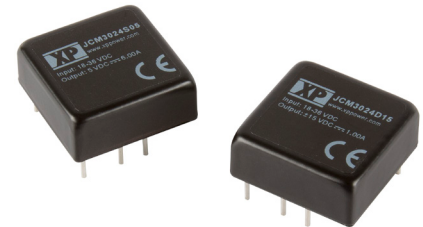


30W Convection cooled

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 & ± 15 VDC.

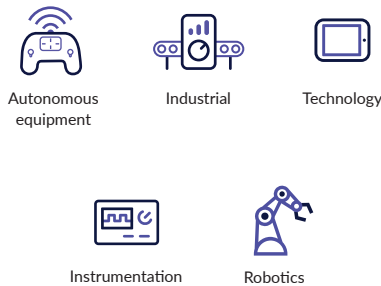
The JCM30 has 1.6kVDC isolation between input and output. Remote on/off is standard as are overload & over voltage protection. Operating temperature range is from -40°C to +100°C, with derating above +55°C. An optional heatsink (suffix -HK) is available.



Features

- ▶ Regulated single outputs from 3.3 to 15VDC
- ▶ Regulated dual outputs ± 12 & ± 15 VDC
- ▶ 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



Dimensions

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

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	10000 μ F
JCM3012S05		5.0VDC	6.0A	89%	10 mA	2810mA	6.2V	7200 μ F
JCM3012S12		12.0VDC	2.5A	89%	12 mA	2810mA	15.0V	1200 μ F
JCM3012S15		15.0VDC	2.0A	89%	12 mA	2810mA	18.0V	1000 μ F
JCM3012D12		± 12.0 VDC	± 1.25 A	89%	12 mA	2810mA	± 15.0 V	± 750 μ F
JCM3012D15		± 15.0 VDC	± 1.0 A	90%	14 mA	2780mA	± 18.0 V	± 500 μ F

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.

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		±12.0VDC	±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		±12.0VDC	±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)			

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/cm ³ (W/in ³)	
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

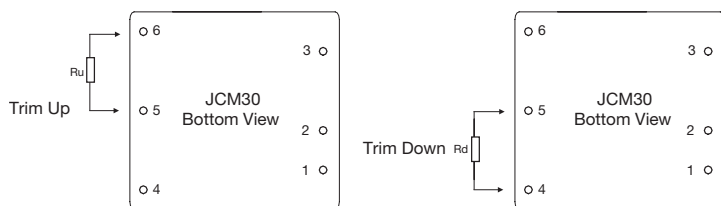
Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55032	Class A	See application notes
Radiated	EN55032	Class A	

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	

Application notes

External output trimming



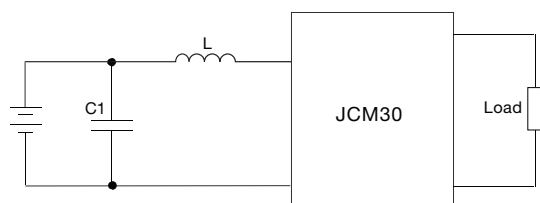
Trim down resistor values (R_d)

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

Trim up resistor values (R_u)

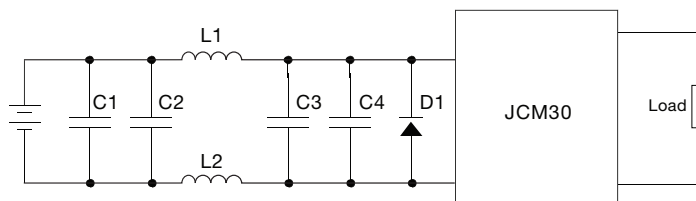
Model	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
3V3	567.6 Ω k	567.6 Ω k	158.5 Ω k	105.5 Ω k	73.5 Ω k	52.1 Ω k	36.8 Ω k	25.2 Ω k	16.3 Ω k	9.1 Ω k
5V	618.0 Ω k	618.0 Ω k	133.3 Ω k	93.4 Ω k	70.9 Ω k	56.4 Ω k	46.4 Ω k	38.9 Ω k	33.2 Ω k	28.7 Ω k
12V	1015.7 Ω k	1015.7 Ω k	280.6 Ω k	199.8 Ω k	152.4 Ω k	121.2 Ω k	99.1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

EMI filter (only required for 12V input versions)



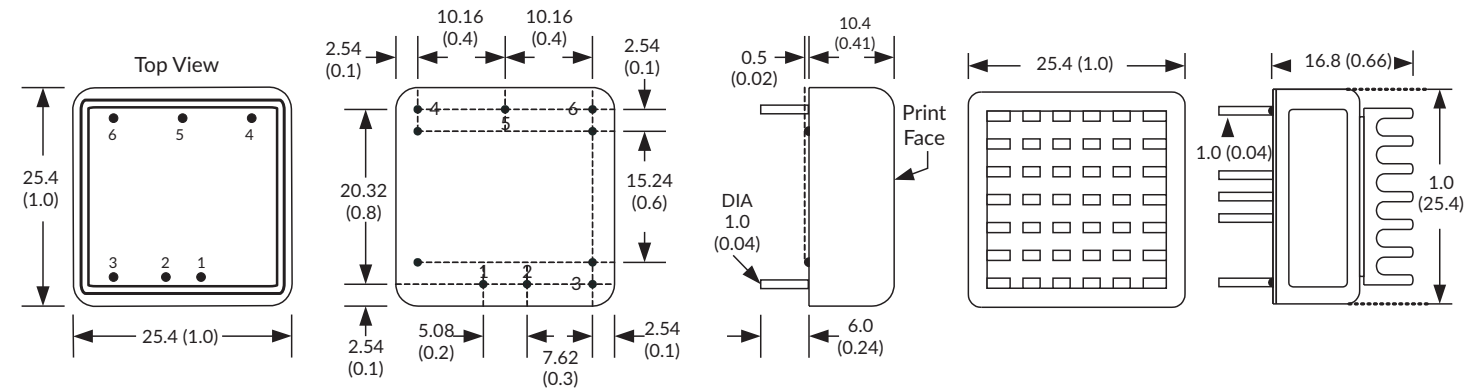
$C1 = 1206, 335k/50V, X7R$
 $L = 0.82\mu H$

EFT/surge filter



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

Mechanical details



Pin connections					
Pin	Single	Dual	Pin	Single	Dual
1	+Vin	+Vin	4	+Vout	+Vout
2	-Vin	-Vin	5	Trim	No Pin
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)

Specifications subject to change without notice.