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JCH10 series

XP Power

10W

DC-DC converters

The 10W JCH10 series is housed in a 50.8 x 25.4 x 10.2 mm (2" x 1" x 0.4") PCB mount metal case. Featuring a 2:1 input voltage range of 9 to 18VDC, 18 to 36VDC or 36 to 72VDC with regulated single outputs of 3.3, 5, 12, 15 & 24VDC and dual outputs ±3.3, ±5, ±12, ±15 ±24VDC.

The JCH10 has 1.5kVDC isolation between input and output, overload & short circuit protection is standard. Operating temperature range is from -40°C to +100°C, with derating above +85°C.



Features

- Regulated single & dual outputs
- 2:1 input range
- Single outputs 3.3 to 24VDC
- Dual outputs ±3.3, ±5, ±12 & ±15VDC
- 50.8 x 25.4mm (2" x 1") package 10.2mm profile
- 1.5kVDC isolation
- Remote On/Off
- -40°C to +100°C operating temperature
- Full power to +85°C
- 3 year warranty

Applications

Autonomous equipment

Industrial

Technology

Instrumentation

Robotics

Dimensions

50.8 x 25.4 x 10.16mm (2.00" x 1.00" x 0.40")

More resources

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Models & ratings

Model number	Input voltage	Output voltage	Output current	Input current[1]		Efficiency	Maximum capacitive load
				No load	Full load		
JCH1012S3V3	9-18VDC	3.3VDC	2000mA	30mA	705mA	78%	2200µF
JCH1012S05		5.0VDC	2000mA	30mA	1016mA	82%	2200µF
JCH1012S12		12.0VDC	833mA	30mA	992mA	84%	680µF
JCH1012S15		15.0VDC	666mA	30mA	992mA	84%	470µF
JCH1012S24		24.0VDC	416mA	30mA	980mA	85%	330µF
JCH1012D03		±3.3VDC	±1000mA	30mA	1068mA	78%	±1000µF
JCH1012D05		±5.0VDC	±1000mA	30mA	1016mA	82%	±1000µF
JCH1012D12		±12.0VDC	±416mA	30mA	992mA	84%	±470µF
JCH1012D15		±15.0VDC	±333mA	30mA	980mA	85%	±330µF
JCH1012D24		±24.0VDC	±208mA	30mA	980mA	85%	±220µF

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Notes:

1. Measured at nominal input voltage.

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Models & ratings

Model number	Input voltage	Output voltage	Output current	Input current[1]		Efficiency	Maximum capacitive load
				No load	Full load		
JCH1024S3V3	18-36VDC	3.3VDC	2000mA	25mA	352mA	78%	2200µF
JCH1024S05		5.0VDC	2000mA	25mA	508mA	82%	2200µF
JCH1024S12		12.0VDC	833mA	25mA	496mA	84%	680µF
JCH1024S15		15.0VDC	666mA	25mA	490mA	85%	470µF
JCH1024S24		24.0VDC	416mA	25mA	484mA	86%	330µF
JCH1024D03		±3.3VDC	±1000mA	25mA	352mA	78%	±1000µF
JCH1024D05		±5.0VDC	±1000mA	25mA	508mA	82%	±1000µF
JCH1024D12		±12.0VDC	±416mA	25mA	496mA	84%	±470µF
JCH1024D15		±15.0VDC	±333mA	25mA	496mA	84%	±330µF
JCH1024D24		±24.0VDC	±208mA	25mA	490mA	85%	±220µF
JCH1048S3V3	36-72VDC	3.3VDC	2000mA	20mA	176mA	78%	2200µF
JCH1048S05		5.0VDC	2000mA	20mA	251mA	83%	2200µF
JCH1048S12		12.0VDC	833mA	20mA	248mA	84%	680µF
JCH1048S15		15.0VDC	666mA	20mA	248mA	84%	470µF
JCH1048S24		24.0VDC	416mA	20mA	245mA	86%	330µF
JCH1048D03		±3.3VDC	±1000mA	20mA	176mA	78%	±1000µF
JCH1048D05		±5.0VDC	±1000mA	20mA	254mA	82%	±1000µF
JCH1048D12		±12.0VDC	±416mA	20mA	245mA	85%	±470µF
JCH1048D15		±15.0VDC	±333mA	20mA	245mA	85%	±330µF
JCH1048D24		±24.0VDC	±208mA	20mA	242mA	86%	±220µF

Notes:

1. Measured at nominal input voltage.

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range	9		18	VDC	12VDC nominal
	18		36		24VDC nominal
	36		75		48VDC nominal
Input current	See models & ratings table				
Input filter	Pi network				
Input relfected ripple current		35		mA/pk-pk	Through 12µH inductor
Input surge		25		VDC	12VDC models (for 100ms)
		50			24VDC models (for 100ms)
		100			48VDC models (for 100ms)

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	See models & ratings table				
Output voltage trim		±1		%	±2% for dual output 3.3V models
Minimum load	0			%	No minimum load required
Line regulation		±0.5		%	
Load regulation		±0.5		%	Single outpus
		±1.0			Dual outputs
Setpoint accuracy		±1.0		%	
Transient response			3	%	Deviation, recovery to within 1% in 250µs for a 25% load change
Ripple & noise		100		mV	3.3V to 15V models, measured with 20MHz bandwidth
		150			24V models, measured with 20MHz bandwidth
Overvoltage protection		140		%	Of full load
Short circuit protection	Trip & restart (hiccup) with auto recovery				
Temperature coefficient		±0.02		%/ °C	
Start up delay		<20		ms	

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General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency	See models & ratings table				
Isolation: input to output		1500		VDC	
Isolation: input to case		1000		VDC	
Isolation: output to case		1000		VDC	
Isolation capacitance		500		pF	Input to output
Switching frequency		200		kHz	
Power density		0.76 (12.5)		W/cm³ (W/in³)	
Mean time between failure		>1.1		Mhrs	MIL-HDBK-217F, +25°C GB

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+100	°C	Derate from 100% load at +85°C to 0% load at +100°C
Storage temperature	-40		+125	°C	
Case temperature			+100	°C	
Cooling	Convection cooled				
Operating humidity			95	%	RH, non condensing

Safety approvals

Certification	Standard	Notes & conditions
UL	UL62368-1, UL60950-1	
EN	CAN/CSA C22.2 No.60950-1	
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Emissions - EMC

Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55022	Class A	With external components, see application note
Radiated	EN55022	Class A	

Immunity - EMC

Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD immunity	EN61000-4-2		A	8kV contact discharge
Radiated immunity	EN61000-4-3	3V/m	A	

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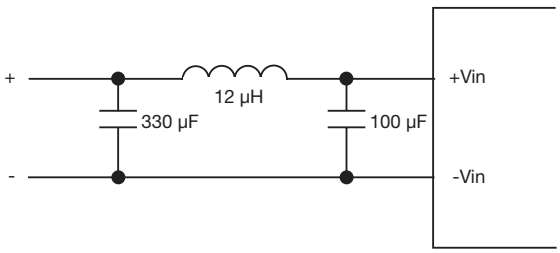
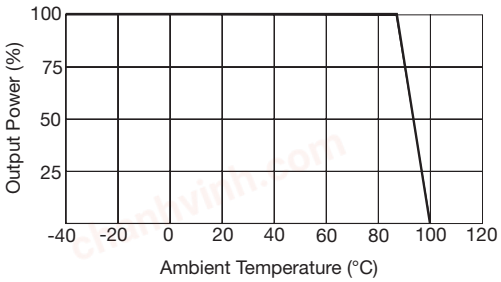
Application notes

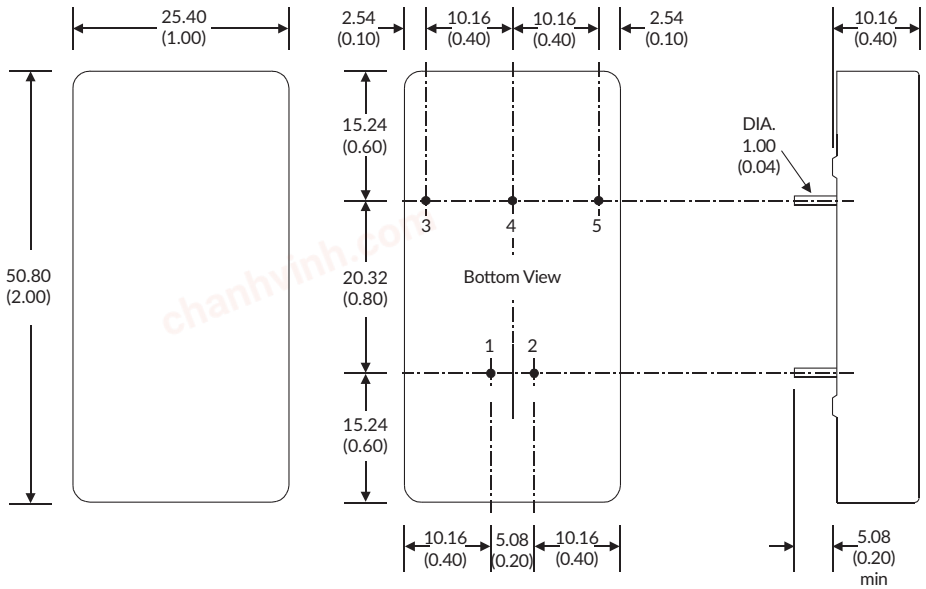
Input filter



Derating curve



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 mm (inches)
2. Weight: 30g (0.07lbs) approx.
3. Pin pitch tolerance: ±0.35 (±0.014)
4. Pin diameter tolerance: ±0.05 (±0.002)
5. Case tolerance: ±0.5 (±0.02)