

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

Output

Output Voltage	<ul style="list-style-type: none"> • See table
Output Voltage Trim	<ul style="list-style-type: none"> • $\pm 10\%$
Voltage Balance	<ul style="list-style-type: none"> • $\pm 1\%$ max dual models, balanced load
Minimum Load	<ul style="list-style-type: none"> • No minimum load required for single output models, 10% required for dual output models
Line Regulation	<ul style="list-style-type: none"> • $\pm 0.5\%$ max
Load Regulation	<ul style="list-style-type: none"> • Single output models: $\pm 0.5\%$ max • Dual output models: $\pm 1\%$ max balanced outputs
Cross Regulation	<ul style="list-style-type: none"> • $\pm 5\%$ for dual outputs, see note 2
Setpoint Accuracy	<ul style="list-style-type: none"> • $\pm 1\%$
Start Up Time	<ul style="list-style-type: none"> • 20 ms typical
Ripple & Noise	<ul style="list-style-type: none"> • Single output models: 75 mV pk-pk • Dual output models: 75 mV pk-pk at 20 MHz BW, see note 3
Transient Response	<ul style="list-style-type: none"> • 3% max deviation, recovery to within 1% in $< 250 \mu\text{s}$ for a 25% load change
Temperature Coefficient	<ul style="list-style-type: none"> • 0.02%/°C
Overvoltage Protection	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • $> 120\%$
Short Circuit Protection	<ul style="list-style-type: none"> • Trip & restart (Hiccup mode), auto recovery
Remote On/Off	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • See table
Isolation	<ul style="list-style-type: none"> • 1600 VDC Input to Output • 1600 VDC Input to Case • 1600 VDC Output to Case
Switching Frequency	<ul style="list-style-type: none"> • 330 kHz typical
MTBF	<ul style="list-style-type: none"> • 560 kHrs min per MIL-HDBK-217F

Environmental

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

EMC & Safety

Emissions	<ul style="list-style-type: none"> • EN55022, class A conducted & radiated with external components - see application notes
ESD Immunity	<ul style="list-style-type: none"> • EN61000-4-2, level 2 Perf Criteria B
Radiated Immunity	<ul style="list-style-type: none"> • EN61000-4-3 10 V/rms, Perf Criteria A
EFT/Burst	<ul style="list-style-type: none"> • EN61000-4-4 level 3, Perf Criteria B*
Surge	<ul style="list-style-type: none"> • EN61000-4-5 level 2, Perf Criteria B*
Conducted Immunity	<ul style="list-style-type: none"> • EN61000-4-6 10 V/m, Perf Criteria A
Magnetic Field	<ul style="list-style-type: none"> • EN61000-4-8 1 A/m, Perf Criteria A
Safety Approvals	<ul style="list-style-type: none"> • EN60950-1, IEC60950-1

*See note 4.

Models and Ratings

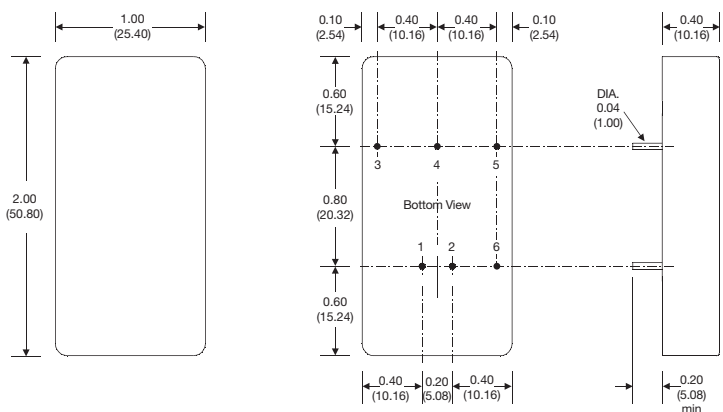
Input Voltage	Output Voltage	Output Current	Input Current ⁽¹⁾		Maximum Capacitive Load	Efficiency	Model Number
			No Load	Full Load			
9-36 VDC	3.3 VDC	5.500 A	50 mA	879 mA	10,000 μ F	89%	JTM2024S3V3
	5.0 VDC	4.000 A	50 mA	957 mA	6,800 μ F	91%	JTM2024S05
	12.0 VDC	1.670 A	22 mA	980 mA	1,000 μ F	89%	JTM2024S12
	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)



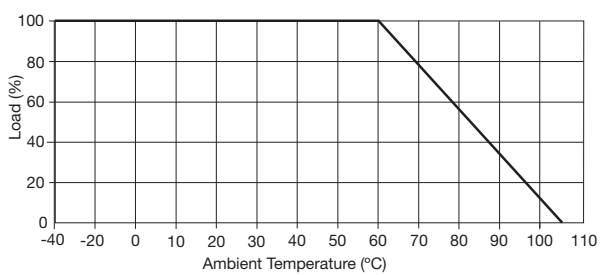
PIN CONNECTIONS		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	Trim	Com
5	-Vout	-Vout
6	Remote On/Off	Remote On/Off

Notes

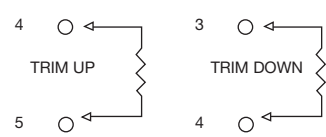
1. All dimensions are in inches (mm).
2. Pin diameter: 0.04 \pm 0.002 (1.0 \pm 0.05)
3. Pin pitch tolerance: \pm 0.014 (\pm 0.35)
4. Case tolerance: \pm 0.02 (\pm 0.5)

Application Notes

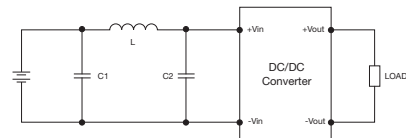
Derating Curve



External Output Trim



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