JCK40 SERIES

DC/DC Single & Dual Output: 40 Watts

HELIOS POWER SOLUTIONS
www.heliosps.com.au

Features

- 2:1 Input Range
- Very High Power Density
- 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
Input Reflected Ripple Current	• 20 mA pk-pk through 12 µH inductor, 5 Hz to 20 MHz
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 Surge	• 12 V models 25 VDC for 1000 ms 24 V models 50 VDC for 1000 ms 48 V models 100 VDC for 1000 ms

Output

Output Voltage	• See table
Output Voltage Trim	• ±10% on single outputs models only, contact sales for details
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%
Start Up Time	• 30 ms typical
Ripple & Noise	• 100 mV for 3V3 +5 V models, 150 mV for other models (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 ±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	• 1000 pF typical
Switching Frequency	• 270 kHz typical
Power Density	• 50 W/in^3
MTBF	• 330 kHrs min to MIL-HDBK-217F at 25 ˚C, GB

Environmental

Operating Temperature	• -40 ˚C to +70` ˚C, derate from 100% load at 55 °C to 60% load at 70 °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 class B conducted & radiated with external components, see application note
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
Magentic Field	• EN61000-4-8, 1 A/m, Perf Criteria A

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

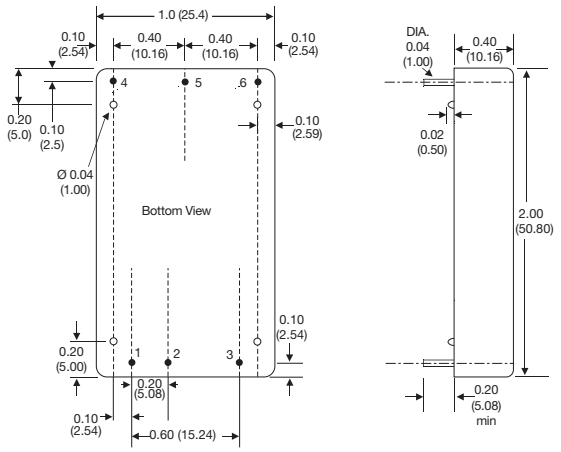
Models and Ratings

Input Voltage	Output Voltage	Output Current	Input Current [1]		Maximum Capacitive Load	Efficiency	Model Number
			No Load	Full Load			
9-18 VDC	3.3 V	8.00 A	100 mA	2444 mA	21000 µF	90%	JCK4012S3V3†^
	5.0 V	8.00 A	150 mA	3663 mA	13000 µF	91%	JCK4012S05†^
	12.0 V	3.33 A	40 mA	3663 mA	2000 µF	91%	JCK4012S12†^
	15.0 V	2.67 A	50 mA	3663 mA	1500 µF	91%	JCK4012S15†^
	±12.0 V	±1.67 A	30 mA	3663 mA	±1200 µF	91%	JCK4012D12†^
	±15.0 V	±1.33 A	50 mA	3623 mA	±750 µF	92%	JCK4012D15†^
18-36 VDC	3.3 V	8.00 A	60 mA	1208 mA	21000 µF	91%	JCK4024S3V3†^
	5.0 V	8.00 A	80 mA	1811 mA	13000 µF	92%	JCK4024S05†^
	12.0 V	3.33 A	30 mA	1831 mA	2000 µF	91%	JCK4024S12†^
	15.0 V	2.67 A	40 mA	1811 mA	1500 µF	92%	JCK4024S15†^
	±12.0 V	±1.67 A	50 mA	1831 mA	±1200 µF	91%	JCK4024D12†^
	±15.0 V	±1.33 A	40 mA	1811 mA	±750 µF	92%	JCK4024D15†^
36-75 VDC	3.3 V	8.00 A	40 mA	604 mA	21000 µF	91%	JCK4048S3V3†^
	5.0 V	8.00 A	60 mA	905 mA	13000 µF	92%	JCK4048S05†^
	12.0 V	3.33 A	20 mA	915 mA	2000 µF	91%	JCK4048S12†^
	15.0 V	2.67 A	20 mA	905 mA	1500 µF	92%	JCK4048S15†^
	±12.0 V	±1.67 A	30 mA	906 mA	±1200 µF	92%	JCK4048D12†^
	±15.0 V	±1.33 A	40 mA	906 mA	±750 µF	92%	JCK4048D15†^

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 in parallel with a 10 µF electrolytic across output rails.*

Mechanical Details



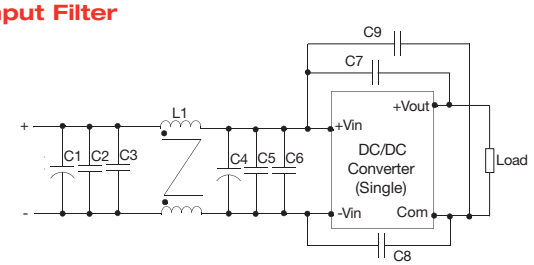
PIN CONNECTIONS		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	Remote On/Off	Remote On/Off
4	+Vout	+Vout
5	Com	Com
6	Trim	-Vout

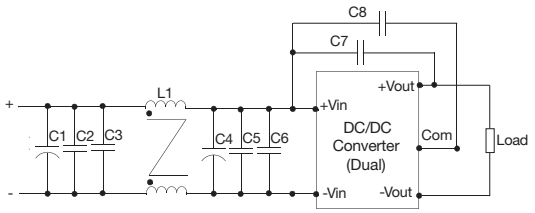
Notes

1. All dimensions are in inches (mm).
2. Weight: 0.07 lbs (30 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

Input Filter

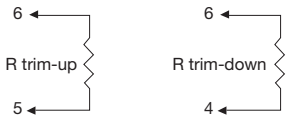




JCK40 Single	C1	L1	C2/C3/C5]/C6	C4
12 V	220 µF, 100 V	Common Mode Choke 68 µH	6.8 µF, 50 V	330 µF, 100 V
24 V			4.7 µF, 50 V	220 µF, 100 V
48 V			1.5 µF, 1000 V	220 µF, 100 V
JCK40 Dual	**C1**	**L1**	**C2/C3/C5/C6**	**C4**
12 V	220 µF, 100 V	Common Mode Choke 68 µH	6.8 µF, 50 V	330 µF, 100 V
24 V			4.7 µF, 50 V	220 µF, 100 V
48 V			1.5 µF, 1000 V	220 µF, 100 V

JCK40 Single	C7	C8	C9
12 V			1000 pF, 2 kV
24 V	1000 pF, 2 kV	1000 pF, 2 kV	
48 V	1000 pF, 2 kV	1000 pF, 2 kV	
JCK40 Dual	**C7**	**C8**	
12 V	1000 pF, 2 kV	1000 pF, 2 kV	
24 V	1000 pF, 2 kV	1000 pF, 2 kV	
48 V	1000 pF, 2 kV	1000 pF, 2 kV	

External Output Trim



Output can be externally trimmed using this method.

Contact sales for details.