

25W



The 25W JSM25 series is housed in a 25.4 x 25.4 x 10.4mm (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, dual outputs are ± 12 or ± 15 VDC.

The JSM25 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 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 & ± 15 VDC
- ▶ 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 (0.4") profile
- ▶ 1.5kVDC isolation
- ▶ Optional remote On/Off
- ▶ Optional heatsink
- ▶ -40°C to +105°C operating temperature
- ▶ Full power to +50°C
- ▶ 3 year warranty

Applications



Autonomous
equipment



Industrial
electronics &
robotics



Technology

Dimensions

25.4 x 25.4 x 10.16mm (1.0" x 1.0" x 0.40")

Documentation

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Models & ratings

Model number ⁽³⁾	Input voltage	Output voltage	Output current	Efficiency	Input current ⁽¹⁾		Overvoltage Protection	Maximum capacitive load ⁽²⁾
					No load	Full load		
JSM2512S3V3	9-18VDC	3V3VDC	6.00A	87%	75mA	1.90A	3.9VDC	10300µF
JSM2512S05		5.0VDC	5.00A	89%	85mA	2.34A	6.2VDC	6800µF
JSM2512S12		12.0VDC	2.09A	89%	80mA	2.35A	15.0VDC	1200µF
JSM2512S15		15.0VDC	1.67A	89%	80mA	2.35A	18.0VDC	750µF
JSM2512D12		± 12.0 VDC	± 1.04 A	89%	75mA	2.34A	± 15.0 VDC	± 680 µF
JSM2512D15		± 15.0 VDC	± 0.84 A	89%	75mA	2.36A	± 18.0 VDC	± 380 µF

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Notes:

1. Input currents measured at nominal input voltage.
2. Input current is typically 3mA at nominal input voltage when output is turned off with remote on/off.
3. Maximum capacitive load is per output.
4. Add suffix "-HK" for optional heatsink.

Models & ratings

Model number ⁽³⁾	Input voltage	Output voltage	Output current	Efficiency	Input current ⁽⁴⁾		Overvoltage Protection	Maximum capacitive load ⁽²⁾
					No load	Full load		
JSM2524S3V3	18-36VDC	3V3VDC	6.00A	88%	55mA	0.94A	3.9VDC	10300μF
JSM2524S05		5.0VDC	5.00A	90%	69mA	1.16A	6.2VDC	6800μF
JSM2524S12		12.0VDC	2.09A	90%	55mA	1.16A	15.0VDC	1200μF
JSM2524S15		15.0VDC	1.67A	90%	55mA	1.16A	18.0VDC	750μF
JSM2524D12		±12.0VDC	±1.04A	89%	50mA	1.17A	±15.0VDC	±680μF
JSM2524D15		±15.0VDC	±0.84A	89%	50mA	1.18A	±18.0VDC	±380μF
JSM2548S3V3	36-75VDC	3V3VDC	6.00A	88%	35mA	0.47A	3.9VDC	10300μF
JSM2548S05		5.0VDC	5.00A	90%	40mA	0.58A	6.2VDC	6800μF
JSM2548S12		12.0VDC	2.09A	90%	35mA	0.58A	15.0VDC	1200μF
JSM2548S15		15.0VDC	1.67A	90%	35mA	0.58A	18.0VDC	750μF
JSM2548D12		±12.0VDC	±1.04A	89%	40mA	0.59A	±15.0VDC	±680μF
JSM2548D15		±15.0VDC	±0.84A	89%	40mA	0.59A	±18.0VDC	±380μF

Notes:

- Input currents measured at nominal input voltage.
- Input current is typically 3mA at nominal input voltage when output is turned off with remote on/off.
- Maximum capacitive load is per output.
- Add suffix "-HK" for optional heatsink.

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency		89		%	See models & ratings table
Isolation: input to output	1500/1800			VDC	60s/1s
Isolation capacitance			2000	pF	
Isolation resistance	10 ⁹			Ω	At 500VDC
Switching frequency		285		kHz	
Power density			3.81 (62.5)	W/cm ³ (W/in ³)	
Mean time between failure		310		khls	MIL-HDBK-217F, +25°C GB
Weight		16.5 (0.04)		g (lb)	

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				
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 24VDC models (for 1s)				
Input surge			25	VDC for 1s	12VDC models (for 1s)
			50		24VDC models (for 1s)
			100		48VDC models (for 1s)

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	3.3		30	VDC	See models and ratings table
Output voltage trim			±10	%	See application notes
Initial set accuracy			±1	%	At full load
Output voltage balance			±2	%	For dual output with balanced loads
Minimum load	0			%	No minimum load required
Line regulation		±0.2	±0.8	%	From minimum to maximum input at full load
Load regulation			±0.2/±1.0	%	Single/dual output, from 0 to full load
Cross regulation			±5	%	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			100/150	mV pk-pk	3.3 & 5V 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				

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+105	°C	See derating curve
Storage temperature	-50		+125	°C	
Case temperature			+105	°C	
Humidity			95	%RH	
Cooling	Natural convection				
Thermal impedance to air			17.6/14.8	°C/W	No heatsink/with heatsink

Safety approvals

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

Emissions - EMC

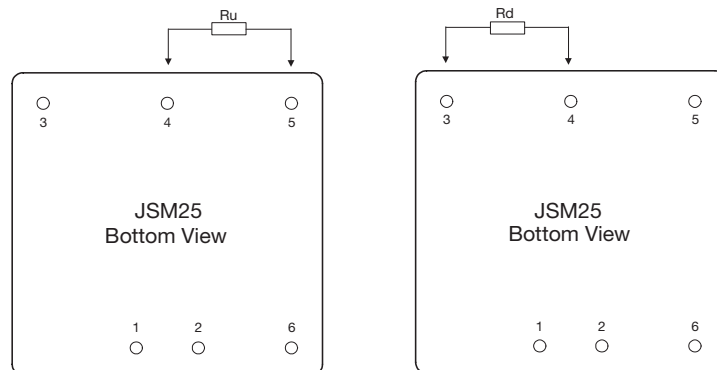
Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55022	Class A/B	See application note

Immunity - EMC

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

Application notes

External output trimming



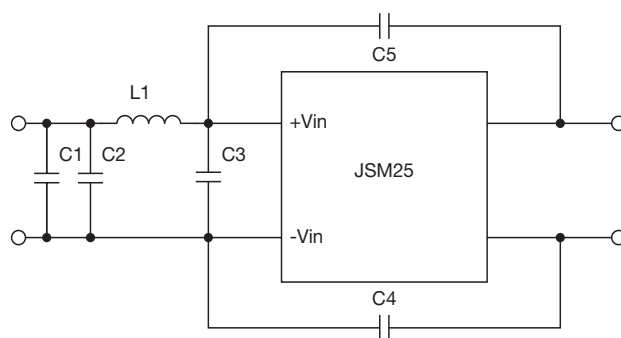
Trim down resistor values (R_d)

Model	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
	$V_{outx0.99}$	$V_{outx0.98}$	$V_{outx0.97}$	$V_{outx0.96}$	$V_{outx0.95}$	$V_{outx0.94}$	$V_{outx0.93}$	$V_{outx0.92}$	$V_{outx0.91}$	$V_{outx0.90}$
3V3DC	72.61k Ω	32.55k Ω	19.20k Ω	12.52k Ω	8.51k Ω	5.84k Ω	3.94k Ω	2.51k Ω	1.39k Ω	0.50k Ω
5VDC	138.88k Ω	62.41k Ω	36.92k Ω	24.18k Ω	16.53k Ω	11.44k Ω	7.79k Ω	5.06k Ω	2.94k Ω	1.24k Ω
12VDC	413.55k Ω	184.55k Ω	108.22k Ω	70.05k Ω	47.15k Ω	31.88k Ω	20.98k Ω	12.80k Ω	6.44k Ω	1.35k Ω
15VDC	530.73k Ω	238.61k Ω	141.24k Ω	92.56k Ω	63.35k Ω	43.87k Ω	29.96k Ω	19.53k Ω	11.41k Ω	4.92k Ω

Trim up resistor values (R_u)

Model	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
	$V_{outx1.01}$	$V_{outx1.02}$	$V_{outx1.03}$	$V_{outx1.04}$	$V_{outx1.05}$	$V_{outx1.06}$	$V_{outx1.07}$	$V_{outx1.08}$	$V_{outx1.09}$	$V_{outx1.10}$
3V3DC	60.84k Ω	27.40k Ω	16.25k Ω	10.68k Ω	7.34k Ω	5.11k Ω	3.51k Ω	2.32k Ω	1.39k Ω	0.65k Ω
5VDC	106.87k Ω	47.76k Ω	28.06k Ω	18.21k Ω	12.30k Ω	8.36k Ω	5.55k Ω	3.44k Ω	1.79k Ω	0.48k Ω
12VDC	351.00k Ω	157.50k Ω	93.00k Ω	60.75k Ω	41.40k Ω	28.50k Ω	19.29k Ω	12.37k Ω	7.00k Ω	2.70k Ω
15VDC	422.77k Ω	189.89k Ω	112.26k Ω	73.44k Ω	50.15k Ω	34.63k Ω	23.54k Ω	15.22k Ω	8.75k Ω	3.58k Ω

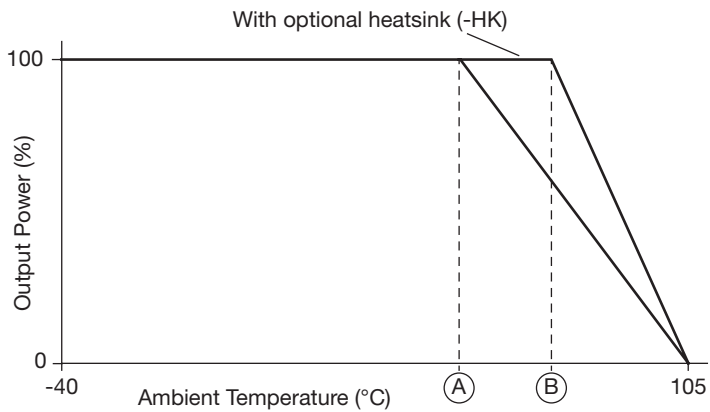
External output trimming



Class	Model	C1	C2	C3	C4 & C5	L1
Class A	12VDC	None	3.3 μ F/25VDC 1210 MLCC	None	None	1 μ H
	24VDC		3.3 μ F/50VDC 1210 MLCC			2.2 μ H
	48VDC		3.3 μ F/100VDC 1210 MLCC			4.7 μ H
Class B	12VDC	3.3 μ F/25VDC 1210 MLCC	3.3 μ F/25VDC 1210 MLCC	3.3 μ F/25VDC 1210 MLCC	1800pF/2kVDC 1206 MLCC	1 μ H
	24VDC	3.3 μ F/50VDC 1210 MLCC	3.3 μ F/50VDC 1210 MLCC	3.3 μ F/50VDC 1210 MLCC	1800pF/2kVDC 1206 MLCC	2.2 μ H
	48VDC	3.3 μ F/100VDC 1210 MLCC	3.3 μ F/100VDC 1210 MLCC	3.3 μ F/100VDC 1210 MLCC	1800pF/2kVDC 1206 MLCC	4.7 μ H

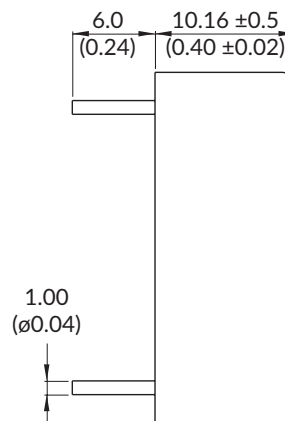
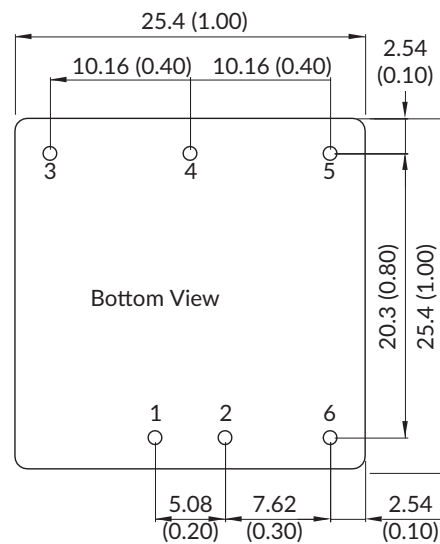
Application notes

Derating curve

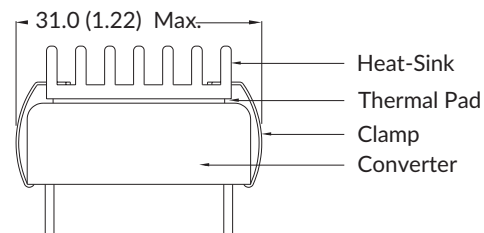
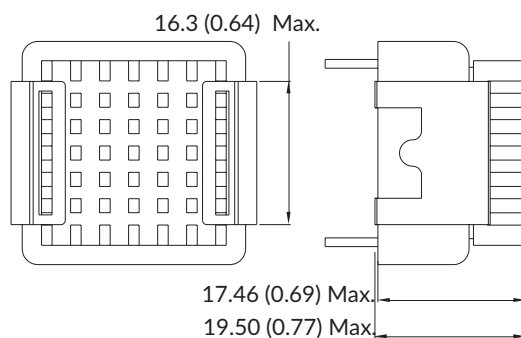


Models JSM25	Max Ambient Temperature	
	No heatsink (A)	With heatsink (B)
24S3V3, 48S3V3	57°C	65°C
24S05, 24S12, 24S15, 48S05, 48S12, 48S15	56°C	64°C
12S3V3	53°C	61°C
12S05, 12S12, 12S15, 12D12, 12D15, 24D12, 24D15, 48D12, 48D15	50°C	59°C

Mechanical details



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



Notes:

1. All dimensions are in mm (inches).
2. Pin tolerance: ± 0.05 (± 0.002)

3. Pin pitch tolerance: $x.x \pm 0.25$ ($x.xx \pm 0.01$), $x.xx \pm 0.13$ ($x.xxx \pm 0.005$)
4. Weight: 16.5g (0.04lb) approx