



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

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



JHM10 Series



- International Medical Approvals
- 4000 VAC Reinforced Insulation
- Meets IEC60601-1, 3rd Edition
- 2 μ A Patient Leakage Current
- DIP-24 Package
- EN55011 Level A With No External Components
- 3 Year Warranty

Specification

Input

Input Voltage Range	<ul style="list-style-type: none"> • 5 V (4.5-9 VDC) • 12 V (9-18 VDC) • 24 V (18-36 VDC)
Input Current	<ul style="list-style-type: none"> • See table
Inrush Current	<ul style="list-style-type: none"> • 20 A max at 36 V
Input Filter	<ul style="list-style-type: none"> • Pi network
Patient Leakage Current	<ul style="list-style-type: none"> • 2 μA max
Undervoltage Lockout	<ul style="list-style-type: none"> • 5 V models, on at >4.4 V, off <4.2 V • 12 V models, on at >8.8 V, off <8.3 V • 24 V models, on at >17.5 V, off <17.0 V
Input Surge	<ul style="list-style-type: none"> • 5 V models 15 V for 3 s • 12 V models 25 V for 3 s • 24 V models 50 V for 3 s

Output

Output Voltage	<ul style="list-style-type: none"> • See table
Output Voltage Trim	<ul style="list-style-type: none"> • \pm10%
Minimum Load	<ul style="list-style-type: none"> • No minimum load required
Initial Set Accuracy	<ul style="list-style-type: none"> • \pm1% max on V1, \pm2% max on V2
Start Up Delay	<ul style="list-style-type: none"> • 5 ms typical
Start Up Rise Time	<ul style="list-style-type: none"> • 2 ms typical
Line Regulation	<ul style="list-style-type: none"> • \pm0.3% max
Load Regulation	<ul style="list-style-type: none"> • \pm2% max 0% to 10% load, \pm1% max 10% to 100% load
Cross Regulation	<ul style="list-style-type: none"> • \pm4% max on dual with one output set to 50% load and the other varied from 10% to 100% load (D05 is 20% to 100%)
Transient Response	<ul style="list-style-type: none"> • 4% max deviation, recovery to within 1% in <500 μs for a 50% load change at 0.25 A/μs rate
Ripple & Noise	<ul style="list-style-type: none"> • 1% pk-pk max at 20 MHz bandwidth
Overload Protection	<ul style="list-style-type: none"> • 120% - 200%, trip and restart
Overvoltage Protection	<ul style="list-style-type: none"> • 115% - 140%
Temperature Coefficient	<ul style="list-style-type: none"> • \pm0.03/$^{\circ}$C max
Short Circuit Protection	<ul style="list-style-type: none"> • Trip and Restart (hiccup mode), auto recovery

General

Efficiency	<ul style="list-style-type: none"> • See tables
Isolation	<ul style="list-style-type: none"> • 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
Input to Output Capacitance	<ul style="list-style-type: none"> • 20 pF max
Switching Frequency	<ul style="list-style-type: none"> • 80 kHz to 1.2 MHz variable
Power Density	<ul style="list-style-type: none"> • 20.0 W/in³
MTBF	<ul style="list-style-type: none"> • >1 Mhrs typical to MIL-STD-217F at 25 $^{\circ}$C, GB

Environmental

Operating Temperature	<ul style="list-style-type: none"> • -40 $^{\circ}$C to +80 $^{\circ}$C, see derating curve
Case Temperature	<ul style="list-style-type: none"> • +100 $^{\circ}$C max
Storage Temperature	<ul style="list-style-type: none"> • -40 $^{\circ}$C to +100 $^{\circ}$C
Operating Humidity	<ul style="list-style-type: none"> • 5-90%, non-condensing
Cooling	<ul style="list-style-type: none"> • Natural convection

EMC & Safety

Emissions	<ul style="list-style-type: none"> • EN55011 & EN55022 level A conducted & radiated with no external components
Immunity	<ul style="list-style-type: none"> • IEC60601-1-2, EN61204-3
ESD Immunity	<ul style="list-style-type: none"> • EN61000-4-2, level 2, Perf Criteria A
Radiated Immunity	<ul style="list-style-type: none"> • EN61000-4-3, 10 V/m Perf Criteria A
EFT/Burst	<ul style="list-style-type: none"> • EN61000-4-4, level 2 Perf Criteria A
Surge	<ul style="list-style-type: none"> • EN61000-4-5, level 1 Perf Criteria A
Conducted Immunity	<ul style="list-style-type: none"> • EN61000-4-6, 10 Vm, Perf Criteria A
Magnetic Field	<ul style="list-style-type: none"> • EN61000-4-8, 3 A/m Perf Criteria A
Safety Approvals	<ul style="list-style-type: none"> • ANSI/AMMI ES60601-1 3rd Edition CSA-22.2 No.60601-1:2008 IEC60601-1 3rd Edition

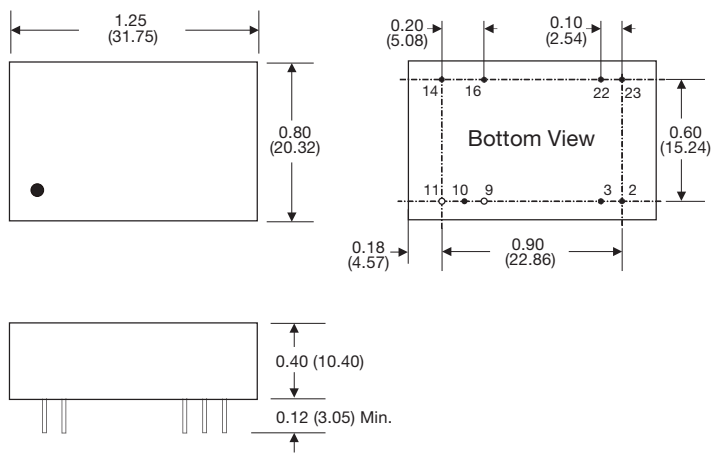
Models and Ratings

Input Voltage	Output Voltage	Output Current	Input Current		Maximum Capacitive Load	Efficiency ⁽³⁾	Model Number
			No Load ⁽¹⁾	Full Load ⁽²⁾			
4.5-9 V	5.0 V	2000 mA	100 mA	2690 mA	2200 μ F	83.5%	JHM1005S05
	12.0 V	833 mA	115 mA	2640 mA	1000 μ F	85.0%	JHM1005S12
	15.0 V	666 mA	115 mA	2640 mA	680 μ F	85.0%	JHM1005S15
	\pm 5.0 V	\pm 1000 mA	130 mA	2760 mA	\pm 1000 μ F	81.5%	JHM1005D05
	\pm 12.0 V	\pm 420 mA	115 mA	2695 mA	\pm 470 μ F	84.0%	JHM1005D12
	\pm 15.0 V	\pm 333 mA	115 mA	2670 mA	\pm 470 μ F	84.0%	JHM1005D15
9-18 V	5.0 V	2000 mA	50 mA	1310 mA	2200 μ F	86.0%	JHM1012S05
	12.0 V	833 mA	50 mA	1280 mA	1000 μ F	88.0%	JHM1012S12
	15.0 V	666 mA	50 mA	1265 mA	680 μ F	89.0%	JHM1012S15
	\pm 5.0 V	\pm 1000 mA	50 mA	1345 mA	\pm 1000 μ F	84.0%	JHM1012D05
	\pm 12.0 V	\pm 420 mA	50 mA	1290 mA	\pm 470 μ F	88.0%	JHM1012D12
	\pm 15.0 V	\pm 333 mA	50 mA	1280 mA	\pm 470 μ F	88.0%	JHM1012D15
18-36 V	5.0 V	2000 mA	25 mA	645 mA	2200 μ F	87.0%	JHM1024S05
	12.0 V	833 mA	20 mA	630 mA	1000 μ F	89.0%	JHM1024S12
	15.0 V	666 mA	20 mA	630 mA	680 μ F	89.0%	JHM1024S15
	\pm 5.0 V	\pm 1000 mA	20 mA	660 mA	\pm 1000 μ F	85.0%	JHM1024D05
	\pm 12.0 V	\pm 420 mA	25 mA	640 mA	\pm 470 μ F	88.0%	JHM1024D12
	\pm 15.0 V	\pm 333 mA	25 mA	635 mA	\pm 470 μ F	88.0%	JHM1024D15

Notes

1. Input current measured at nominal input voltage.
2. Input current measured at lowest input voltage.
3. Typical values.

Mechanical Details



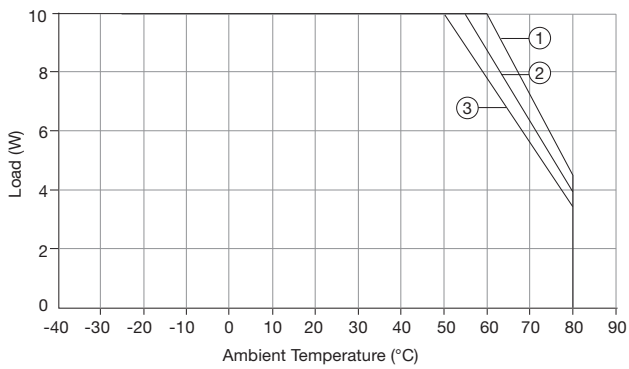
Pin	Pin Connections	
	Single	Dual
2	-Vin	-Vin
3	-Vin	-Vin
9	No Pin	Common
10	Trim	Trim
11	No Pin	-Vout
14	+Vout	+Vout
16	-Vout	Common
22	+Vin	+Vin
23	+Vin	+Vin

Notes

1. All dimensions are in inches (mm)
2. Weight: 0.04 lbs (20 g) approx.
3. Pin diameter: 0.02 \pm 0.002 (0.5 \pm 0.05)
4. Pin pitch tolerance: \pm 0.01 (\pm 0.25)
5. Case tolerance: \pm 0.02 (\pm 0.5)

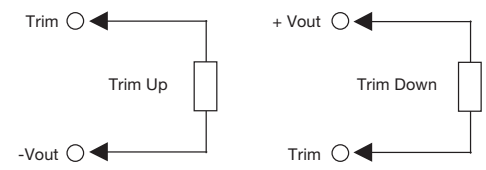
Application Notes

Derating Curve



- ① JHM1012/24 S05, S12, S15, D12, D15
- ② JHM1012/24 D05, JHM1005S05, S12, S15, D12, D15
- ③ JHM1005D05

External Output Trim



For 5 V output:
 Trim +10%, R = 3.4 k typical
 Trim -10%, R = 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 = 8.3 k typical
 Trim -10%, R = 10 k typical

For \pm 5 V output:
 Trim +10%, R = 12.0 k typical
 Trim -10%, R = 8.0 k typical

For \pm 12 V output:
 Trim +10%, R = 12.8 k typical
 Trim -10%, R = 9.5 k typical

For \pm 15 V output:
 Trim +10%, R = 18 k typical
 Trim -10%, R = 14.8 k typical