

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

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|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 | <ul style="list-style-type: none"> • 35 mA rms through 12 μH inductor, 5 Hz to 20 MHz |
| 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

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|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Output Voltage | <ul style="list-style-type: none"> • See table |
| Voltage Balance | <ul style="list-style-type: none"> • \pm1.0%, dual output versions |
| Minimum Load | <ul style="list-style-type: none"> • No minimum load required |
| Line Regulation | <ul style="list-style-type: none"> • \pm0.5% max |
| Load Regulation | <ul style="list-style-type: none"> • \pm0.5% max |
| Setpoint Accuracy | <ul style="list-style-type: none"> • \pm1.0% max |
| Start Up Delay | <ul style="list-style-type: none"> • <10 ms |
| Start Up Rise Time | <ul style="list-style-type: none"> • <5 ms |
| Ripple & Noise | <ul style="list-style-type: none"> • 100 mV pk-pk for 5 V to 15 V models, 150 mV pk-pk for 24 V models, 20 MHz BW |
| Transient Response | <ul style="list-style-type: none"> • \pm5% max deviation, recovery to within 1% in 300 μs for a 25% load change |
| Temperature Coefficient | <ul style="list-style-type: none"> • 0.02%/°C |
| Overcurrent Protection | <ul style="list-style-type: none"> • 130% typical of full load at nominal input |
| Short Circuit Protection | <ul style="list-style-type: none"> • Trip & restart (hiccup mode) with auto recovery |
| Capacitive Load | <ul style="list-style-type: none"> • See table |

General

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|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| 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"> • 1000 pF typical |
| Switching Frequency | <ul style="list-style-type: none"> • 125 kHz typical |
| MTBF | <ul style="list-style-type: none"> • >600 kHrs to MIL-STD-217F |

Environmental

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|-----------------------|------------------------------------------------------------------------------------------------------------------------------|
| 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 90%, 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, 4 kV contact discharge Perf Criteria A |
| Radiated Immunity | <ul style="list-style-type: none"> • EN61000-4-6 Level 2 3 V/m Perf Criteria A |

Models and Ratings

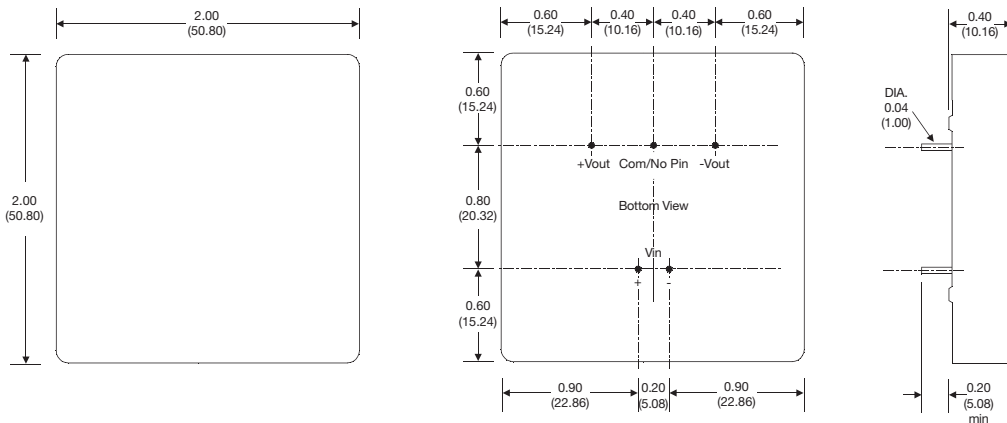
Input Voltage	Output Voltage	Output Current	Input Current ⁽¹⁾		Efficiency	Maximum Capacitive Load ⁽²⁾	Model Number
			No Load	Full Load			
9-18 VDC	5.0 V	4000 mA	20 mA	2008 mA	85%	15000 µF	JCH2012S05
	9.0 V	2222 mA	20 mA	1960 mA	85%	2200 µF	JCH2012S09
	12.0 V	1666 mA	30 mA	1960 mA	87%	1000 µF	JCH2012S12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

Notes

1. Measured at nominal input voltage.
2. Maximum capacitive load is per output.

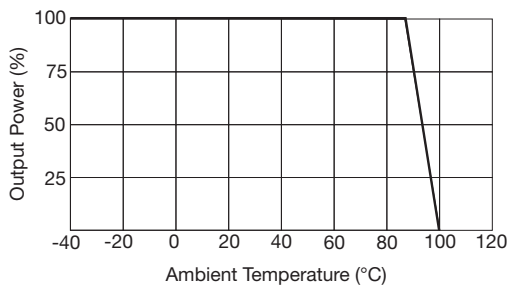
Mechanical Details

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



Application Notes

Derating Curve



Input Filter

