

10 Watts

JCH Series



- 2:1 Input Range
- Industry Standard Package
- 1500 VDC Isolation
- Continuous Short Circuit Protection
- -40 °C to +100 °C Operating Temperature
- Single & Dual Outputs
- 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 (36-72 VDC)
Input Current	<ul style="list-style-type: none"> • See table
Input Reflected Ripple Current	<ul style="list-style-type: none"> • 35 mA rms through 12 μH inductor
Input Filter	<ul style="list-style-type: none"> • Pi network
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

Output

Output Voltage	<ul style="list-style-type: none"> • See table
Voltage Balance	<ul style="list-style-type: none"> • $\pm 1\%$ ($\pm 2\%$ for dual output 3.3 V models)
Minimum Load	<ul style="list-style-type: none"> • No minimum load required
Line Regulation	<ul style="list-style-type: none"> • $\pm 0.5\%$
Load Regulation	<ul style="list-style-type: none"> • $\pm 0.5\%$ single outputs, $\pm 1.0\%$ dual outputs
Setpoint Accuracy	<ul style="list-style-type: none"> • $\pm 1.0\%$
Ripple & Noise	<ul style="list-style-type: none"> • 100 mV pk-pk for 3.3 V to 15 V models, 150 mV pk-pk for 24 V models, 20 MHz bandwidth
Transient Response	<ul style="list-style-type: none"> • 3% max deviation, recovery to within 1% in 250 μs for a 25% load change
Temperature Coefficient	<ul style="list-style-type: none"> • 0.02%/°C
Overload Protection	<ul style="list-style-type: none"> • 140% of full load
Short Circuit Protection	<ul style="list-style-type: none"> • Trip & restart (hiccup mode) with auto recovery
Maximum Capacitive Load	<ul style="list-style-type: none"> • See table
Start Up Delay	<ul style="list-style-type: none"> • <20 ms

General

Efficiency	<ul style="list-style-type: none"> • See table
Isolation Voltage	<ul style="list-style-type: none"> • 1500 VDC Input to Output • 1000 VDC Input to Case • 1000 VDC Output to Case
Isolation Capacitance	<ul style="list-style-type: none"> • 500 pF typical input to output
Isolation Resistance	<ul style="list-style-type: none"> • $10^9 \Omega$
Switching Frequency	<ul style="list-style-type: none"> • 200 kHz typical
Power Density	<ul style="list-style-type: none"> • 12.5 W/in³
MTBF	<ul style="list-style-type: none"> • >1.1 Mhrs to MIL-STD-217F at 25 °C, GB

Environmental

Operating Temperature	<ul style="list-style-type: none"> • -40 °C to +100 °C, derate from 100% load at +85 °C to 0% load at +100 °C
Case Temperature	<ul style="list-style-type: none"> • +100 °C max
Storage Temperature	<ul style="list-style-type: none"> • -40 °C to +125 °C
Cooling	<ul style="list-style-type: none"> • Convection-cooled
Operating Humidity	<ul style="list-style-type: none"> • Up to 95% RH, non-condensing

EMC

Emissions	<ul style="list-style-type: none"> • EN55022 Class A conducted & radiated with external components, see application note
ESD Immunity	<ul style="list-style-type: none"> • EN61000-4-2, 8 kV air discharge Perf Criteria A
Radiated Immunity	<ul style="list-style-type: none"> • EN61000-4-3, 3 V/m, Perf Criteria A

Models and Ratings

Input Voltage	Output Voltage	Output Current	Input Current ⁽¹⁾		Efficiency	Maximum Capacitive Load	Model Number
			No Load	Full Load			
9-18 VDC	3.3 V	2000 mA	30 mA	705 mA	78%	2200 µF	JCH1012S3V3†^
	5.0 V	2000 mA	30 mA	1016 mA	82%	2200 µF	JCH1012S05†^
	12.0 V	833 mA	30 mA	992 mA	84%	680 µF	JCH1012S12†^
	15.0 V	666 mA	30 mA	992 mA	84%	470 µF	JCH1012S15†^
	24.0 V	416 mA	30 mA	980 mA	85%	330 µF	JCH1012S24
	±3.3 V	±1000 mA	30 mA	1068 mA	78%	±1000 µF	JCH1012D03†^
	±5.0 V	±1000 mA	30 mA	1016 mA	82%	±1000 µF	JCH1012D05†^
	±12.0 V	±416 mA	30 mA	992 mA	84%	±470 µF	JCH1012D12†^
18-36 VDC	3.3 V	2000 mA	25 mA	352 mA	78%	2200 µF	JCH1024S3V3†^
	5.0 V	2000 mA	25 mA	508 mA	82%	2200 µF	JCH1024S05†^
	12.0 V	833 mA	25 mA	496 mA	84%	680 µF	JCH1024S12†^
	15.0 V	666 mA	25 mA	490 mA	85%	470 µF	JCH1024S15†^
	24.0 V	416 mA	25 mA	484 mA	86%	330 µF	JCH1024S24
	±3.3 V	±1000 mA	25 mA	352 mA	78%	±1000 µF	JCH1024D03†^
	±5.0 V	±1000 mA	25 mA	508 mA	82%	±1000 µF	JCH1024D05†^
	±12.0 V	±416 mA	25 mA	496 mA	84%	±470 µF	JCH1024D12†^
36-72 VDC	3.3 V	2000 mA	20 mA	176 mA	78%	2200 µF	JCH1048S3V3†^
	5.0 V	2000 mA	20 mA	251 mA	83%	2200 µF	JCH1048S05†^
	12.0 V	833 mA	20 mA	248 mA	84%	680 µF	JCH1048S12†^
	15.0 V	666 mA	20 mA	248 mA	84%	470 µF	JCH1048S15†^
	24.0 V	416 mA	20 mA	245 mA	86%	330 µF	JCH1048S24
	±3.3 V	±1000 mA	20 mA	176 mA	78%	±1000 µF	JCH1048D03†^
	±5.0 V	±1000 mA	20 mA	254 mA	82%	±1000 µF	JCH1048D05†^
	±12.0 V	±416 mA	20 mA	245 mA	85%	±470 µF	JCH1048D12†^
±15.0 V	±333 mA	20 mA	245 mA	85%	±330 µF	JCH1048D15†^	
±24.0 V	±208 mA	20 mA	242 mA	86%	±220 µF	JCH1048D24	

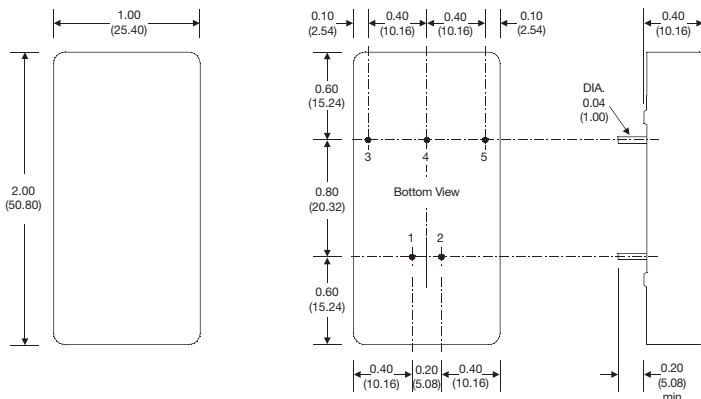
Notes

1. Measured at nominal input voltage.

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

^ Available from Newark. See pages 291-296.

Mechanical Details



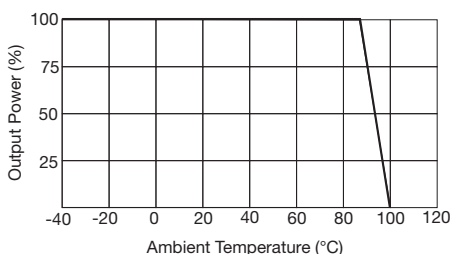
PIN CONNECTIONS		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	No Pin	Com
5	-Vout	-Vout

Notes

1. All dimensions are in inches (mm)
2. Weight: 0.07 lbs (30 g)
3. Pin diameter tolerance: ±0.002 (±0.05)
4. Pin pitch tolerance: ±0.014 (±0.35)
5. Case tolerance: ±0.02 (±0.50)

Application Notes

Derating Curve



Input Filter

