



**THE DATASHEET OF  
JTM2048S12**



# 20 Watts

## JTM Series



- Wide 4:1 Input Range
- Single & Dual Outputs
- -40 °C to +105 °C Operating Temperature
- Overvoltage & Overcurrent Protection
- Remote On/Off
- 1600 VDC Isolation
- 3 Year Warranty

### Specification

#### Input

Input Voltage Range	<ul style="list-style-type: none"> <li>• 24 V (9-36 VDC)</li> <li>• 48 V (18-75 VDC)</li> </ul>
Input Current	<ul style="list-style-type: none"> <li>• See table</li> </ul>
Undervoltage Lockout	<ul style="list-style-type: none"> <li>• 24 V models: ON 8.6 V, OFF 7.9 V typical</li> <li>• 48 V models: ON 17.8 V, OFF 16 V typical</li> </ul>
Input Surge	<ul style="list-style-type: none"> <li>• 24 V models 50 VDC for 100 ms</li> <li>• 48 V models 100 VDC for 100 ms</li> </ul>

#### Output

Output Voltage	<ul style="list-style-type: none"> <li>• See table</li> </ul>
Output Voltage Trim	<ul style="list-style-type: none"> <li>• ±10%, single outputs</li> </ul>
Minimum Load	<ul style="list-style-type: none"> <li>• No minimum load required</li> </ul>
Line Regulation	<ul style="list-style-type: none"> <li>• ±0.5% max</li> </ul>
Load Regulation	<ul style="list-style-type: none"> <li>• Single output models: ±0.5% max</li> <li>• Dual output models: ±1% max balanced outputs</li> </ul>
Cross Regulation	<ul style="list-style-type: none"> <li>• ±5% for dual outputs (see note 2)</li> </ul>
Setpoint Accuracy	<ul style="list-style-type: none"> <li>• ±1%</li> </ul>
Start Up Time	<ul style="list-style-type: none"> <li>• 20 ms typical</li> </ul>
Ripple & Noise	<ul style="list-style-type: none"> <li>• 75 mV pk-pk at 20 MHz bandwidth, (see note 3)</li> </ul>
Transient Response	<ul style="list-style-type: none"> <li>• 3% max deviation, recovery to within 1% in &lt;250 μs for a 25% load change</li> </ul>
Temperature Coefficient	<ul style="list-style-type: none"> <li>• 0.02%/°C</li> </ul>
Overvoltage Protection	<ul style="list-style-type: none"> <li>• 3.3 V models: 3.9 V typical</li> <li>• 5 V models: 6.2 V typical</li> <li>• 12 V models: 15 V typical</li> <li>• 15 V models: 18 V typical</li> <li>• ±5 V models: ±6.2 V typical</li> <li>• ±12 V models: ±15 V typical</li> <li>• ±15 V models: ±18 V typical</li> </ul>
Overload Protection	<ul style="list-style-type: none"> <li>• &gt;120% of full load typical</li> </ul>
Short Circuit Protection	<ul style="list-style-type: none"> <li>• Trip &amp; restart (hiccup mode), auto recovery</li> </ul>
Remote On/Off	<ul style="list-style-type: none"> <li>• On = Logic High (3.0-12.0 V) or Open</li> <li>• Off = Logic Low (&lt;1.2 V) or short pin 2 to 6 (see note 4)</li> </ul>

#### General

Efficiency	<ul style="list-style-type: none"> <li>• See table</li> </ul>
Isolation	<ul style="list-style-type: none"> <li>• 1600 VDC Input to Output</li> <li>• 1600 VDC Input to Case</li> <li>• 1600 VDC Output to Case</li> </ul>
Switching Frequency	<ul style="list-style-type: none"> <li>• 330 kHz typical</li> </ul>
Power Density	<ul style="list-style-type: none"> <li>• 25 W/in<sup>3</sup></li> </ul>
MTBF	<ul style="list-style-type: none"> <li>• 560 kHrs min to MIL-HDBK-217F at 25 °C, GB</li> </ul>

#### Environmental

Operating Temperature	<ul style="list-style-type: none"> <li>• -40 °C to +105 °C, see derating curve</li> </ul>
Case Temperature	<ul style="list-style-type: none"> <li>• +105 °C max</li> </ul>
Cooling	<ul style="list-style-type: none"> <li>• Convection-cooled</li> </ul>
Operating Humidity	<ul style="list-style-type: none"> <li>• 5-95% RH, non-condensing</li> </ul>
Storage Temperature	<ul style="list-style-type: none"> <li>• -40 °C to +125 °C</li> </ul>

#### EMC & Safety

Emissions	<ul style="list-style-type: none"> <li>• EN55022, class A conducted &amp; radiated with external components - see application notes</li> </ul>
ESD Immunity	<ul style="list-style-type: none"> <li>• EN61000-4-2, level 3 Perf Criteria A</li> </ul>
Radiated Immunity	<ul style="list-style-type: none"> <li>• EN61000-4-3 10 V/m, Perf Criteria A</li> </ul>
EFT/Burst	<ul style="list-style-type: none"> <li>• EN61000-4-4 level 3, Perf Criteria B*</li> </ul>
Surge	<ul style="list-style-type: none"> <li>• EN61000-4-5 level 2, Perf Criteria B*</li> </ul>
Conducted Immunity	<ul style="list-style-type: none"> <li>• EN61000-4-6 10 V/rms, Perf Criteria A</li> </ul>
Magnetic Field	<ul style="list-style-type: none"> <li>• EN61000-4-8 1 A/m, Perf Criteria A</li> </ul>

\*External input capacitor required 220 μF/100 V

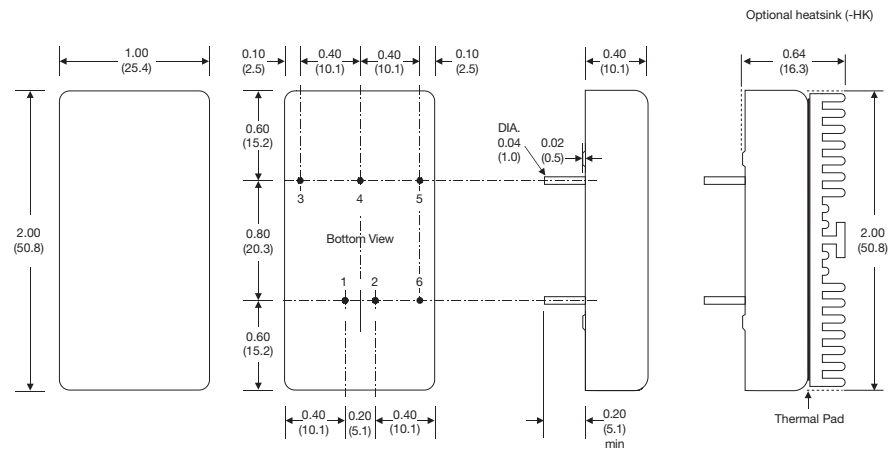
## Models and Ratings

Input Voltage	Output Voltage	Output Current	Input Current <sup>(1)</sup>		Maximum Capacitive Load	Efficiency	Model Number
			No Load	Full Load			
9-36 VDC	3.3 VDC	5.500 A	50 mA	879 mA	10,000 $\mu$ F	89%	JTM2024S3V3
	5.0 VDC	4.000 A	50 mA	957 mA	6,800 $\mu$ F	91%	JTM2024S05
	12.0 VDC	1.670 A	22 mA	980 mA	1,000 $\mu$ F	89%	JTM2024S12
	15.0 VDC	1.330 A	22 mA	968 mA	680 $\mu$ F	89%	JTM2024S15
	$\pm$ 5.0 VDC	$\pm$ 2.000 A	65 mA	969 mA	$\pm$ 2,200 $\mu$ F	89%	JTM2024D05
	$\pm$ 12.0 VDC	$\pm$ 0.835 A	25 mA	980 mA	$\pm$ 470 $\mu$ F	88%	JTM2024D12
	$\pm$ 15.0 VDC	$\pm$ 0.665 A	25 mA	980 mA	$\pm$ 330 $\mu$ F	89%	JTM2024D15
18-75 VDC	3.3 VDC	5.500 A	30 mA	440 mA	10,000 $\mu$ F	89%	JTM2048S3V3
	5.0 VDC	4.000 A	30 mA	473 mA	6,800 $\mu$ F	91%	JTM2048S05
	12.0 VDC	1.670 A	15 mA	484 mA	1,000 $\mu$ F	89%	JTM2048S12
	15.0 VDC	1.330 A	15 mA	484 mA	680 $\mu$ F	89%	JTM2048S15
	$\pm$ 5.0 VDC	$\pm$ 2.000 A	40 mA	484 mA	$\pm$ 2,200 $\mu$ F	89%	JTM2048D05
	$\pm$ 12.0 VDC	$\pm$ 0.835 A	15 mA	490 mA	$\pm$ 470 $\mu$ F	88%	JTM2048D12
	$\pm$ 15.0 VDC	$\pm$ 0.665 A	15 mA	490 mA	$\pm$ 330 $\mu$ F	89%	JTM2048D15

### Notes

1. Input current specified at nominal 24 V or 48 V input.
2. Cross regulation is  $\pm$ 5% when one output is at 100% and the other is varied between 25% and 100%.
3. Measured with 1  $\mu$ F ceramic capacitor across output rails.
4. Non-standard versions can have Remote On/Off function and pin removed. Contact sales for details.
5. For heatsink option add '-HK' to the end of the part number.

## Mechanical Details



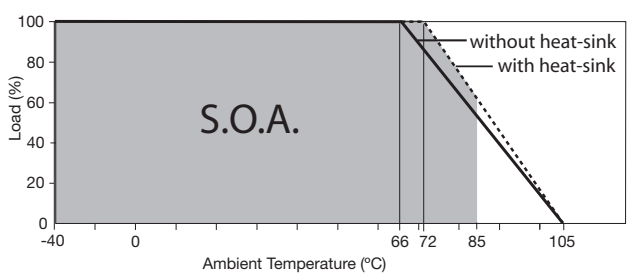
Pin Connections		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	Trim	Com
5	-Vout	-Vout
6	Remote On/Off	Remote On/Off

### Notes

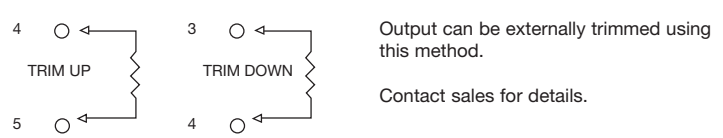
1. All dimensions are in inches (mm).
2. Weight: 0.07 lbs (30 g)
3. Pin diameter: 0.04  $\pm$ 0.002 (1.0  $\pm$ 0.05)
4. Pin pitch tolerance:  $\pm$ 0.014 ( $\pm$ 0.35)
5. Case tolerance:  $\pm$ 0.02 ( $\pm$ 0.5)
6. Stand-off tolerance:  $\pm$ 0.004 ( $\pm$ 0.1)

## Application Notes

### Derating Curve

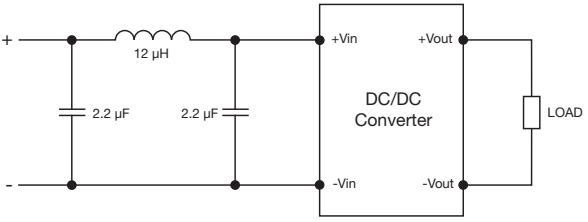


### External Output Trim



Output can be externally trimmed using this method.  
Contact sales for details.

### Input Filter





### Remote On/Off Control

Standard ROF logic is positive.  
Output On 3.0-12.0 VDC or open circuit  
Output Off <1.2 VDC or short circuit pins 2 & 6

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