



**THE DATASHEET OF
JSM1048S12**



10 Watts

- Regulated single & dual output
- 2:1 input range
- 1" x 1" package
- 1.5kVDC isolation
- ITE safety approvals
- Metal case
- Optional remote on/off
- Operating temperature -40°C to +100°C
- Full power to +60°C
- Full power to +70°C with optional heatsink
- 3 year warranty



Dimensions:

JSM10:
1.00 x 1.00 x 0.40" (25.4 x 25.4 x 10.16 mm)

Models & Ratings

Input voltage	Output voltage	Output current	Input current ^{1,2}		Maximum capacitive load ³	Efficiency	Model number ⁴
			No load	Full load			
12V (9-18V)	3.3V	2.50A	15mA	840mA	4700µF	82%	JSM1012S3V3
	5.0V	2.00A		980mA	2200µF	85%	JSM1012S05
	5.1V	2.00A		1000mA	2200µF	85%	JSM1012S5V1
	12.0V	0.83A		955mA	330µF	87%	JSM1012S12
	15.0V	0.67A		950mA	220µF	88%	JSM1012S15
	±5.0V	±1.00A		990mA	±1000µF	84%	JSM1012D05
	±12.0V	±0.416A		955mA	±150µF	87%	JSM1012D12
	±15.0V	±0.333A		955mA	±100µF	87%	JSM1012D15
24V (18-36V)	3.3V	2.50A	12mA	415mA	4700µF	83%	JSM1024S3V3
	5.0V	2.00A		490mA	2200µF	85%	JSM1024S05
	5.1V	2.00A		500mA	2200µF	85%	JSM1024S5V1
	12.0V	0.83A		470mA	330µF	88%	JSM1024S12
	15.0V	0.67A		470mA	220µF	89%	JSM1024S15
	±5.0V	±1.00A		490mA	±1000µF	85%	JSM1024D05
	±12.0V	±0.416A		475mA	±150µF	88%	JSM1024D12
	±15.0V	±0.333A		470mA	±100µF	89%	JSM1024D15
48V (36-75V)	3.3V	2.50A	10mA	205mA	4700µF	83%	JSM1048S3V3
	5.0V	2.00A		240mA	2200µF	86%	JSM1048S05
	5.1V	2.00A		250mA	2200µF	85%	JSM1048S5V1
	12.0V	0.83A		235mA	330µF	89%	JSM1048S12
	15.0V	0.67A		235mA	220µF	89%	JSM1048S15
	±5.0V	±1.00A		240mA	±1000µF	86%	JSM1048D05
	±12.0V	±0.416A		240mA	±150µF	87%	JSM1048D12
	±15.0V	±0.333A		235mA	±100µF	88%	JSM1048D15

Notes

1. Input currents measured at nominal input voltage.
2. Input current is typically 5 mA 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	9.0		18	VDC	12 V nominal.
	18.0		36	VDC	24 V nominal.
	36.0		75	VDC	48 V nominal.
Input Filter	Internal Pi type				
Input Surge			25	VDC for 1 s	12 V models.
			50		24 V models.
			100		48 V models.
Undervoltage Lockout	ON at >9V, OFF at <8.5V				12 V models.
	ON at >18V, OFF at <17V				24 V models.
	ON at >36V, OFF at <34V				48 V models.
Remote On/Off (optional)	ON: Logic high (3.5-12 V) or open circuit, OFF: Logic low (<1.2 V) or short pin 2 to pin 6. Add suffix "-R" for optional remote on/off.				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage	3.3		30	VDC	See Models and Ratings table.
Initial Set Accuracy			±2.0	%	At full load.
Output Voltage Balance			±2.0	%	For dual output with balanced loads.
Minimum Load				A	No minimum load required.
Line Regulation			±1.0	%	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 300 µs for a 25% load change.
Ripple & Noise		80/100		mV pk-pk	3.3 & 5V output / other models. 20 MHz bandwidth. Measured using 0.47 µF ceramic capacitor.
Overload Protection		150		%	
Short Circuit Protection	Continuous Trip & Restart (Hiccup mode), with auto recovery.				
Maximum Capacitive Load	See Models and Ratings table.				
Temperature Coefficient			0.02	%/°C	

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		85		%	See Models and Ratings table.
Isolation: Input to Output	1500/1800			VDC	60s/1s Functional Insulation.
Isolation Resistance	10 ⁹			Ω	At 500 VDC.
Isolation Capacitance			2000	pF	
Switching Frequency		330		kHz	
Pin Material	Tinned copper.				
Case Material	Black anodised aluminium alloy.				
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 applications team.
Power Density			50.8	W/in ³	
Mean Time Between Failure		2.5		MHrs	MIL-HDBK-217F, +25 °C GB.
Weight		0.03 (15.0)		lb (g)	

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	
Humidity			95	%RH	Non-condensing.
Cooling					Natural convection.

EMC: Emissions

Phenomenon	Standard	Test Level	Notes & Conditions
Conducted	EN55032	Class A	No external components required.
Radiated	EN55032	Class A	See application notes.

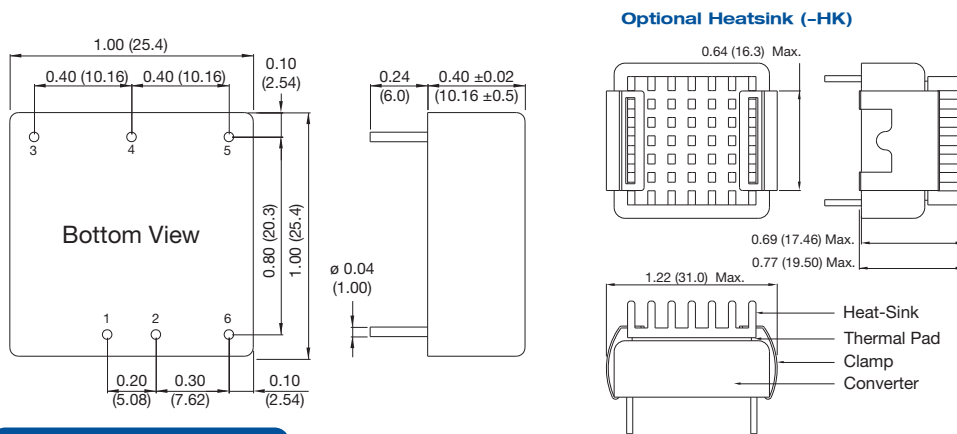
EMC: Immunity

Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
ESD	EN61000-4-2	±8 kV air discharge, ±6 kV contact	A	
Radiated	EN61000-4-3	10 V/m	A	
EFT/Burst	EN61000-4-4	±2 kV	A	With external capacitor, suggested part is CHEMI-CON KY 330µF/100V.
Surge	EN61000-4-5	±1 kV	A	With external capacitor, suggested part is CHEMI-CON KY 330µF/100V.
Conducted	EN61000-4-6	10 V rms	A	

Safety Approvals

Safety Agency	Safety Standard	Notes & Conditions
UL	UL60950-1, UL62368-1	Information Technology
CE	Meets all applicable directives	
UL	Meets all applicable legislation	

Mechanical Details



Pin Connections

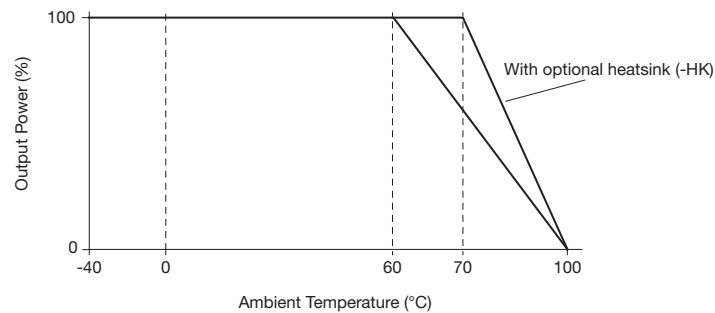
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	No Pin	Common
5	-Vout	-Vout
6	Optional Remote On/Off	Optional Remote On/Off

Notes

- All dimensions are in inches (mm)
- Weight: 0.03 lbs (15.0g) approx.
- Tolerance: X.XX±0.01 (X.X±0.25)
X.XXX±0.005 (X.XX±0.13)
- Pin Tolerance: ±0.002 (±0.05)

Application Notes

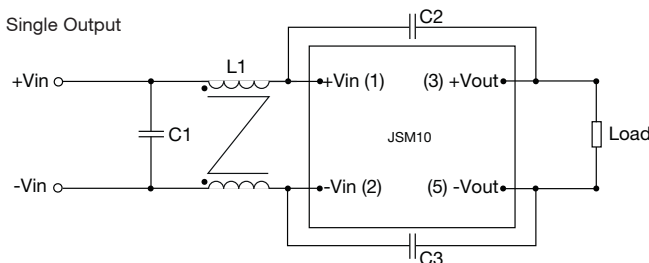
Derating Curve



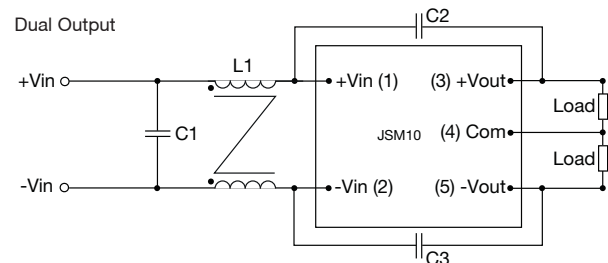
EMC Consideration

Recommended circuit for radiated Class A compliance EN55032:

Single Output



Dual Output



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







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