

4W

Convection cooled

DC-DC converters

The JTC04 series is housed in a DIP24 metal case, it features a 4:1 input voltage range of 9 to 36VDC or 18 to 72VDC with both single and dual outputs, singles have 3.3, 5, 9, 12, 15, 18 or 24VDC with duals having ± 3.3 , ± 5 , ± 9 , ± 12 , ± 15 or ± 24 VDC.

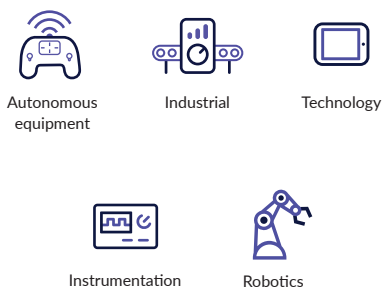
The JTC04 provides 1.5kVDC isolation between input and output, or 3.5kVDC as an option, the output has short circuit protection. The operating temperature range is from -40°C to +100°C, with derating above +85°C.



Features

- ▶ Regulated single & dual outputs
- ▶ 4:1 input range
- ▶ Single outputs 3.3 to 24VDC
- ▶ Dual outputs ± 3.3 to ± 24 VDC
- ▶ DIP24 metal case
- ▶ 1.5kVDC isolation, 3.5kVDC option
- ▶ Continuous short circuit protection
- ▶ -40°C to +100°C operating temperature
- ▶ Full power to +85°C
- ▶ 3 year warranty

Applications



Dimensions

31.7 x 20.3 x 10.4mm (1.25" x 0.8" x 0.40")

More resources

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Models & ratings

Model number	Input voltage	Output voltage	Output current	Efficiency	Input current ⁽¹⁾		Maximum capacitive load
					No load	Full load	
JTC0424S3V3	9-36.0VDC	3.3VDC	1200mA	75%	12mA	220mA	1000 μ F
JTC0424S05		5.0VDC	800mA	79%	15mA	211mA	1000 μ F
JTC0424S09		9.0VDC	445mA	83%	12mA	201mA	220 μ F
JTC0424S12		12.0VDC	333mA	82%	15mA	203mA	100 μ F
JTC0424S15		15.0VDC	267mA	82%	15mA	203mA	220 μ F
JTC0424S18		18.0VDC	223mA	82%	15mA	203mA	10 μ F
JTC0424S24		24.0VDC	167mA	82%	18mA	203mA	220 μ F
JTC0424D03		± 3.3 VDC	± 606 mA	75%	12mA	222mA	± 470 μ F
JTC0424D05		± 5.0 VDC	± 400 mA	79%	15mA	211mA	± 100 μ F
JTC0424D09		± 9.0 VDC	± 222 mA	80%	18mA	208mA	± 47 μ F
JTC0424D12		± 12.0 VDC	± 167 mA	82%	15mA	203mA	± 47 μ F
JTC0424D15		± 15.0 VDC	± 134 mA	80%	20mA	208mA	± 10 μ F
JTC0424D24		± 24.0 VDC	± 84 mA	80%	18mA	208mA	± 2 μ F

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Notes:

1. For optional 3.5kVDC isolation add suffix '-H' to model number.
2. Input current measured at nominal input voltage.
3. Maximum capacitive load is per output.
4. Cross regulation for duals is $\pm 5\%$ when one output is at 100% and the other is varied between 25% and 100%.

Models & ratings

Model number	Input voltage	Output voltage	Output current	Efficiency	Input current ⁽¹⁾		Maximum capacitive load
					No load	Full load	
JTC0448S3V3	18-72VDC	3.3VDC	1200mA	76%	10 mA	110 mA	1000μF
JTC0448S05		5.0VDC	800mA	79%	8 mA	106 mA	470μF
JTC0448S09		9.0VDC	445mA	83%	10 mA	100 mA	330μF
JTC0448S12		12.0VDC	333mA	80%	12 mA	104 mA	1000μF
JTC0448S15		15.0VDC	267mA	84%	10 mA	99 mA	47μF
JTC0448S18		18.0VDC	223mA	84%	10 mA	99 mA	10μF
JTC0448S24		24.0VDC	167mA	82%	15 mA	102 mA	22μF
JTC0448D03		±3.3VDC	±606mA	78%	10 mA	107 mA	±680μF
JTC0448D05		±5.0VDC	±400mA	79%	15 mA	106 mA	±330μF
JTC0448D09		±9.0VDC	±222mA	80%	15 mA	104 mA	±47μF
JTC0448D12		±12.0VDC	±167mA	82%	12 mA	102 mA	±100μF
JTC0448D15		±15.0VDC	±134mA	80%	15 mA	104mA	±100μF
JTC0448D24		±24.0 VDC	±84mA	80%	15 mA	104mA	±10μF

Notes:

- For optional 3.5kVDC isolation add suffix '-H' to model number.
- Input current measured at nominal input voltage.
- Maximum capacitive load is per output.
- Cross regulation for duals is ±5% when one output is at 100% and the other is varied between 25% and 100%.

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range	9		36	VDC	24VDC nominal
	18		72		48VDC nominal
Input current	See models & ratings table				
Input reflected ripple current		35		mA/rms	12μH inductor
Input filter	Pi network				
Input surge		40		VDC	24VDC models (for 100ms)
		80			48VDC models (for 100ms)
Undervoltage lockout	None				
Input reverse voltage protection	None				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	See models & ratings table				
Output voltage balance			±1	%	Dual output models
Initial set accuracy			±1	%	
Minimum load	0			%	No minimum load required
Line regulation		±0.5		%	
Load regulation		±0.5		%	Single outputs
		±1.5			S3V3 & D03 models
Cross regulation		±5.0		%	Dual output models
Start up delay		<800		ms	
Transient Response			<1.5	%	Deviation, recovery to within 1% in 200μs for a 50% load change
Start up rise time		3.5		ms	
Ripple & noise		60		mV pk-pk	3.3VDC to 15VDC models at 20MHz bandwidth
		100			18VDC models at 20MHz bandwidth
		150			24VDC models at 20MHz bandwidth
Overload protection		150		%	Of full load on 5V input models only
Short circuit protection	Trip & restart (hiccup mode), auto recovery				
Temperature coefficient		±0.02		%/ °C	

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency	See models & ratings table				
Isolation: input to output		1500		VDC	Optional high isolation version 3.5kVDC input to output add suffix '-H' to model number
Isolation: input to case		1000		VDC	
Isolation: output to case		1000		VDC	
Isolation resistance		10 ⁹		Ω	
Switching frequency		266		kHz	
Power density		163.87 (10)		W/cm ³ (W/in ³)	
Mean time between failure		>1.0		Mhrs	MIL-HDBK-217F, +25°C GB

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+100	°C	Derate from 100% load at +85°C to no load at +100°C
Storage temperature	-40		+125	°C	
Case temperature			+100	°C	
Cooling	Convection cooled				
Operating humidity			95	%	RH, non condensing

Safety approvals

Certification	Standard	Notes & conditions
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

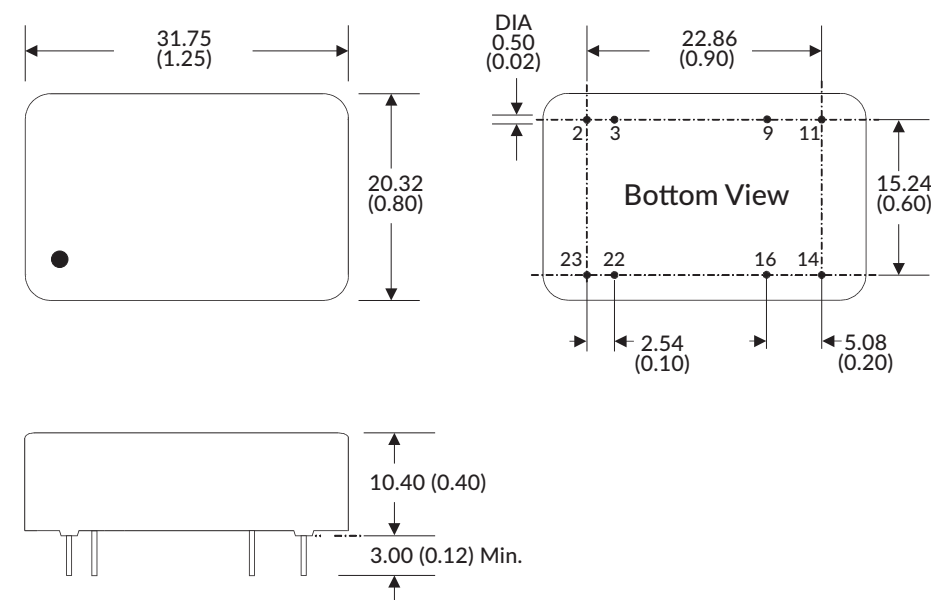
Emissions - EMC

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

Immunity - EMC

Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD immunity	EN61000-4-2		A	8kV air discharge, 4kV contact discharge
EFT/Burst	EN61000-4-4	Level 1	A	
Conducted immunity	EN61000-4-6	3Vrms	A	
Magnetic fields	EN61000-4-8	1A/m	A	

Mechanical details



Pin connections		
Pin	Single	Dual
2	-Vin	-Vin
3	-Vin	-Vin
9	No pin	Common
11	N/C	-Vout
14	+Vout	+Vout
16	-Vout	Common
22	+Vin	+Vin
23	+Vin	+Vin

Notes:

1. All dimensions in inches (mm)

2. Weight: 17g (0.04lbs)

3. Pin diameter tolerance: 0.5 ±0.005 (0.02 ±0.002)
4. Pin pitch tolerance: ±0.35 (±0.014)

5. Case tolerance: ±0.5 (±0.02)