Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

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Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

JHM20 Series

DC-DC Converter

XP Power

20 Watts

- International Medical Approvals
- 4000 VAC Reinforced Insulation
- 2 x MOPP at 250 VAC Working Voltage
- Medical Approval, IEC60601-1, 3rd Edition
- 2.5 µA Patient Leakage Current
- Compact 1 x 2" Footprint
- EN55011 Level A With No External Components
- 3 Year Warranty

Dimensions:

JHM20:
2.00 x 1.00 x 0.40" (50.8 x 25.4 x 10.2 mm)

Models & Ratings

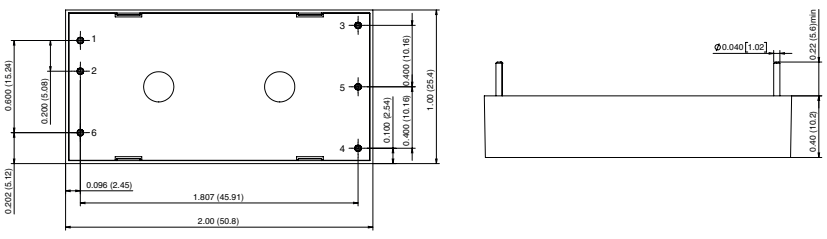
Input Voltage	Output Voltage	Output Current	Input Current		Maximum Capacitive Load[2]	Efficiency[3]	Model Number
			No Load[1]	Full Load			
9-18 V	5.0 V	4000 mA	11 mA	2552 mA	4000 µF	88%	JHM2012S05
	12.0 V	1670 mA	7 mA	2550 mA	1660 µF	88%	JHM2012S12
	15.0 V	1330 mA	7 mA	2511 mA	1330 µF	89%	JHM2012S15
	±5.0 V	±2000 mA	7 mA	2630 mA	±2000 µF	86%	JHM2012D05
	±12.0 V	±835 mA	10 mA	2537 mA	±800 µF	88%	JHM2012D12
	±15.0 V	±665 mA	11 mA	2512 mA	±660 µF	89%	JHM2012D15
18-36 V	5.0 V	4000 mA	7 mA	1251 mA	4000 µF	89%	JHM2024S05
	12.0 V	1670 mA	5 mA	1262 mA	1660 µF	88%	JHM2024S12
	15.0 V	1330 mA	6 mA	1252 mA	1330 µF	89%	JHM2024S15
	±5.0 V	±2000 mA	5 mA	1305 mA	±2000 µF	86%	JHM2024D05
	±12.0 V	±835 mA	7 mA	1256 mA	±800 µF	88%	JHM2024D12
	±15.0 V	±665 mA	8 mA	1244 mA	±660 µF	89%	JHM2024D15
36-75 V	5.0 V	4000 mA	4 mA	635 mA	4000 µF	88%	JHM2048S05
	12.0 V	1670 mA	3 mA	627 mA	1660 µF	88%	JHM2048S12
	15.0 V	1330 mA	4 mA	627 mA	1330 µF	88%	JHM2048S15
	±5.0 V	±2000 mA	4 mA	653 mA	±2000 µF	85%	JHM2048D05
	±12.0 V	±835 mA	4 mA	625 mA	±800 µF	89%	JHM2048D12
	±15.0 V	±665 mA	5 mA	626 mA	±660 µF	88%	JHM2048D15

Notes

1. Input current measured at lowest input voltage.
2. Maximum capacitive load is per output.
3. Typical values.

Mechanical Details

BOTTOM VIEW



Pin Connections		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	Trim	-Vout
5	-Vout	Common
6	No Pin	No Pin

Notes

1. All dimensions are in inches (mm)
2. Weight: 0.066 lbs (30 g) approx.
3. Pin diameter: 0.04 ±0.002 (1.02 ±0.05)
4. Pin pitch tolerance: ±0.01 (±0.25)
5. Case tolerance: ±0.02 (±0.5)

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage Range	9		18	VDC	12 V nominal
	18		36	VDC	24 V nominal
	36		75	VDC	48 V nominal
Input Current					See Models and Ratings table
Inrush Current			25	A	at Maximum Input Voltage
Input Filter	Pi type				
Undervoltage Lockout	On at >8.8 V. Off <8.4 V				12 V models
	On at >17.5 V. Off <17.0 V				24 V models
	On at >35.2 V. Off <33.2 V				48 V models
Input Surge			25	VDC	12 V models for 3 s
			50	VDC	24 V models for 3 s
			100	VDC	48 V models for 3 s

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage	5		30	V	See Models and Ratings table
Output Voltage Trim			±10	%	Via external resistors, see Application Notes
Initial Set Accuracy			±1	%	on V1
			±2	%	on V2 of dual output models
Minimum Load	0			A	No minimum load required
Start Up Delay		5		ms	
Start Up Rise Time		2		ms	
Line Regulation			±0.3	%	
Load Regulation			±2	%	0 - 10% load
			±1	%	10 - 100% load
Cross Regulation			±4	%	On dual output models with one output set to 50% load and the other varied from 10% to 100% load (D05 20% to 100%)
Transient Response			4	% deviation	Recovery to within 1% in <500 µs for a 50% load change at 0.25 A/µs rate
Ripple & Noise			1	% pk-pk	20 MHz bandwidth
Short Circuit Protection					Trip & Restart (hiccup mode), auto recovery
Overload Protection	120		200	%	Trip & Restart (hiccup mode)
Overvoltage Protection	115		140	%	Non latching, auto recovery
Temperature Coefficient			0.03	%/°C	

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		88		%	See Models and Ratings table
Isolation	4000			VAC	For 1 min. Double/reinforced with a working voltage of 250 VAC. Meets 2 x MOPP per 3rd edition of IEC60601-1 5000 VAC for 10 ms in accordance with IEC60664-1
Leakage Current			2.5	µA	
Input to Output Capacitance			30	pF	
Switching Frequency		250		kHz	
Power Density			25	W/in^3	
Mean Time Between Failure		>1		MHrs	MIL-HDBK-217F, +25 °C GB
Weight		0.066 (30.0)		lb (g)	

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature	-40		+80	°C	See derating curve
Storage Temperature	-55		+100	°C	
Case Temperature			+100	°C	
Humidity	5		90	%RH	Non-condensing
Cooling					Natural convection
Shock	±3 shocks in each plane, total 18 shocks of 30 g : 11 ms halfsine. Conforms to EN60068-2-27 & EN60068-2-47				
Vibration	10-500 Hz at 2 g sweep and endurance at resonance in all 3 planes. Conforms to EN60068-2-6				

EMC: Emissions

Phenomenon	Standard	Test Level	Notes & Conditions
Conducted	EN55011	Level A	
Radiated	EN55011	Level A	

EMC: Immunity

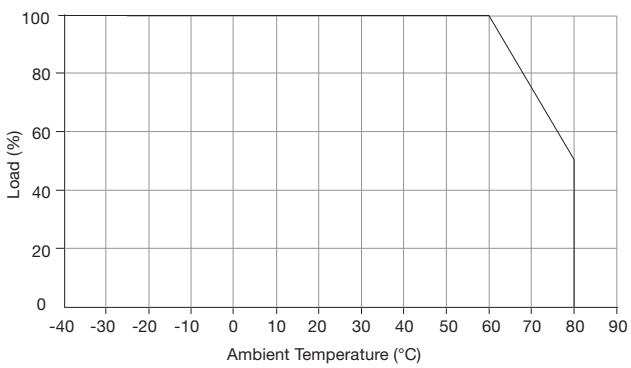
Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
Immunity	IEC60601-1-2			
ESD Immunity	EN61000-4-2	2	A	
Radiated Immunity	EN61000-4-3	10 V/m	A	
EFT/Burst	EN61000-4-4	2	A	
Surges	EN61000-4-5	1	A	
Conducted Immunity	EN61000-4-6	10 Vm	A	
Magnetic Fields	EN61000-4-8	3 A/m	A	

Safety Approvals

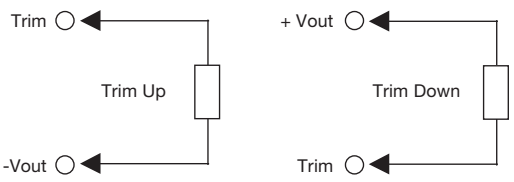
Safety Agency	Safety Standard	Notes & Conditions
CB Report	IEC60601-1 Including Risk Management	Medical
UL	ANSI/AAMI ES60601-1 & CSA C22.2, No.60601-1	Medical

Application Notes

Derating Curve



External Output Trim



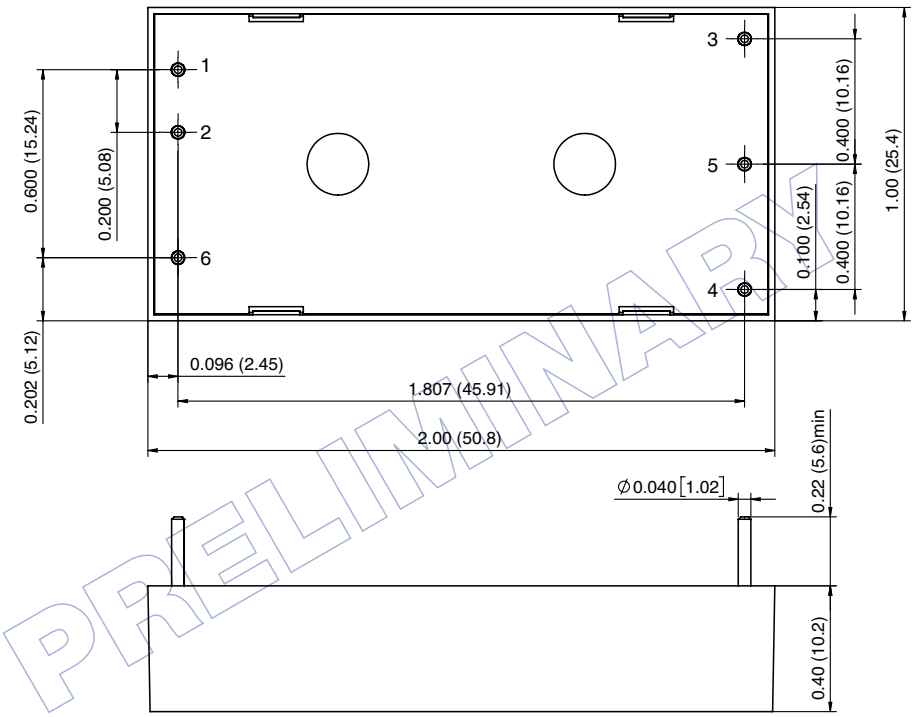
For 5 V output:
Trim +10%, R = 3.4 k typical
Trim -10%, R = 1.1 k typical

For 12 V output:
Trim +10%, R = 5.9 k typical
Trim -10%, R = 11.3 k typical

For 15 V output:
Trim +10%, R = 8.4 k typical
Trim -10%, R = 10.4 k typical

Mechanical Details

BOTTOM VIEW



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3	+Vout	+Vout
4	Trim	-Vout
5	-Vout	Common
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Notes

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