V	12.0 A	100 mA	2762 mA	20400 μ F	92%	JCK6024S05†^
	12.0 V	5.0 A	40 mA	2793 mA	3550 μ F	91%	JCK6024S12†^
	15.0 V	4.0 A	40 mA	2793 mA	2300 μ F	91%	JCK6024S15†^
36-75 VDC	3.3 V	14.0 A	50 mA	1075 mA	36000 μ F	91%	JCK6048S3V3†^
	5.0 V	12.0 A	60 mA	1389 mA	20400 μ F	92%	JCK6048S05†^
	12.0 V	5.0 A	40 mA	1397 mA	3550 μ F	91%	JCK6048S12†^
	15.0 V	4.0 A	40 mA	1397 mA	2300 μ F	91%	JCK6048S15†^

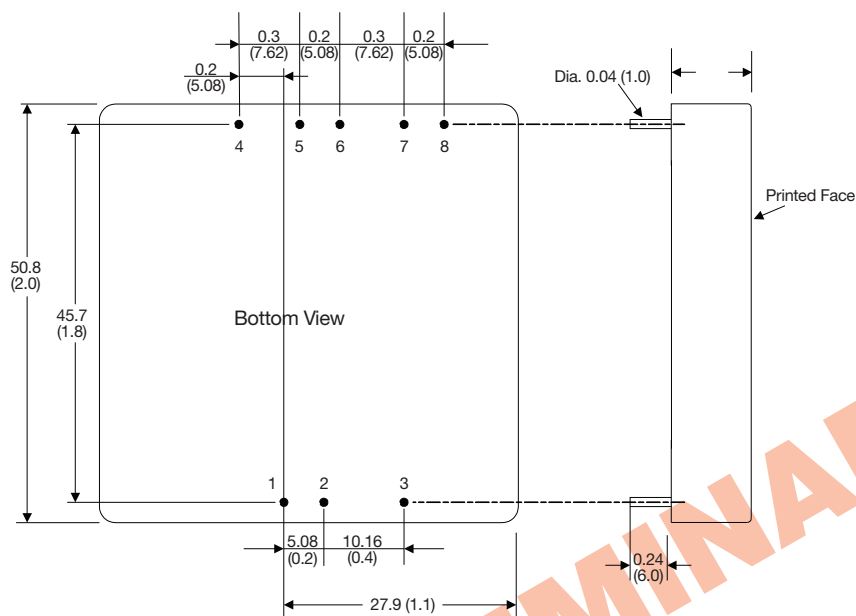
Notes

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 in parallel with a 10 μ F electrolytic across output rails and 20 MHz bandwidth.

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

^ Available from Newark. See pages 291-296.

Mechanical Details



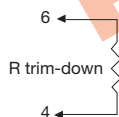
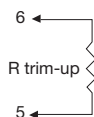
PIN CONNECTIONS	
Pin	Single
1	+Vin
2	-Vin
3	Remote On/Off
4	-Sense
5	+Sense
6	+Vout
7	-Vout
8	Trim

Notes

1. All dimensions are in inches (mm).
2. Weight: 0.154 lbs (70 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

External Output Trim



Output can be externally trimmed using this method.

Contact sales for details.

Remote Sense

If Remote Sense is not required, the +Sense and -Sense pins should be locally connected to +Vout and -Vout respectively.