

JTM20 Series



- 4:1 Input Range
- -40 °C to +100 °C Operating Temperature
- Single & Dual Outputs
- Overvoltage & Overcurrent Protection
- High Efficiency - Up to 91%
- Standard Remote On/Off
- 1600 VDC Isolation

Specification

Input

- | | |
|----------------------|----------------------------------------------------------------------------------------|
| Input Voltage Range | • 24 V (9-36 VDC)
48 V (18-75 VDC) |
| Input Current | • See table |
| Undervoltage Lockout | • 24 V models: ON 8.6 V, OFF 7.9 V typical
48 V models: ON 17.8 V, OFF 16 V typical |

Output

- | | |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Output Voltage | • See table |
| Output Voltage Trim | • $\pm 10\%$ |
| Voltage Balance | • $\pm 1\%$ max dual models, balanced load |
| Minimum Load | • No minimum load required for single output models, 10% required for dual output models |
| Line Regulation | • $\pm 0.5\%$ max |
| Load Regulation | • Single output models: $\pm 0.5\%$ max
Dual output models: $\pm 1\%$ max balanced outputs |
| Cross Regulation | • $\pm 5\%$ for dual outputs, see note 2 |
| Setpoint Accuracy | • $\pm 1\%$ |
| Start Up Time | • 20 ms typical |
| Ripple & Noise | • Single output models: 75 mV pk-pk
Dual output models: 75 mV pk-pk at 20 MHz BW, see note 3 |
| Transient Response | • 3% max deviation, recovery to within 1% in $< 250 \mu\text{s}$ for a 25% load change |
| Temperature Coefficient | • 0.02%/°C |
| Overvoltage Protection | • 3.3 V models: 3.9 V typical
5 V models: 6.2 V typical
12 V models: 15 V typical
15 V models: 18 V typical
± 5 V models: ± 6.2 V typical
± 12 V models: ± 15 V typical
± 15 V models: ± 18 V typical |
| Overload Protection | • $> 120\%$ |
| Short Circuit Protection | • Trip & restart (Hiccup mode), auto recovery |
| Remote On/Off | • On = Logic High (< 3.0 V) or Open
Off = Logic Low (< 1.2 V) or short pin 2 to 6 see note 5 |

General

- | | |
|---------------------|---------------------------------------------------------------------------------|
| Efficiency | • See table |
| Isolation | • 1600 VDC Input to Output
1600 VDC Input to Case
1600 VDC Output to Case |
| Switching Frequency | • 330 kHz typical |
| MTBF | • 560 kHrs min per MIL-HDBK-217F |

Environmental

- | | |
|-----------------------|-----------------------------------------|
| Operating Temperature | • -40 °C to +105 °C, see derating curve |
| Case Temperature | • +105 °C max |
| Cooling | • Convection-cooled |
| Operating Humidity | • 5-95% RH, non-condensing |
| Storage Temperature | • -40 °C to +125 °C |

EMC & Safety

- | | |
|--------------------|------------------------------------------------------------------------------------------|
| Emissions | • EN55022, class A conducted & radiated with external components - see application notes |
| ESD Immunity | • EN61000-4-2, level 2 Perf Criteria B |
| Radiated Immunity | • EN61000-4-3 10 V/rms, Perf Criteria A |
| EFT/Burst | • EN61000-4-4 level 3, Perf Criteria B* |
| Surge | • EN61000-4-5 level 2, Perf Criteria B* |
| Conducted Immunity | • EN61000-4-6 10 V/m, Perf Criteria A |
| Magnetic Field | • EN61000-4-8 1 A/m, Perf Criteria A |
| Safety Approvals | • EN60950-1, IEC60950-1 |

*See note 4.

Models and Ratings

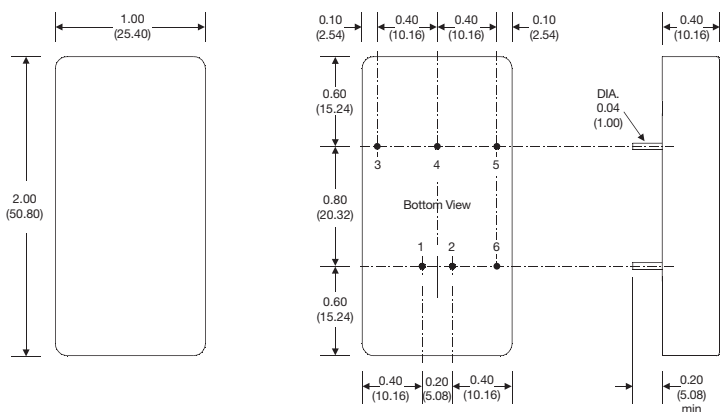
Input Voltage	Output Voltage	Output Current	Input Current ⁽¹⁾		Maximum Capacitive Load	Efficiency	Model Number
			No Load	Full Load			
9-36 VDC	3.3 VDC	5.500 A	50 mA	879 mA	10,000 μ F	89%	JTM2024S3V3
	5.0 VDC	4.000 A	50 mA	957 mA	6,800 μ F	91%	JTM2024S05
	12.0 VDC	1.670 A	22 mA	980 mA	1,000 μ F	89%	JTM2024S12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

Notes

1. Input currents 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 μ F ceramic capacitor across output rails.
4. External input capacitor required Nippon Chemi-Con KY series 220 μ F/100 V or equivalent.
5. Non-standard versions can have Remote On/Off function and pin removed.

Mechanical Details

All dimensions are in inches (mm)
Weight: 0.07 lbs (30 g)

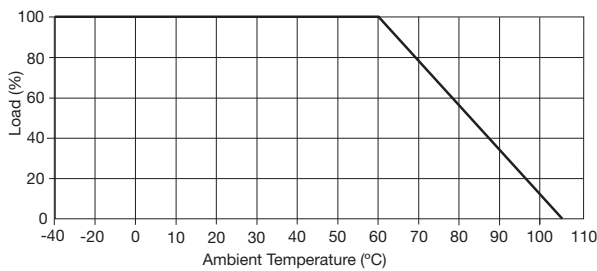


PIN CONNECTIONS		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	Trim	Com
5	-Vout	-Vout
6	Remote On/Off	Remote On/Off

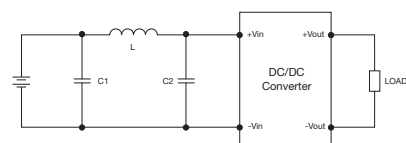
Notes

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

Application Notes



Input Filter



Remote On/Off Control

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

Model	C1	L	C2
24 VDC	2.2 μ F, 100 V	12 μ H	2.2 μ F, 100 V
48 VDC	2.2 μ F, 100 V	12 μ H	2.2 μ F, 100 V