

6W

DC-DC
converters



The JTC06 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 JTC06 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



Autonomous
equipment



Industrial



Technology



Instrumentation



Robotics

Dimensions

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

Documentation

For further information click the link or scan the code

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Models & ratings

Model number ⁽¹⁾	Input voltage	Output voltage	Output current	Efficiency	Input current ⁽²⁾		Maximum capacitive load ⁽³⁾
					No load	Full load	
JTC0624S3V3	9-36.0VDC	3.3VDC	1400mA	76%	12mA	253mA	1000μF
JTC0624S05		5.0VDC	1200mA	80%	10mA	312mA	1000μF
JTC0624S09		9.0VDC	667mA	83%	12mA	301mA	220μF
JTC0624S12		12.0VDC	500mA	83%	15mA	301mA	1000μF
JTC0624S15		15.0VDC	400mA	83%	18mA	301mA	470μF
JTC0624S18		18.0VDC	334mA	83%	15mA	301mA	47μF
JTC0624S24		24.0VDC	250mA	82%	18mA	305mA	47μF
JTC0624D03		± 3.3 VDC	± 909 mA	74%	12mA	338mA	± 470 μF
JTC0624D05		± 5.0 VDC	± 600 mA	80%	10mA	312mA	± 680 μF
JTC0624D09		± 9.0 VDC	± 333 mA	81%	18mA	309mA	± 100 μF
JTC0624D12		± 12.0 VDC	± 250 mA	83%	20mA	301mA	± 330 μF
JTC0624D15		± 15.0 VDC	± 200 mA	82%	22mA	305mA	± 100 μF
JTC0624D24		± 24.0 VDC	± 125 mA	80%	18mA	312mA	± 22 μF

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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 ⁽¹⁾	Input voltage	Output voltage	Output current	Efficiency	Input current ⁽²⁾		Maximum capacitive load ⁽³⁾
					No load	Full load	
JTC0648S3V3	18-72VDC	3.3VDC	1400mA	76%	15mA	126mA	1000μF
JTC0648S05		5.0VDC	1200mA	79%	8mA	156mA	1000μF
JTC0648S09		9.0VDC	667mA	83%	10mA	153mA	220μF
JTC0648S12		12.0VDC	500mA	80%	10mA	151mA	1000μF
JTC0648S15		15.0VDC	400mA	84%	10mA	149mA	470μF
JTC0648S18		18.0VDC	334mA	84%	10mA	151mA	47μF
JTC0648S24		24.0VDC	250mA	82%	12mA	151mA	47μF
JTC0648D03		±3.3VDC	±909mA	78%	10mA	162mA	±470μF
JTC0648D05		±5.0VDC	±600mA	79%	10mA	158mA	±680μF
JTC0648D09		±9.0VDC	±333mA	80%	15mA	154mA	±100μF
JTC0648D12		±12.0VDC	±250mA	82%	10mA	152mA	±330μF
JTC0648D15		±15.0VDC	±200mA	80%	15mA	149mA	±100μF
JTC0648D24		±24.0VDC	±125mA	80%	15mA	154mA	±22μF

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, cross regulation for duals is ±5% when one output is at 100% and the other is varied between 25% and 100%.
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
Maximum capacitive load	See models and ratings table				
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		0.91 (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	

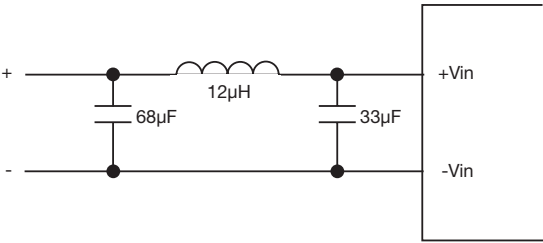
Emissions - EMC

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

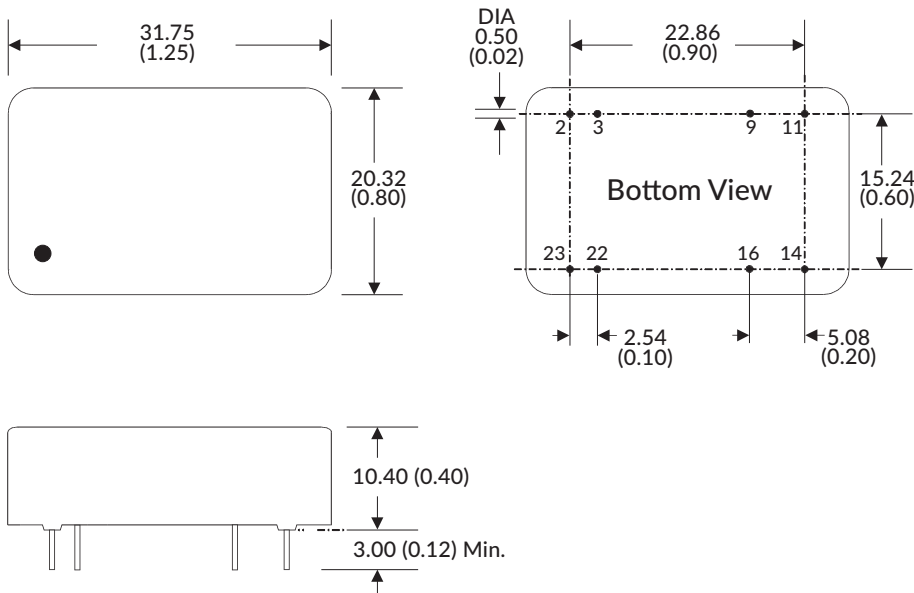
Immunity - EMC

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	

Application notes



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 mm (inches)
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)