JCE06 series

6W Convection cooled

DC-DC converters

The JCE06 series is housed in a DIP24 PCB mount metal case. Featuring a 2:1 input voltage range of 4.5 to 9VDC, 9 to 18VDC, 18 to 36VDC or 36 to 75VDC with regulated single outputs of 3.3, 5, 9, 12, 15 & 24VDC and dual outputs ±3.3 ±5, ±9, ±12, ±15 or ±24VDC.

The 6W JCE06 has 1.6kVDC isolation (3kVDC optional) between input and output, overload & short circuit protection are standard. The operating temperature range is from -40°C to +100°C, with derating above +60°C.



Features

- Regulated single & dual outputs
- 2:1 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
- -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”)

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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	
JCE0612S3V3	9-18VDC	3.3VDC	1400mA	75%	7mA	513mA	470µF
JCE0612S05		5.0VDC	1200mA	79%	7mA	633mA	470µF
JCE0612S12		12.0VDC	500mA	83%	10mA	602mA	100µF
JCE0612S15		15.0VDC	400mA	84%	10mA	595mA	100µF
JCE0612S24		24.0VDC	250mA	82%	20mA	610mA	47µF
JCE0612D03		±3.3VDC	±909mA	76%	10mA	658mA	±220µF
JCE0612D05		±5.0VDC	±600mA	80%	10mA	625mA	±220µF
JCE0612D12		±12.0VDC	±250mA	83%	15mA	602mA	±100µF
JCE0612D15		±15.0VDC	±200mA	84%	20mA	595mA	±100µF
JCE0612D24		±24.0VDC	±125mA	81%	35mA	617mA	±47µF

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Notes:

1. When one output is set at 100% load and the other varies between 25% & 100% load.
2. Measured with 20MHz bandwidth and 1µF ceramic capacitor across output rails.
3. Input current specified at nominal 12VDC, 24VDC or 48VDC input.
4. For optional 3kVDC isolation add suffix -H to part number e.g. JCE0624S12-H
5. For optional metal case version add suffix -M to part number e.g. JCE0612S24-M
6. Maximum capacitive load is per output
7. For surge immunity, external input capacitor required, 220µF/100VDC. 24VDC & 48VDC input models are Perf Criteria A, 12VDC input models are Perf Criteria B.

JCE06 series

Models & ratings

Model number[4,5]	Input voltage	Output voltage	Output current	Efficiency	Input current[1]		Maximum capacitive load[6]
					No load	Full load	
JCE0624S3V3	18-36VDC	3.3VDC	1400mA	74%	7mA	260mA	470µF
JCE0624S05		5.0VDC	1200mA	77%	7mA	316mA	470µF
JCE0624S12		12.0VDC	666mA	79%	7mA	301mA	100µF
JCE0624S15		15.0VDC	500mA	81%	7mA	301mA	100µF
JCE0624S24		24.0VDC	400mA	82%	10mA	305mA	47µF
JCE0624D03		±3.3VDC	250mA	81%	7mA	329mA	±220µF
JCE0624D05		±5.0VDC	±909mA	74%	7mA	312mA	±220µF
JCE0624D12		±12.0VDC	±600mA	76%	10mA	301mA	±100µF
JCE0624D15		±15.0VDC	±333mA	81%	15mA	298mA	±100µF
JCE0624D24		±24.0VDC	±250mA	79%	20mA	305mA	±47µF
JCE0648S3V3	36-75VDC	3.3VDC	1400mA	75%	7mA	128mA	470µF
JCE0648S05		5.0VDC	1200mA	80%	7mA	154mA	470µF
JCE0648S12		12.0VDC	666mA	83%	7mA	151mA	100µF
JCE0648S15		15.0VDC	500mA	83%	7mA	151mA	100µF
JCE0648S24		24.0VDC	400mA	83%	7mA	151mA	47µF
JCE0648D03		±3.3VDC	250mA	85%	7mA	162mA	±220µF
JCE0648D05		±5.0VDC	±909mA	76%	7mA	154mA	±220µF
JCE0648D12		±12.0VDC	±600mA	81%	7mA	151mA	±100µF
JCE0648D15		±15.0VDC	±333mA	83%	7mA	151mA	±100µF
JCE0648D24		±24.0VDC	±250mA	83%	15mA	158mA	±47µF

Notes:

1. When one output is set at 100% load and the other varies between 25% & 100% load.
2. Measured with 20MHz bandwidth and 1µF ceramic capacitor across output rails.
3. Input current specified at nominal 12VDC, 24VDC or 48VDC input.
4. For optional 3kVDC isolation add suffix -H to part number e.g. JCE0624S12-H
5. For optional metal case version add suffix -M to part number e.g. JCE0612S24-M
6. Maximum capacitive load is per output
7. For surge immunity, external input capacitor required, 220µF/100VDC. 24VDC & 48VDC input models are Perf Criteria A, 12VDC input models are Perf Criteria B.

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range	9		18	VDC	12VDC nominal
	18		36		24VDC nominal
	36		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		25		VDC	12VDC models (for 100ms)
		50			24VDC models (for 100ms)
		100			48VDC models (for 100ms)
Under voltage lockout		On: >8.5		VDC	12VDC models
		Off: <8.0			
		On: >16.5			24VDC models
		Off: <8.0			
		On: >34.5			48VDC models
		Off: <33.5			

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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	

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency	See models & ratings table				
Isolation: input to output		1500		VDC	For optional high isolation versions 3000VDC 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		245.8 (15)		W/cm³ (W/in³)	
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	See derating curve
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	UL62368-1, CAN/CSA C22.2 No. 62368-1 and 62368-1	
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Emissions - EMC

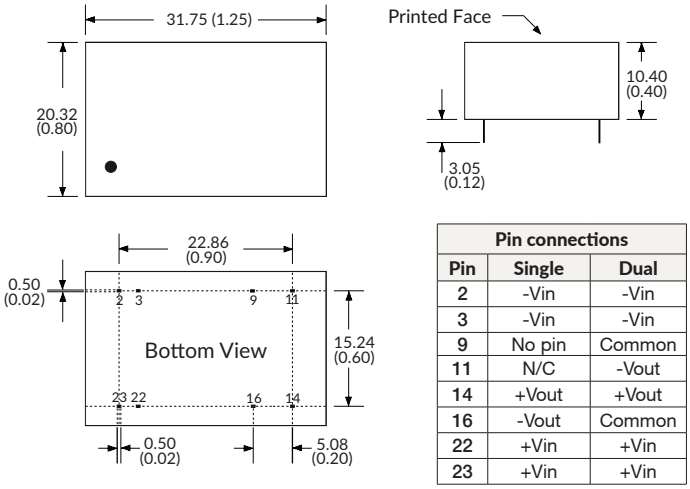
Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55032	Class A	

Immunity - EMC

Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD immunity	EN61000-4-2	Level 3	B	
Radiated immunity	EN61000-4-3	10V/m	A	
EFT/Burst	EN61000-4-4	Level 3	A	
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	

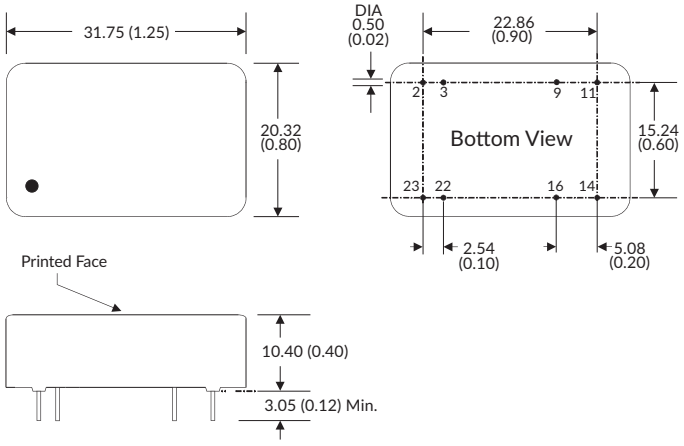
Mechanical details

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: 13g (0.03lbs) 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)
6. Package: 24 pin DIL black plastic (UL94V-0) or optional nickel-coated copper.

Application notes

Derating Curve

