

20W Convection cooled

DC-DC converters

The JTM20 series is housed in a 50.8 x 25.4 x 10.1mm (2" x 1" x 0.4") metal case with a power density of 1.5W/cm³. Featuring a 4:1 input voltage range of 9 to 36VDC or 18 to 75VDC with both single and dual outputs, singles have 3.3, 5, 12 or 15VDC with duals having ± 5 , ± 12 or ± 15 VDC. Single output models are adjustable $\pm 10\%$ with a trim resistor.

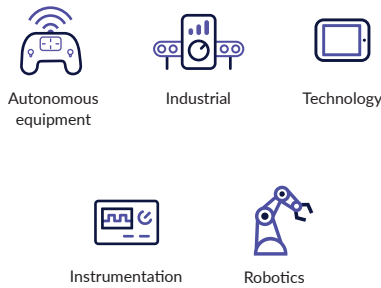
The JTM20 has a regulated output and provides 1.6kVDC isolation between input and output. Operating temperature range is from -40°C to +105°C, with derating above +66°C. An optional heatsink (suffix -HK) extends the full power operating temperature when fitted. Remote on/off is standard.



Features

- ▶ Regulated single outputs 3.3 to 15VDC
- ▶ Regulated dual outputs ± 5 , ± 12 & ± 15 VDC
- ▶ 4:1 input range
- ▶ 50.8 x 25.4mm (2" x 1") footprint, 10.1mm profile
- ▶ Output trim $\pm 10\%$ (single O/P)
- ▶ 1.6kVDC isolation
- ▶ Remote On/Off
- ▶ -40°C to +105°C operating temperature
- ▶ Full power to +66°C
- ▶ 3 year warranty

Applications



Dimensions

50.8 x 25.4 x 10.1mm (2.00" x 1.00" x 0.40")

Documentation

For further information click the link or scan the code

→ xppower.com



Models & ratings

Model number ^(4,5)	Input voltage	Output voltage	Output current	Efficiency	Input current ⁽¹⁾		Maximum capacitive load
					No load	Full load	
JTM2024S3V3	9-18VDC	3.3VDC	5.500A	89%	50mA	879mA	10,000 μ F
JTM2024S05		5.0VDC	4.000A	91%	50mA	957mA	6,800 μ F
JTM2024S12		12.0VDC	1.670A	89%	22mA	980mA	1,000 μ F
JTM2024S15		15.0VDC	1.330A	89%	22mA	968mA	680 μ F
JTM2024D05 ⁽²⁾		± 5.0 VDC	± 2.000 A	89%	65mA	969mA	$\pm 2,200$ μ F
JTM2024D12 ⁽²⁾		± 12.0 VDC	± 0.835 A	88%	25mA	980mA	± 470 μ F
JTM2024D15 ⁽²⁾		± 15.0 VDC	± 0.665 A	89%	25mA	980mA	± 330 μ F

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Notes:

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

Models & ratings

Model number ^(4,5)	Input voltage	Output voltage	Output current	Efficiency	Input current ⁽¹⁾		Maximum capacitive load
					No load	Full load	
JTM2048S3V3	18-75 VDC	3.3VDC	5.500A	89%	30mA	440mA	10,000µF
JTM2048S05		5.0VDC	4.000A	91%	30mA	473mA	6,800µF
JTM2048S12		12.0VDC	1.670A	89%	15mA	484mA	1,000µF
JTM2048S15		15.0VDC	1.330A	89%	15mA	484mA	680µF
JTM2048D05 ⁽²⁾		±5.0VDC	±2.000A	89%	40mA	484mA	±2,200µF
JTM2048D12 ⁽²⁾		±12.0VDC	±0.835A	88%	15mA	490mA	±470µF
JTM2048D15 ⁽²⁾		±15.0VDC	±0.665A	89%	15mA	490mA	±330µF

Notes:

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

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range	9		36	VDC	24VDC nominal
	18		75		48VDC nominal
Input current	See models & ratings table				
Input surge		50			24VDC models (for 1000ms)
		100			48VDC models (for 1000ms)
Undervoltage lockout	On at 8.6VDC Off at 7.9VDC				24VDC models
	On at 17.8VDC Off at 16VDC				48VDC models

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	See models & ratings table				
Output voltage trim		±10		%	Single outputs models only
Minimum load	0			%	No minimum load required
Line regulation			±0.5	%	
Load regulation			±0.5	%	Single output
			±1		Dual outputs
Setpoint accuracy			±1	%	
Cross regulation		±5		%	Cross regulation is ±5% when one output is at 100% and the other is varied between 25% and 100%.
Transient response			3	%	Deviation, recovery to within 1% in <250µs for a 25% load change
Ripple & noise		75		mV	Measured with 20MHz bandwidth and 1µF ceramic capacitor across output rails.
Short circuit protection	Trip & restart (hiccup mode), auto recovery				
Temperature coefficient		0.02		%/°C	
Overload protection		>120		%	Of full load
Remote on/off	On = Logic High (3.0-12.0VDC) or open				
	Off = Logic Low (<1.2VDC) or short pin 2 to 6 (Non-standard versions can have Remote On/Off function and pin removed. Contact XP Power for details)				
Overvoltage protection		3.9		VDC	3.3VDC models
		6.2			5VDC models
		15			12VDC models
		18			15VDC models
		±6.2			±5VDC models
		±15			±12VDC models
	±18		±15VDC models		

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency	See models & ratings table				
Isolation: input to output		1600		VDC	
Isolation: input to case		1600		VDC	
Isolation: output to case		1600		VDC	
Switching frequency		330		kHz	
Power density		1.5 (25.0)		W/cm ³ (W/in ³)	
Mean time between failure		560		khrs	MIL-HDBK-217F, +25°C GB

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+105	°C	See derating curve
Storage temperature	-40		+125	°C	
Case temperature			+105	°C	
Cooling	Convection cooled				
Operating humidity	5		95	%	RH, non condensing

Safety approvals

Safety agency	Standard	Notes & conditions
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Emissions - EMC

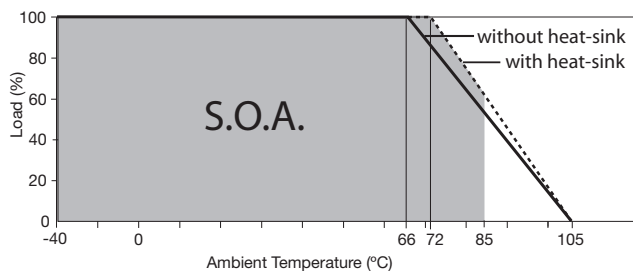
Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55022	Class A	With external components, see application notes
Radiated	EN55022	Class A	

Immunity - EMC

Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD immunity	EN61000-4-2	3	A	
Radiated immunity	EN61000-4-3	10V/m	A	
EFT/Burst	EN61000-4-4	3	B	External input capacitor required, 220µF/100V.
Surge	EN61000-4-5	2	B	External input capacitor required, 220µF/100V.
Conducted immunity	EN61000-4-6	10Vrms	A	
Magnetic fields	EN61000-4-8	1A/m	A	

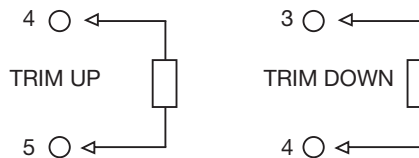
Application notes

Derating curve

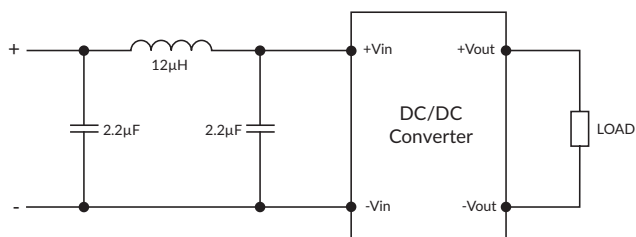


External output trim

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



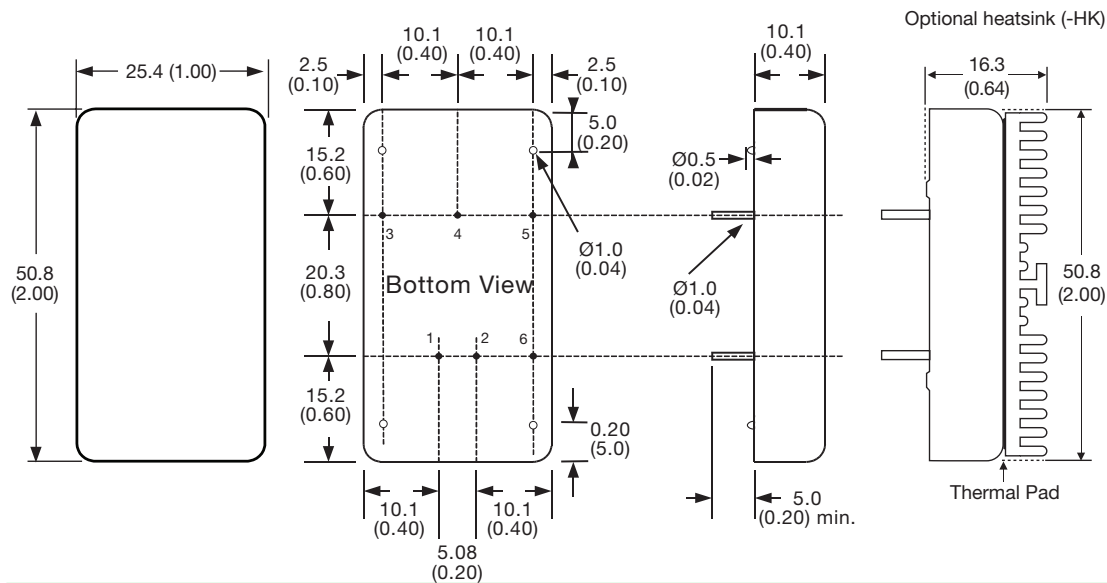
Input filter



Remote on/off control

Output On >3.0 to 12.0VDC or open circuit
Output Off <1.2VDC or short circuit pins 2 & 6

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:

- All dimensions are in mm (inches).
- Weight: 30g (0.07lbs) approx
- Pin diameter: 1.0 ±0.05 (0.04 ±0.002)
- Pin pitch tolerance: ±0.35 (±0.014)
- Case tolerance: ±0.5 (±0.02)
- Stand-off tolerance: ±0.1 (±0.004)