

JCH20 Series



- 2:1 Input Range
- 2.0" x 2.0" x 0.4" Metal Package
- 1500 VDC Isolation
- Efficiency up to 91%
- Single & Dual Outputs
- -40 °C to +100 °C Operating Temperature
- Continuous Short Circuit Protection

Specification

Input

Input Voltage Range	• 12 V (9-18 VDC) • 24 V (18-36 VDC) • 48 V (36-72 VDC)
Input Current	• See table
Input Reflected Ripple	• 35 mA rms through 12 μH inductor, 5 Hz to 20 MHz

Output

Output Voltage	• See table
Voltage Balance	• $\pm 1.0\%$, dual output versions
Minimum Load	• No minimum load required
Line Regulation	• $\pm 0.5\%$ max
Load Regulation	• $\pm 0.5\%$ max
Setpoint Accuracy	• $\pm 1.0\%$ max
Start Up Delay	• <10 ms
Start Up Rise Time	• <5 ms
Ripple & Noise	• 100 mV pk-pk for 5 V to 15 V models, 150 mV pk-pk for 24 V models, 20 MHz BW
Transient Response	• $\pm 5\%$ max deviation, recovery to within 1% in 300 μs for a 25% load change
Temperature Coefficient	• 0.02%/°C
Overcurrent Protection	• 130% typical of full load at nominal input
Short Circuit Protection	• Trip & restart (hiccup mode) with auto recovery
Capacitive Load	• See table

General

Efficiency	• See table
Isolation Voltage	• 1500 VDC Input to Output • 1000 VDC Input to Case • 1000 VDC Output to Case
Isolation Capacitance	• 1000 pF typical
Switching Frequency	• 125 kHz typical
MTBF	• >600 kHrs to MIL-STD-217F

Environmental

Operating Temperature	• -40 °C to +100 °C, derate from 100% load at +85 °C to 0% load at +100 °C
Case Temperature	• +100 °C max
Storage Temperature	• -40 °C to +125 °C
Cooling	• Convection-cooled
Operating Humidity	• Up to 90%, non-condensing

EMC

Emissions	• EN55022 Class A conducted & radiated with external components, see application note
ESD Immunity	• EN61000-4-2, 8 kV air discharge Perf Criteria A, 4 kV contact discharge Perf Criteria A
Radiated Immunity	• EN61000-4-6 Level 2 3 V/m Perf Criteria A

Models and Ratings

JCH20 **XP**

Input Voltage	Output Voltage	Output Current	Input Current ⁽¹⁾		Efficiency	Maximum Capacitive Load ⁽²⁾	Model Number
			No Load	Full Load			
9-18 VDC	5.0 V	4000 mA	20 mA	2008 mA	85%	15000 μ F	JCH2012S05
	9.0 V	2222 mA	20 mA	1960 mA	85%	2200 μ F	JCH2012S09
	12.0 V	1666 mA	30 mA	1960 mA	87%	1000 μ F	JCH2012S12
	15.0 V	1333 mA	35 mA	1984 mA	87%	100 μ F	JCH2012S15
	24.0 V	833 mA	30 mA	1937 mA	88%	680 μ F	JCH2012S24
	± 5.0 V	± 2000 mA	25 mA	3048 mA	85%	1000 μ F	JCH2012D05
	± 9.0 V	± 1111 mA	25 mA	1984 mA	85%	1000 μ F	JCH2012D09
	± 12.0 V	± 833 mA	30 mA	2000 mA	87%	1000 μ F	JCH2012D12
18-36 VDC	± 15.0 V	± 666 mA	35 mA	1984 mA	87%	420 μ F	JCH2012D15
	± 24.0 V	± 416 mA	35 mA	1984 mA	88%	330 μ F	JCH2012D24
	5.0 V	4000 mA	25 mA	992 mA	86%	1500 μ F	JCH2024S05
	9.0 V	2222 mA	20 mA	968 mA	87%	6800 μ F	JCH2024S09
	12.0 V	1666 mA	25 mA	958 mA	88%	1000 μ F	JCH2024S12
	15.0 V	1333 mA	25 mA	718 mA	88%	1000 μ F	JCH2024S15
	24.0 V	833 mA	25 mA	957 mA	89%	680 μ F	JCH2024S24
	± 5.0 V	± 2000 mA	25 mA	1004 mA	86%	6800 μ F	JCH2024D05
36-72 VDC	± 9.0 V	± 1111 mA	25 mA	980 mA	87%	2200 μ F	JCH2024D09
	± 12.0 V	± 833 mA	20 mA	1280 mA	88%	1000 μ F	JCH2024D12
	± 15.0 V	± 666 mA	25 mA	957 mA	88%	470 μ F	JCH2024D15
	± 24.0 V	± 416 mA	30 mA	967 mA	89%	470 μ F	JCH2024D24
	5.0 V	4000 mA	20 mA	562 mA	86%	15000 μ F	JCH2048S05
	9.0 V	2222 mA	20 mA	478 mA	87%	2200 μ F	JCH2048S09
	12.0 V	1666 mA	25 mA	484 mA	89%	1000 μ F	JCH2048S12
	15.0 V	1333 mA	20 mA	478 mA	89%	1000 μ F	JCH2048S15
36-72 VDC	24.0 V	833 mA	25 mA	479 mA	91%	330 μ F	JCH2048S24
	± 5.0 V	± 2000 mA	20 mA	496 mA	86%	2200 μ F	JCH2048D05
	± 9.0 V	± 1111 mA	20 mA	490 mA	87%	1000 μ F	JCH2048D09
	± 12.0 V	± 833 mA	20 mA	478 mA	89%	1000 μ F	JCH2048D12
	± 15.0 V	± 666 mA	20 mA	490 mA	89%	470 μ F	JCH2048D15
	± 24.0 V	± 416 mA	20 mA	490 mA	91%	220 μ F	JCH2048D24

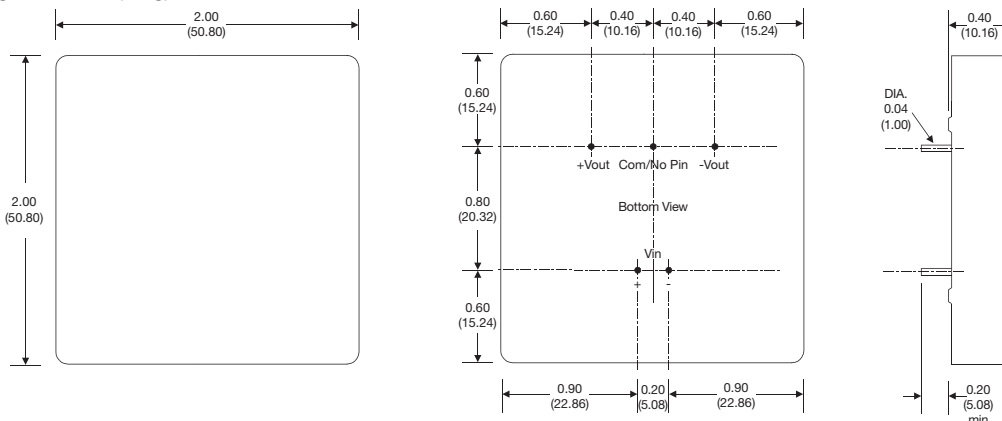
Notes

1. Measured at nominal input voltage.

2. Maximum capacitive load is per output.

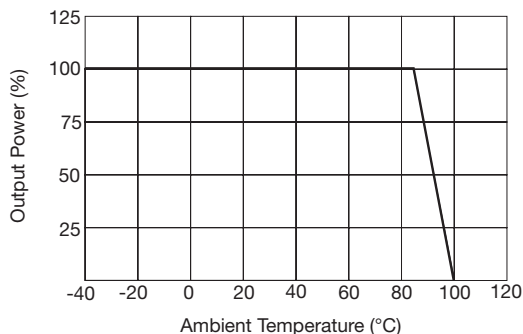
Mechanical Details

All dimensions are in inches (mm)
Weight 0.13 lbs (60 g)



Application Notes

Derating Curve



Input Filter

