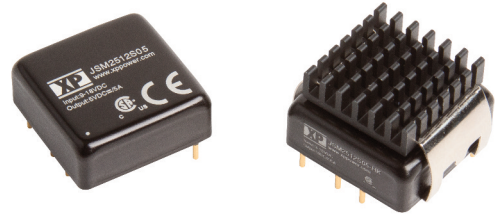


## 25 Watts

- Regulated Single & Dual Output
- 2:1 Input Range
- 1" x 1" Package
- 1500 VDC Isolation
- Operating Temperature -40 °C to +105 °C
- ITE Safety Approvals
- Remote On/Off
- High Power Density
- Optional Heatsink
- Six-sided Metal Case
- 3 Year Warranty



### Dimensions:

#### JSM25:

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

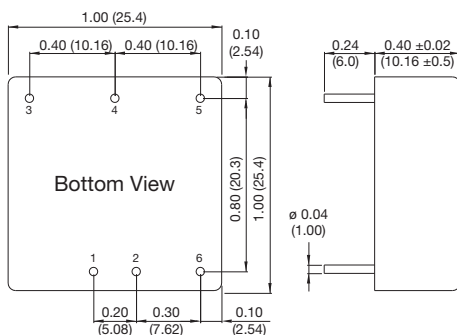
## Models & Ratings

Input voltage	Output voltage	Output current	Input current <sup>(1,2)</sup>		Overvoltage Protection	Maximum capacitive load <sup>(3)</sup>	Efficiency	Model number <sup>(4)</sup>
			No load	Full load				
9-18V	3V3	6.00 A	75 mA	1.90 A	3.9 V	10300 µF	87%	JSM2512S3V3
	5 V	5.00 A	85 mA	2.34 A	6.2 V	6800 µF	89%	JSM2512S05
	12 V	2.09 A	80 mA	2.35 A	15.0 V	1200 µF	89%	JSM2512S12
	15 V	1.67 A	80 mA	2.35 A	18.0 V	750 µF	89%	JSM2512S15
	±12 V	±1.04 A	75 mA	2.34 A	±15.0 V	±680 µF	89%	JSM2512D12
	±15 V	±0.84 A	75 mA	2.36 A	±18.0 V	±380 µF	89%	JSM2512D15
18-36V	3V3	6.00 A	55 mA	0.94 A	3.9 V	10300 µF	88%	JSM2524S3V3
	5 V	5.00 A	69 mA	1.16 A	6.2 V	6800 µF	90%	JSM2524S05
	12 V	2.09 A	55 mA	1.16 A	15.0 V	1200 µF	90%	JSM2524S12
	15 V	1.67 A	55 mA	1.16 A	18.0 V	750 µF	90%	JSM2524S15
	±12 V	±1.04 A	50 mA	1.17 A	±15.0 V	±680 µF	89%	JSM2524D12
	±15 V	±0.84 A	50 mA	1.18 A	±18.0 V	±380 µF	89%	JSM2524D15
36-75V	3V3	6.00 A	35 mA	0.47 A	3.9 V	10300 µF	88%	JSM2548S3V3
	5 V	5.00 A	40 mA	0.58 A	6.2 V	6800 µF	90%	JSM2548S05
	12 V	2.09 A	35 mA	0.58 A	15.0 V	1200 µF	90%	JSM2548S12
	15 V	1.67 A	35 mA	0.58 A	18.0 V	750 µF	90%	JSM2548S15
	±12 V	±1.04 A	40 mA	0.59 A	±15.0 V	±680 µF	89%	JSM2548D12
	±15 V	±0.84 A	40 mA	0.59 A	±18.0 V	±380 µF	89%	JSM2548D15

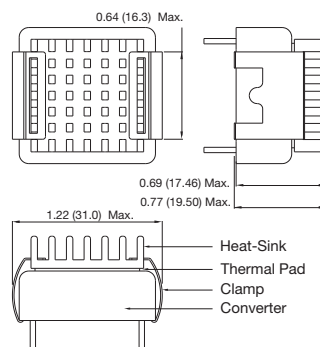
## Notes

1. Input currents measured at nominal input voltage.
2. Input current is typically 3 mA 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.

## Mechanical Details



### Optional Heatsink (-HK)



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 inches (mm)
2. Weight: 0.04 lbs (16.5g) approx.
3. Tolerance: X.XX±0.01 (X.X±0.25)  
X.XXX±0.005 (X.XX±0.13)
4. Pin Tolerance: ±0.002 (±0.05)

## 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
Remote On/Off	ON: Logic high (3.5-12 V) or open circuit OFF: Logic low (<1.2 V) or short pin 2 to pin 6				

## Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage	3.3		30	VDC	See Models and Ratings table
Initial Set Accuracy			±1.0	%	At full load
Output Trim			±10	%	See Application Notes
Output Voltage Balance			±2.0	%	For dual output with balanced loads
Minimum Load				A	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			±5.0	%	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			100/150	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		89		%	See Models and Ratings table
Isolation: Input to Output	1500/1800			VDC	60 s/1 s
Isolation Resistance	10 <sup>9</sup>			Ω	At 500 VDC
Isolation Capacitance			2000	pF	
Switching Frequency		285		kHz	
Power Density			62.5	W/in <sup>3</sup>	
Mean Time Between Failure		310		kHrs	MIL-HDBK-217F, +25 °C GB
Weight		0.04 (16.5)		lb (g)	

## 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	Non-condensing
Cooling					Natural convection
Thermal Impedance to Air			17.6/14.8	°C/W	No heatsink / with heatsink

## EMC: Emissions

Phenomenon	Standard	Test Level	Notes & Conditions
Conducted	EN55022	Class A/B	See Application Notes

### EMC: Immunity

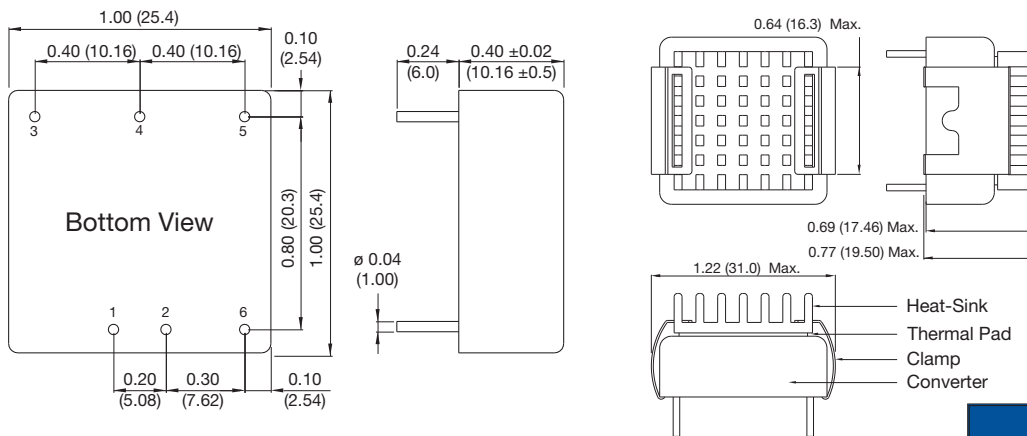
Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
ESD	EN61000-4-2	±8 kV air discharge, ±6 kV contact	A	
Radiated	EN61000-4-3	10 V/m	A	
EFT/Burst	EN61000-4-4	±2 kV	A	With external capacitor, suggested part is CHEMI-CON KY 220µF/100V
Surge	EN61000-4-5	±1 kV	A	With external capacitor, suggested part is CHEMI-CON KY 220µF/100V
Conducted	EN61000-4-6	10 V rms	A	

### Safety Approvals

Safety Agency	Safety Standard	Notes & Conditions
UL	UL60950-1, UL62368-1	Information Technology

### Mechanical Details

#### Optional Heatsink (-HK)



### Notes

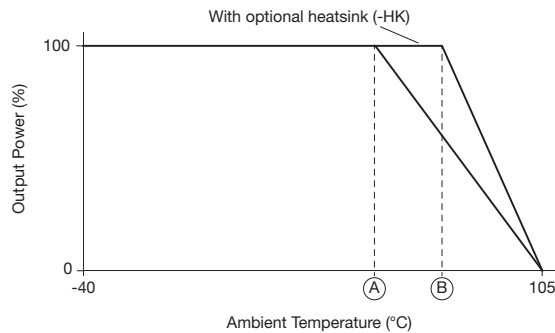
- All dimensions are in inches (mm)
- Weight: 0.04 lbs (16.5g) approx.
- Tolerance: X.XX±0.01 (X.X±0.25)  
X.XXX±0.005 (X.XX±0.13)
- Pin Tolerance: ±0.002 (±0.05)

#### 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

### Application Notes

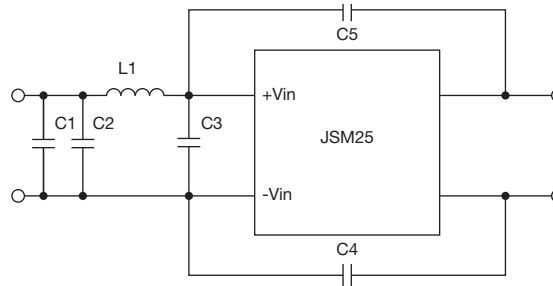
#### Derating Curve



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

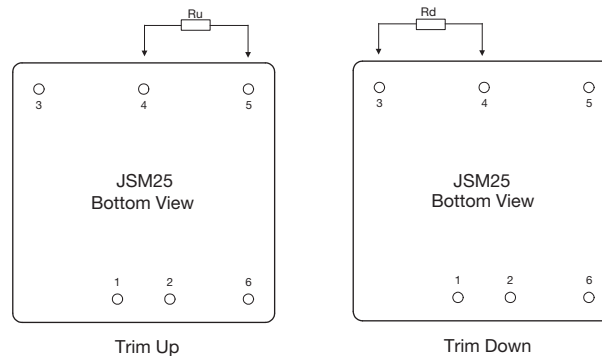
### Application Notes

#### EMI Filter for Conducted Emissions



Class	Model	C1	C2	C3	C4 & C5	L1
Class A	12V	None	3.3 $\mu$ F/25V 1210 MLCC	None	None	1 $\mu$ H
	24V		3.3 $\mu$ F/50V 1210 MLCC			2.2 $\mu$ H
	48V		3.3 $\mu$ F/100V 1210 MLCC			4.7 $\mu$ H
Class B	12V	3.3 $\mu$ F/25V 1210 MLCC	3.3 $\mu$ F/25V 1210 MLCC	3.3 $\mu$ F/25V 1210 MLCC	1800 pF/2kV 1206 MLCC	1 $\mu$ H
	24V	3.3 $\mu$ F/50V 1210 MLCC	3.3 $\mu$ F/50V 1210 MLCC	3.3 $\mu$ F/50V 1210 MLCC	1800 pF/2kV 1206 MLCC	2.2 $\mu$ H
	48V	3.3 $\mu$ F/100V 1210 MLCC	3.3 $\mu$ F/100V 1210 MLCC	3.3 $\mu$ F/100V 1210 MLCC	1800 pF/2kV 1206 MLCC	4.7 $\mu$ H

#### External Output Trimming



#### Trim Down Resistor Values (Rd)

Models	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
	Voutx0.99	Voutx0.98	Voutx0.97	Voutx0.96	Voutx0.95	Voutx0.94	Voutx0.93	Voutx0.92	Voutx0.91	Voutx0.90
3V3	72.61 k	32.55 k	19.20 k	12.52 k	8.51 k	5.84 k	3.94 k	2.51 k	1.39 k	0.50 k
5V	138.88 k	62.41 k	36.92 k	24.18 k	16.53 k	11.44 k	7.79 k	5.06 k	2.94 k	1.24 k
12V	413.55 k	184.55 k	108.22 k	70.05 k	47.15 k	31.88 k	20.98 k	12.80 k	6.44 k	1.35 k
15V	530.73 k	238.61 k	141.24 k	92.56 k	63.35 k	43.87 k	29.96 k	19.53 k	11.41 k	4.92 k

#### Trim Up Resistor Values (Ru)

Models	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
	Voutx1.01	Voutx1.02	Voutx1.03	Voutx1.04	Voutx1.05	Voutx1.06	Voutx1.07	Voutx1.08	Voutx1.09	Voutx1.10
3V3	60.84 k	27.40 k	16.25 k	10.68 k	7.34 k	5.11 k	3.51 k	2.32 k	1.39 k	0.65 k
5V	106.87 k	47.76 k	28.06 k	18.21 k	12.30 k	8.36 k	5.55 k	3.44 k	1.79 k	0.48 k
12V	351.00 k	157.50 k	93.00 k	60.75 k	41.40 k	28.50 k	19.29 k	12.37 k	7.00 k	2.70 k
15V	422.77 k	189.89 k	112.26 k	73.44 k	50.15 k	34.63 k	23.54 k	15.22 k	8.75 k	3.58 k

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