

## JTM20 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>• <math>\pm 10\%</math>, 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>• <math>\pm 0.5\%</math> max</li> </ul>
Load Regulation	<ul style="list-style-type: none"> <li>• Single output models: <math>\pm 0.5\%</math> max</li> <li>• Dual output models: <math>\pm 1\%</math> max balanced outputs</li> </ul>
Cross Regulation	<ul style="list-style-type: none"> <li>• <math>\pm 5\%</math> for dual outputs, see note 2</li> </ul>
Setpoint Accuracy	<ul style="list-style-type: none"> <li>• <math>\pm 1\%</math></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 <math>&lt; 250 \mu\text{s}</math> 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>• <math>\pm 5</math> V models: <math>\pm 6.2</math> V typical</li> <li>• <math>\pm 12</math> V models: <math>\pm 15</math> V typical</li> <li>• <math>\pm 15</math> V models: <math>\pm 18</math> V typical</li> </ul>
Overload Protection	<ul style="list-style-type: none"> <li>• <math>&gt; 120\%</math> 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 (<math>&lt; 1.2</math> 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>
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 &amp; 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>
Safety Approvals	<ul style="list-style-type: none"> <li>• EN60950-1, IEC60950-1</li> </ul>

\*External input capacitor required 220  $\mu\text{F}/100$  V

## Models and Ratings

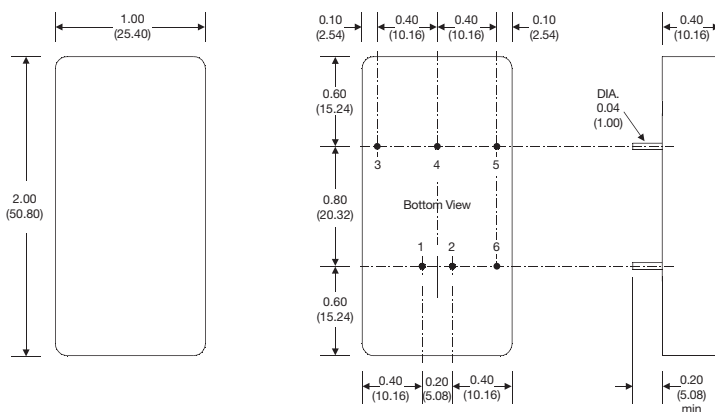
Input Voltage	Output Voltage	Output Current	Input Current <sup>(1)</sup>		Maximum Capacitive Load	Efficiency	Model Number
			No Load	Full Load			
9-36 VDC	3.3 VDC	5.500 A	50 mA	879 mA	10,000 µF	89%	JTM2024S3V3†^
	5.0 VDC	4.000 A	50 mA	957 mA	6,800 µF	91%	JTM2024S05†^
	12.0 VDC	1.670 A	22 mA	980 mA	1,000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

### Notes

1. Input current specified at nominal 24 V or 48 V input.
  2. Cross regulation is ±5% when one output is at 100% and the other is varied between 25% and 100%.
  3. Measured with 1 µF ceramic capacitor across output rails.
  4. Non-standard versions can have Remote On/Off function and pin removed. Contact sales for details.
- † Available from Farnell. See pages 266-269.      ^ Available from Newark. See pages 270-272.

## Mechanical Details

Weight: 0.07 lbs (30 g)



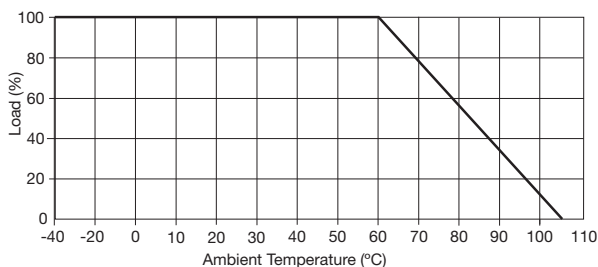
PIN CONNECTIONS		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	Trim	Com
5	-Vout	-Vout
6	Remote On/Off	Remote On/Off

### Notes

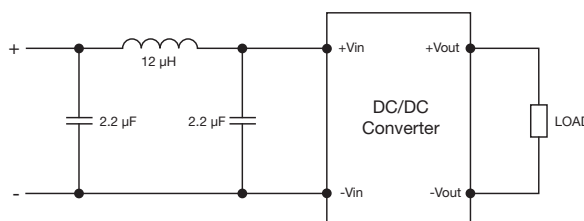
1. All dimensions are in inches (mm).
2. Pin diameter: 0.04 ±0.002 (1.0 ±0.05)
3. Pin pitch tolerance: ±0.014 (±0.35)
4. Case tolerance: ±0.02 (±0.5)

## Application Notes

### Derating Curve



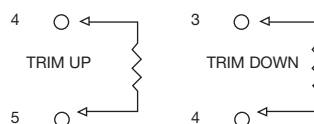
### Input Filter



### 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

### External Output Trim



See application note for trim resistor values