JTE06 series

6W

DC-DC converters

The JTE06 series is housed in a DIP24 plastic case. 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, 15 or 24VDC with duals having ±3.3, ±5, ±12, ±15 or ±24VDC.

Single output models are adjustable +/-10% with a trim resistor. The JTE06 provides 1.5kVDC isolation between input and output, or 3.0kVDC as an option. 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 ±24VDC
- DIP24 package, metal case option
- 1.5kVDC isolation, 3.0kVDC option
- No minimum load
- -40°C to +100°C operating temperature
- Full power to +60°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”)

Models & ratings

Model number[1,6]	Input voltage	Output voltage	Output current	Efficiency	Input current[2]		Maximum capacitive load[3]
					No load	Full load	
JTE0624S3V3	9-36VDC	3.3VDC	1400mA	76%	10 mA	257 mA	470µF
JTE0624S05		5.0VDC	1200mA	80%	10 mA	316 mA	470µF
JTE0624S12		12.0VDC	500mA	84%	10 mA	301 mA	100µF
JTE0624S15		15.0VDC	400mA	84%	10 mA	301 mA	100µF
JTE0624S24		24.0VDC	250mA	84%	10 mA	301 mA	47µF
JTE0624D03		±3.3VDC	±909mA	78%	10 mA	324 mA	±220µF
JTE0624D05		±5.0VDC	±600mA	82%	10 mA	308 mA	±220µF
JTE0624D12		±12.0VDC	±250mA	84%	10 mA	301 mA	±100µF
JTE0624D15		±15.0VDC	±200mA	84%	15 mA	301 mA	±100µF
JTE0624D24		±24.0VDC	±125mA	82%	20 mA	308 mA	±47µF

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Notes:

1. For optional 3kVDC 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 ±5% when one output is at 100% and the other is varied between 25% and 100%.
5. Ripple & Noise measured with 1µF ceramic capacitor across output pins.
6. For optional metal case version, add suffix ‘-M’ to part number e.g. JTE0624S12-M.

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Models & ratings

Model number[4,5]	Input voltage	Output voltage	Output current	Efficiency	Input current[1]		Maximum capacitive load[6]
					No load	Full load	
JTE0648S3V3	18-75VDC	3.3VDC	1400mA	76%	7mA	128mA	470µF
JTE0648S05		5.0VDC	1200mA	82%	7mA	154mA	470µF
JTE0648S12		12.0VDC	500mA	84%	7mA	151mA	100µF
JTE0648S15		15.0VDC	400mA	84%	7mA	151mA	100µF
JTE0648S24		24.0VDC	250mA	84%	7mA	151mA	47µF
JTE0648D03		±3.3VDC	±909mA	78%	7mA	162mA	±220µF
JTE0648D05		±5.0VDC	±600mA	82%	7mA	154mA	±220µF
JTE0648D12		±12.0VDC	±250mA	84%	7mA	151mA	±100µF
JTE0648D15		±15.0VDC	±200mA	84%	7mA	151mA	±100µF
JTE0648D24		±24.0VDC	±125mA	80%	10mA	158mA	±47µF

Notes:

1. For optional 3kVDC 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 ±5% when one output is at 100% and the other is varied between 25% and 100%.
5. Ripple & Noise measured with 1µF ceramic capacitor across output pins.
6. For optional metal case version, add suffix '-M' to part number e.g. JTE0624S12-M.

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 reflected ripple current		20		mA pk-pk	12µH inductor and 4.7µF capacitor
Input filter	Pi network				
Input Surge		50			24VDC models (for 100ms)
		100			48VDC models (for 100ms)
Under voltage lockout		On: >8.5		VDC	24VDC models
		Off: <8.0			
		On: <16.5			48VDC models
		Off: <15.5			

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	See models & ratings table				
Output voltage balance		±2		%	Dual outputs
Initial Set Accuracy			±2	%	
Minimum load	0			%	No minimum load required
Line regulation			±0.5	%	
Load regulation			±1.2	%	Single outputs
			±5.0		Dual output from 10-100%
Cross regulation		±5.0		%	Dual outputs
Start up delay		20		ms	
Transient Response			3	%	Deviation, recovery to within 1% in 300 µs for a 25% load change (4% max. deviation for S3V3 models)
Ripple & noise		60		mV pk-pk	Measured with 20MHz bandwidth
Overload protection	135		185	%	Of full load
Short circuit protection	Trip and restart (hiccup mode), auto recovery				
Temperature coefficient		±0.02		%/ °C	

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General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency	See models & ratings table				
Isolation: input to output		1500		VDC	For optional high isolation versions 3kVDC Input to Output add suffix -H to model number
Isolation: input to case		1000		VDC	
Isolation: output to case		1000		VDC	
Isolation capacitance		1000		pF	Input to output
Isolation resistance		10^9		Ω	
Switching frequency		330		kHz	
Power density		0.91 (15)		W/cm^3 (W/in^3)	
Mean time between failure		>800		Khrs	MIL-HDBK-217F, +25°C GB

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+100	°C	Derate from 100% load at +60°C to no load at +100°C
Storage temperature	-55		+125	°C	
Case temperature			+100	°C	
Cooling	Convection cooled				
Operating humidity			95	%	RH, non condensing

Safety approvals

Certification	Standard	Notes & conditions
UL	UL60950-1, CAN/CSA C22.2 No.60950-1	
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Emissions - EMC

Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55022	Class A	

Immunity - EMC

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

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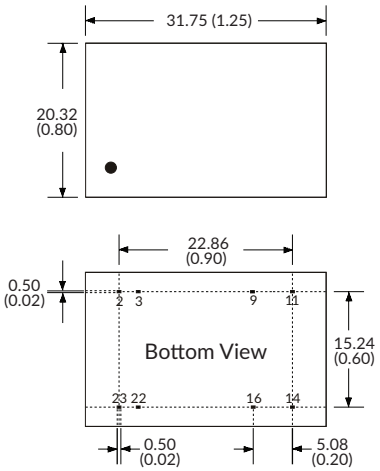
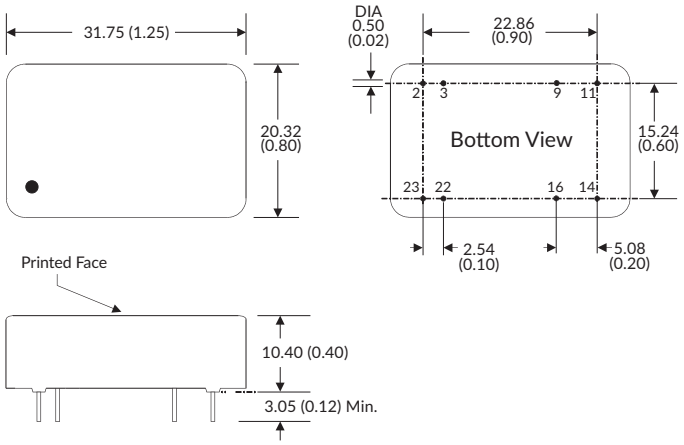
Mechanical details

Plastic case



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

Optional metal case

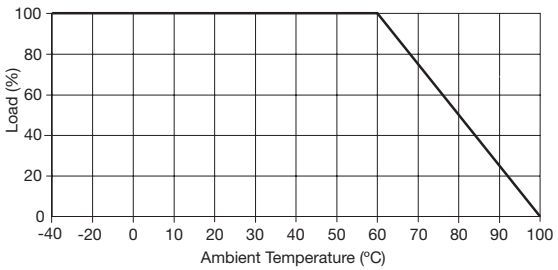


Notes:

1. All dimensions in mm (inches)
2. Weight: 17g (0.04lbs) for plastic case, 16.5g (0.04lbs) for metal case
3. Pin diameter: 0.5 ±0.005 (0.02 ±0.002)
4. Pin pitch and length tolerance: ±0.35 (±0.014)
5. Case tolerance: ±0.5 (±0.02)

Application notes

Derating Curve



Specifications subject to change without notice.