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JCM30 series

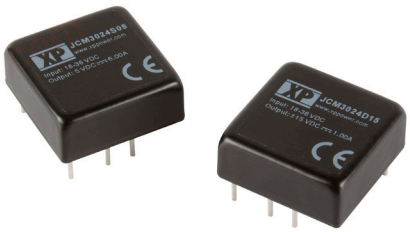
XP Power

30W Convection cooled

DC-DC converters

The 30W JCM30 series is housed in a 25.4 x 25.4 x 10.4 mm (1” x 1” x 0.41”) PCB mount metal case. Featuring a 2:1 input voltage range of 9 to 18VDC 18 to 36VDC or 36 to 75VDC with regulated single outputs of 3.3, 5, 12 & 15VDC adjustable +/-10% with a trim resistor, dual outputs ±12 & ±15VDC.

The JCM30 has 1.6kVDC isolation between input and output. Remote on/off is standard as are overload & over voltage protection. Operating temperature range is from -40°C to +100°C, with derating above +55°C. An optional heatsink (suffix -HK) is available.



Features

- Regulated single outputs from 3.3 to 15VDC
- Regulated dual outputs ±12 & ±15VDC
- 2:1 input range
- Input ranges 9 to 18, 16 to 36, 36 to 75VDC
- 25.4 x 25.4mm (1» x 1») package, 10.4mm profile
- 1.6kVDC isolation
- Remote On/Off
- -40°C to +100°C operating temperature
- Full power to +55°C
- 3 year warranty

Applications

Autonomous equipment

Industrial

Technology

Instrumentation

Robotics

Dimensions

25.4 x 25.0 x 10.4mm (1.0” x 210” x 0.41”)

Documentation

Click the link or scan the code

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Models & ratings

Model number(3)	Input voltage	Output voltage	Output current	Efficiency	Input current(1)		OVP setting	Maximum capacitive load
					No load	Full load		
JCM3012S3V3	9-18VDC	3.3VDC	7.0A	87%	10 mA	2215mA	3.9V	10000µF
JCM3012S05		5.0VDC	6.0A	89%	10 mA	2810mA	6.2V	7200µF
JCM3012S12		12.0VDC	2.5A	89%	12 mA	2810mA	15.0V	1200µF
JCM3012S15		15.0VDC	2.0A	89%	12 mA	2810mA	18.0V	1000µF
JCM3012D12		±12.0 VDC	±1.25A	89%	12 mA	2810mA	±15.0V	±750µF
JCM3012D15		±15.0VDC	±1.0A	90%	14 mA	2780mA	±18.0V	±500µF

Continued on page 2

Notes:

1. Input currents measured at nominal input voltage.
2. Maximum capacitive load is per output.
3. Add suffix ‘-HK’ for optional Heat Sink.

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Models & ratings

Model number[3]	Input voltage	Output voltage	Output current	Efficiency	Input current[1]		OVP setting	Maximum capacitive load
					No load	Full load		
JCM3024S3V3	18-36VDC	3.3VDC	7.0A	87%	10 mA	1105 mA	3.9V	10000µF
JCM3024S05		5.0VDC	6.0A	90%	10 mA	1390 mA	6.2V	7200µF
JCM3024S12		12.0VDC	2.5A	91%	10 mA	1375 mA	15.0V	1200µF
JCM3024S15		15.0VDC	2.0A	91%	10 mA	1375 mA	18.0V	1000µF
JCM3024D12		±12.0 VDC	±1.25A	91%	10 mA	1375 mA	±15.0V	±750µF
JCM3024D15		±15.0VDC	±1.0A	92%	10 mA	1375 mA	±18.0V	±500µF
JCM3048S3V3	36-75VDC	3.3VDC	7.0A	88%	8 mA	545 mA	3.9V	10000µF
JCM3048S05		5.0VDC	6.0A	90%	8 mA	695 mA	6.2V	7200µF
JCM3048S12		12.0VDC	2.5A	90%	8 mA	695 mA	15.0V	1200µF
JCM3048S15		15.0VDC	2.0A	91%	8 mA	685 mA	18.0V	1000µF
JCM3048D12		±12.0 VDC	±1.25A	91%	8 mA	685 mA	±15.0V	±750µF
JCM3048D15		±15.0VDC	±1.0A	92%	8 mA	680 mA	±18.0V	±500µF

Notes:

1. Input currents measured at nominal input voltage.
2. Maximum capacitive load is per output.
3. Add suffix '-HK' for optional Heat Sink.

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 reflected ripple current		30		mA/pk-pk	Through 12µH inductor and 47µF capacitor
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	3.3		30	VDC	See models and ratings table
Output Trim	±10			%	Single outputs models only
Initial Set Accuracy	0		±1	%	At full load
Minimum Load	No minimum load required				
Line Regulation			±0.5	%	From minimum to maximum input at full load
Load regulation			0.5/1.0	%	From 0% to full load for single/dual output
Cross Regulation			±5	%	On dual output models, when one output is at 100% load and other is varied from 25% load to full load
Ripple & Noise			75/60	mV pk-pk	Single output 10 µF X7R MLCC Dual output with 10µF/25 V X7R MLCC on each output measured using 20MHz bandwidth
Overload Protection		150		%	
Short Circuit Protection	Continuous trip and restart (hiccup), with auto recovery				
Maximum Capacitive Load	See models and ratings table				
Temperature Coefficient			0.02	%/°C	
Over Protection Voltage	See models and ratings table				
Remote On/Off		Output is on if remote on/off (pin 3) is open or high (3.0 to 12 VDC) Output turns off if remote on/off (pin 3) is low (<1.2 VDC max)			

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DC-DC converters

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency		90		%	See models & ratings table
Isolation: input to output	1600			VDC	
Isolation: input to case	1600			VDC	
Switching frequency		270		kHz	3.3 and 5.0V
		330			Other models
Isolation resistance	10^9			Ω	
Isolation capacitance			2000	pF	
Power density			4.45 (73)	W/cm³ (W/in³)	
Mean time between failure	370			kHrs	MIL-HDBK-217F, +25°C GB
Weight		19.0 (0.042)		g (lbs)	

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+105	°C	See derating curve
Storage temperature	-40		+125	°C	
Case temperature			+105	°C	
Cooling	Natural convection				
Humidity			95	%	Non condensing

Safety approvals

Safety agency	Standard	Notes & conditions
UL	UL60950-1, UL62368-1/CSA C22.2 No. 62368-1	
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Emissions - EMC

Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55032	Class A	See application notes
Radiated	EN55032	Class A	

Immunity - EMC

Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD immunity	EN61000-4-2	±6kV/±8kV	A	Contact/Air Discharge
Radiated immunity	EN61000-4-3	20V/m	A	
EFT/Burst	EN61000-4-4	2kV	A	External input filter required, see applications note
Surge	EN61000-4-5	2kV	A	External input filter required, see applications note
Conducted immunity	EN61000-4-6	10V	A	
Magnetic fields	EN61000-4-8	100A/m	A	

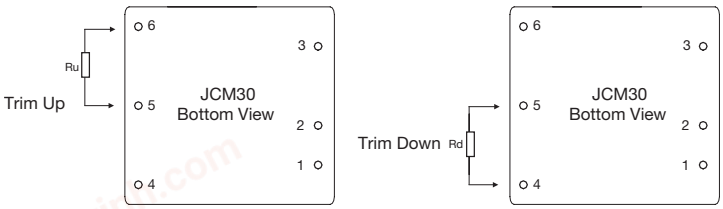
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DC-DC converters

Application notes

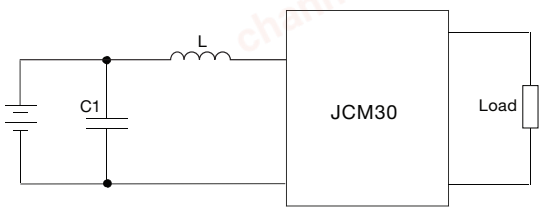
External output trimming



Trim down resistor values (Rd)										
Model	**1%**	**2%**	**3%**	**4%**	**5%**	**6%**	**7%**	**8%**	**9%**	**10%**
3V3	817.5Ωk	362.2Ωk	362.2Ωk	215.4Ωk	143.0Ωk	99.7Ωk	71.1Ωk	35.3Ωk	23.4Ωk	14.0Ωk
5V	119.9Ωk	63.6Ωk	63.6Ωk	40.4Ωk	27.7Ωk	19.7Ωk	14.2Ωk	7.1Ωk	4.7Ωk	2.7Ωk
12V	345.0Ωk	164.8Ωk	164.8Ωk	98.9Ωk	64.6Ωk	43.7Ωk	29.6Ωk	11.7Ωk	5.7Ωk	0.87Ωk
15V	174.3Ωk	91.1Ωk	91.1Ωk	56.6Ωk	37.7Ωk	25.8Ωk	17.6Ωk	7.0Ωk	3.5Ωk	0.55Ωk

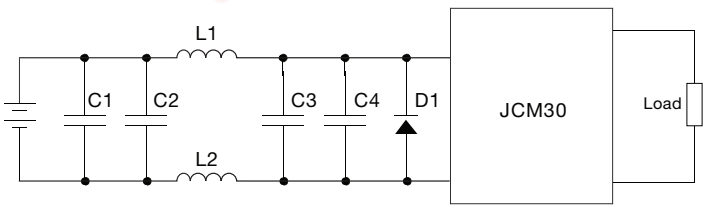
Trim up resistor values (Ru)										
Model	**1%**	**2%**	**3%**	**4%**	**5%**	**6%**	**7%**	**8%**	**9%**	**10%**
3V3	567.6Ωk	567.6Ωk	158.5Ωk	105.5Ωk	73.5Ωk	52.1Ωk	36.8Ωk	25.2Ωk	16.3Ωk	9.1Ωk
5V	618.0Ωk	618.0Ωk	133.3Ωk	93.4Ωk	70.9Ωk	56.4Ωk	46.4Ωk	38.9Ωk	33.2Ωk	28.7Ωk
12V	1015.7Ωk	1015.7Ωk	280.6Ωk	199.8Ωk	152.4Ωk	121.2Ωk	99.1Ωk	82.6Ωk	69.9Ωk	59.7Ωk
15V	661.5Ωk	661.5Ωk	134.0Ωk	91.0Ωk	66.8Ωk	51.3Ωk	40.4Ωk	32.5Ωk	26.4Ωk	21.5Ωk

EMI filter (only required for 12V input versions)



C1 = 1206, 335k/50V, X7R
L = 0.82µH

EFT/surge filter

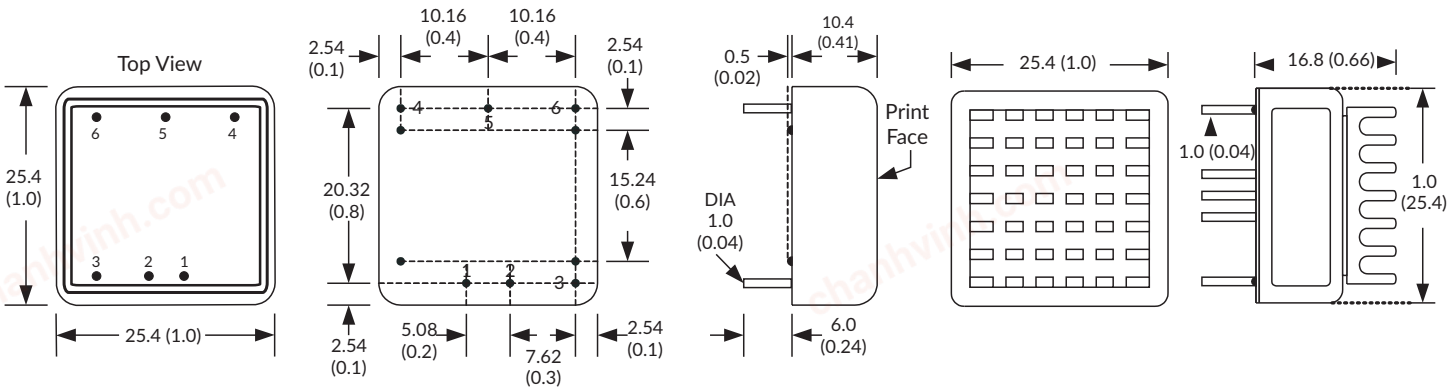


	C1	C2	L1	L2	C3	C4	D1
JCM3012	330 µF/100 V	470 µF/100 V	1 µH	1 µH	330 µF/100 V	470 µF/100 V	None
JCM3024	330 µF/100 V	None	Short	Short	None	None	TVS, 58 V, 3 kW
JCM3048	330 µF/100 V	None	Short	Short	None	None	TVS, 120 V, 3 kW

JCM30 series

DC-DC converters

Mechanical details



Pin connections					
Pin	**Single**	**Dual**	**Pin**	**Single**	**Dual**
1	+Vin	+Vin	4	+Vout	+Vout
2	-Vin	-Vin	5	Trim	Common
3	Remote On/Off	Remote On/Off	6	-Vout	-Vout

Notes:

1. All dimensions are in mm (inches)
2. Weight: 19g (0.042lbs) approx.
3. Pin diameter: 1.0 ±0.05 (0.04 ±0.002)
4. Pin pitch tolerance: ±0.35 (±0.014)
5. Case tolerance: ±0.5 (±0.02)