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JSM10 series

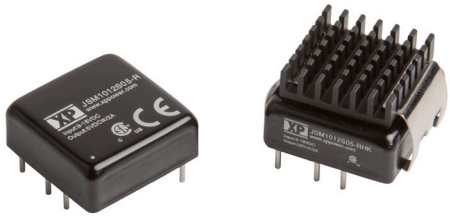
XP Power

10W

DC-DC converters

The 10W JSM10 series is housed in a 25.4 x 25.4 x 10.2 mm (1" 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 75VDC with regulated single outputs of 3.3, 5, 12 & 15VDC, dual outputs are ±12 or ±15VDC.

The JSM10 has 1.5kVDC isolation between input and output. Overload & short circuit protection are standard, an optional heatsink (suffix -HK) can be specified, remote on/off (suffix -R) is also an option. Operating temperature range is from -40°C to +100°C, with derating above +60°C.



Features

- Regulated single outputs from 3.3 to 15VDC
- Regulated dual outputs ±12 & ±15VDC
- 2:1 input range
- Input ranges 9 to 18, 18 to 36, 36 to 75VDC
- 25.4 x 25.4mm (1" x 1") package, 10.2mm profile
- 1.5kVDC isolation
- Optional remote On/Off
- Optional heatsink
- -40°C to +100°C operating temperature
- Full power to +65°C
- 3 year warranty

Applications

Autonomous equipment

Industrial

Technology

Dimensions

25.4 x 25.4 x 10.16mm (1.0" x 1.0 " x 0.4")

Documentation

For further information click the link or scan the code

→ xppower.com

Models & ratings

Model number[3]	Input voltage	Output voltage	Output current	Efficiency	Input current[1]		Maximum capacitive load[2]
					No load	Full load	
JSM1012S3V3	9-18VDC	3V3VDC	2.50A	82%	15mA	840mA	4700µF
JSM1012S05		5.0VDC	2.00A	85%		980mA	2200µF
JSM1012S05V1		5.1VDC	2.00A	85%		1000mA	2200µF
JSM1012S12		12.0VDC	0.83A	87%		955mA	330µF
JSM1012S15		15.0VDC	0.67A	88%		950mA	220µF
JSM1012D05		±5.0VDC	±1.00A	84%		990mA	±1000µF
JSM1012D12		±12.0VDC	±0.416A	87%		955mA	±150µF
JSM1012D15		±15.0VDC	±0.333A	87%		955mA	±100µF

Continued on page 2

Notes:

1. Input currents measured at nominal input voltage.
2. Input current is typically 5mA at nominal input voltage when output is turned off with optional remote on/off.
3. Maximum capacitive load is per output.
4. Add suffix "-R" for optional remote on/off, "-HK" for optional heatsink or "-RHK" for optional remote on/off and heatsink.
5. Standard tube quantity: 10

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Models & ratings

Model number[3]	Input voltage	Output voltage	Output current	Efficiency	Input current[1]		Maximum capacitive load[2]
					No load	Full load	
JSM1024S3V3	18-36VDC	3V3VDC	2.50A	83%	12mA	415mA	4700µF
JSM1024S05		5.0VDC	2.00A	85%		490mA	2200µF
JSM1024S5V1		5.1VDC	2.00A	85%		500mA	2200µF
JSM1024S12		12.0VDC	0.83A	88%		470mA	330µF
JSM1024S15		15.0VDC	0.67A	89%		470mA	220µF
JSM1024D05		±5.0VDC	±1.00A	85%		490mA	±1000µF
JSM1024D12		±12.0VDC	±0.416A	88%		475mA	±150µF
JSM1024D15		±15.0VDC	±0.333A	89%		470mA	±100µF
JSM1048S3V3	36-75VDC	3V3VDC	2.50A	83%	10mA	205mA	4700µF
JSM1048S05		5.1VDC	2.00A	86%		240mA	2200µF
JSM1048S5V1		5.0VDC	2.00A	85%		250mA	2200µF
JSM1048S12		12.0VDC	0.83A	89%		235mA	330µF
JSM1048S15		15.0VDC	0.67A	89%		235mA	220µF
JSM1048D05		±5.0VDC	±1.00A	86%		240mA	±1000µF
JSM1048D12		±12.0VDC	±0.416A	87%		240mA	±150µF
JSM1048D15		±15.0VDC	±0.333A	88%		235mA	±100µF

Notes:

1. Input currents measured at nominal input voltage.
2. Input current is typically 5mA at nominal input voltage when output is turned off with optional remote on/off.
3. Maximum capacitive load is per output.
4. Add suffix “-R” for optional remote on/off, “-HK” for optional heatsink or “-RHK” for optional remote on/off and heatsink.
5. Standard tube quantity: 10

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 filter	Internal Pi type				
Undervoltage lockout	ON at >9V, OFF at <8.5V				12VDC nominal
	ON at >18V, OFF at <17V				24VDC nominal
	ON at >36V, OFF at <34V				48VDC nominal
Input surge			25	VDC for 1s	12VDC models (for 1s)
			50		24VDC models (for 1s)
			100		48VDC models (for 1s)
Remote on/off	ON: Logic high (3.5-12 VDC) or open circuit, OFF: Logic low (<1.2VDC) or short pin 2 to pin 6. Add suffix ‘-R’ for optional remote on/off				

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Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	3.3		30	VDC	See models and ratings table
Minimum load	0			%	No minimum load required
Initial set accuracy			±2.0	%	At full load
Output voltage balance			±2.0	%	For dual output with balanced loads
Line regulation			±1	%	From minimum to maximum input at full load
Load regulation			±0.5/±1.0	%	Single/dual output, from 0 to full load
Cross regulation			±5.0	%	On dual output models when one load is varied between 25% and 100% and other is fixed at 100%
Transient response		3	5	% deviation	Recovery within 1% in less than 300µs for a 25% load change.
Ripple & noise			80/100	mV pk-pk	3.3 & 5VDC output /other models. 20MHz bandwidth.Measured using 0.47µF ceramic capacitor
Short circuit protection	Continuous trip & restart (hiccup mode), with auto recovery				
Temperature coefficient			0.02	%/ ˚C	
Overload protection		150		%	
Maximum capacitive load	See models and ratings table				

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency		85		%	See models & ratings table
Isolation: input to output	1500/1800			VDC	60s/1s functional insulation
Isolation resistance	10^9			Ω	At 500VDC
Isolation capacitance			2000	pF	
Switching frequency		330		kHz	
Power density		3.10 (50.8)		W/cm³ (W/in³)	
Mean time between failure		2.5		Mhrs	MIL-HDBK-217F, +25°C GB
Case material	Black anodised aluminium alloy				
Pin material	Tinned copper				
Base material	UL94V-0 rated FR4				
Solder profile		260		°C	Wave solder peak, 1.5mm from case 10s max. Not suitable for vapour phase soldering, for further details contact XP Power
Weight		15.0 (0.03)		g (lb)	

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+100	°C	See derating curve
Storage temperature	-50		+125	°C	
Case temperature			+100	°C	
Cooling	Natural convection				
Operating humidity			95	%	RH, non condensing

Safety approvals

Safety agency	Standard	Notes & conditions
UL	UL60950-1, UL62368-1	
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

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DC-DC converters

Emissions - EMC

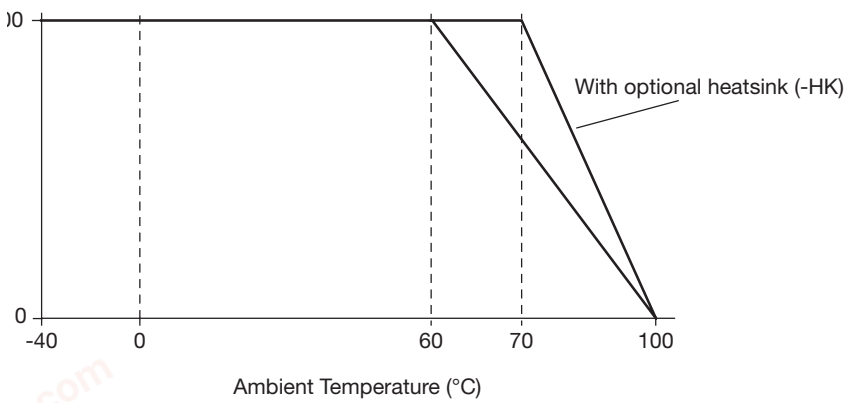
Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55032	Class A	No external components required, see application notes for Class B.
Radiated	EN55032	Class A	

Immunity - EMC

Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD	EN61000-4-2	±6kV	A	Contact
		±8kV		Air
Radiated immunity	EN61000-4-3	10V/m	A	
EFT/burst	EN61000-4-4	±2kV	A	With external capacitor, suggested part is CHEMI-CON KY 220µF/100V
Surge	EN61000-4-5	±1kV	A	With external capacitor, suggested part is CHEMI-CON KY 220µF/100V
Conducted immunity	EN61000-4-5	10Vrms	A	

Application notes

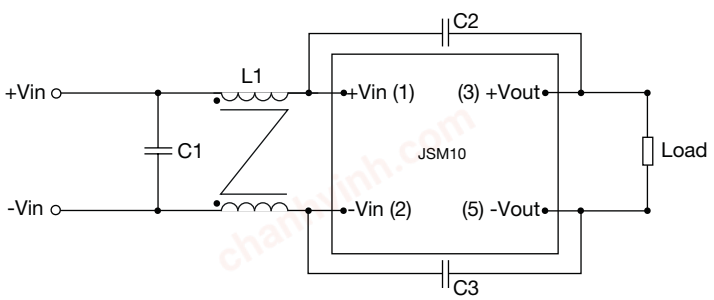
Derating curve

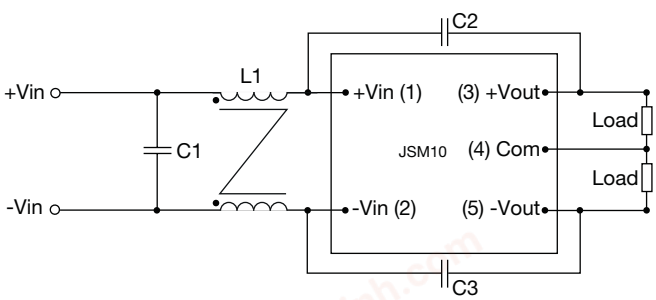


EMC consideration

Single output

Recommended circuit for radiated Class A compliance EN55032





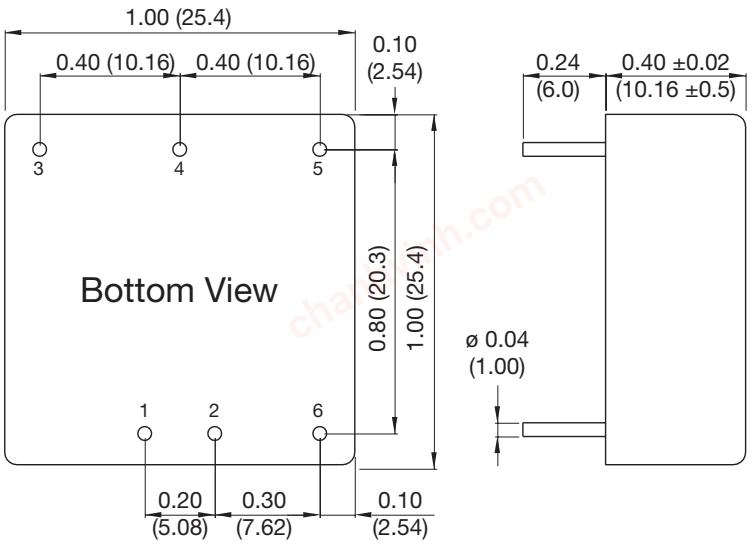
C1	L1	C2, C3
3.3µF/100V, 1210 X7S	0.4mH/0.4mH, Wurth 7448014501 or equivalent	1000pF/2kV 1206 X7R

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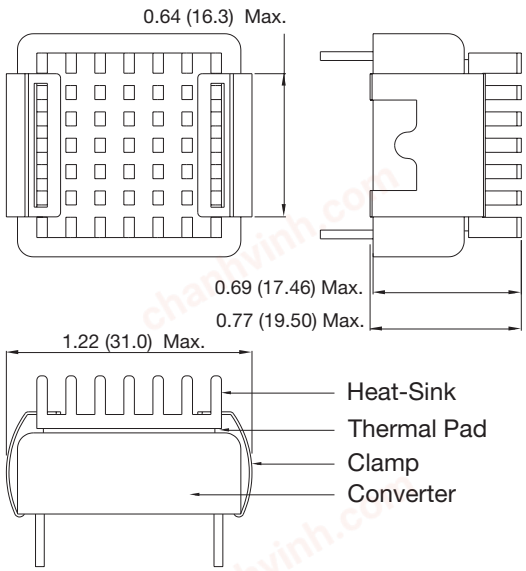
DC-DC converters

Mechanical details



Pin connections		
Pin	**Single**	**Dual**
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	No pin	Common
5	-Vout	-Vout
6	Optional remote on/off	Optional remote on/off

Optional heatsink (-HK)



Notes:

1. All dimensions are in mm (inches).
2. Weight: 15g (0.03lb) approx.
3. Pin pitch tolerance: x.x ±0.25 (x.xx ±0.01), x.xx ±0.13 (x.xxx ±0.005)
4. Pin tolerance: ±0.05 (±0.002)