

JCH Series



- 2:1 Input Range
- Industry Standard Package
- 1500 VDC Isolation
- Continuous Short Circuit Protection
- -40 °C to +100 °C Operating Temperature
- UL Approved
- Single & Dual Outputs
- 3 Year Warranty

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 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

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| 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

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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"> • 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

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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 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 |

Safety

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| Safety Approvals | <ul style="list-style-type: none"> • UL60950-1, CAN/CSA C22.2 No.60950-1, UL62368-1 |
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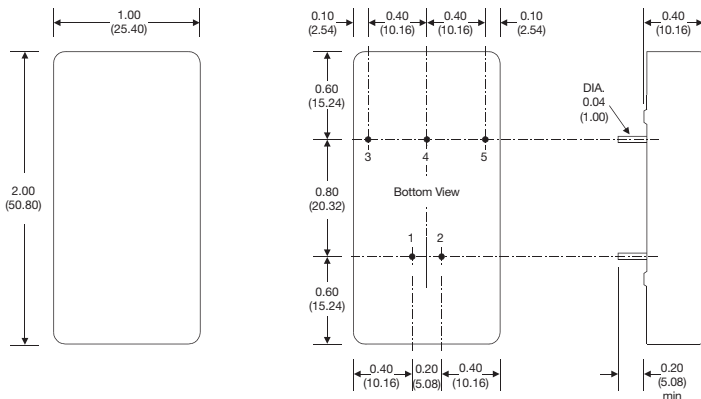
Models and Ratings

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
	±15.0 V	±333 mA	30 mA	980 mA	85%	±330 µF	JCH1012D15
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
	±15.0 V	±333 mA	25 mA	496 mA	84%	±330 µF	JCH1024D15
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.

Mechanical Details



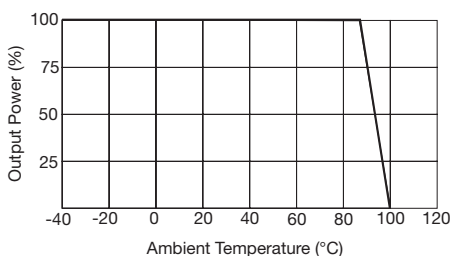
PIN CONNECTIONS		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	No Pin	Com
5	-Vout	-Vout

Notes

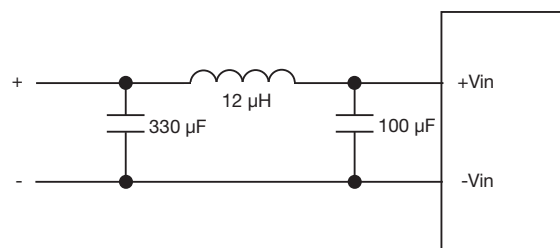
- All dimensions are in inches (mm)
- Weight: 0.07 lbs (30 g)
- Pin diameter tolerance: ±0.002 (±0.05)
- Pin pitch tolerance: ±0.014 (±0.35)
- Case tolerance: ±0.02 (±0.50)

Application Notes

Derating Curve



Input Filter



Specifications subject to change without notice.