JCA04 series

XP Power

4W Convection cooled

DC-DC converters

The JCA04 series is housed in a 1" x 0.8" x 0.4" (25.4 x 20.3 x 10.2 mm) 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, 12 & 15VDC and dual outputs ±5, ±12 or ±15VDC.

The 4W JCA04 has 1.5kVDC isolation between input and output, over voltage, overload & short circuit protection is standard. The operating temperature range is from -40°C to +100°C, with derating above +75°C.

Features

- Regulated single & dual outputs
- 2:1 input range
- Single outputs 3.3 to 15VDC
- Dual outputs ±5.0 to ±15VDC
- 1.0" x 0.8" metal case
- 1.5kVDC isolation
- -40°C to +100°C operating temperature
- Full power to +85°C
- 3 year warranty

Applications

Autonomous equipment

Industrial

Technology

Instrumentation

Robotics

Dimensions

25.4 x 20.3 x 10.2mm (1.00" x 0.80" 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	
JCA0405S03	4.5-9.0VDC	3.3VDC	1.22A	80%	44mA	1000mA	470µF
JCA0405S05		5.0VDC	0.80A	83%	66mA	955mA	1000µF
JCA0405S12		12.0VDC	0.34A	84%	9mA	975mA	300µF
JCA0405S15		15.0VDC	0.28A	85%	10mA	985mA	200µF
JCA0405D01		±5.0VDC	±0.40A	81%	12mA	982mA	400µF
JCA0405D02		±12.0VDC	±0.17A	83%	34mA	973mA	120µF
JCA0405D03		±15.0VDC	±0.14A	83%	25mA	998mA	150µF

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Notes:

1. Nominal input voltage 5, 12, 24 or 48 VDC.
2. Input current is at nominal input voltage.
3. Efficiency is measured at nominal input and full load at 25°C.

JCA04 series

Models & ratings

Model number	Input voltage	Output voltage	Output current	Efficiency	Input current[1]		Maximum capacitive load
					No load	Full load	
JCA0412S03	9-18VDC	3.3VDC	1.22A	83%	44mA	1000mA	470 µF
JCA0412S05		5.0VDC	0.80A	82%	66mA	955mA	1000 µF
JCA0412S12		12.0VDC	0.34A	82%	9mA	975mA	300 µF
JCA0412S15		15.0VDC	0.28A	84%	10mA	985mA	200 µF
JCA0412D01		±5.0VDC	±0.40A	82%	12mA	982mA	400 µF
JCA0412D02		±12.0VDC	±0.17A	83%	34mA	973mA	120 µF
JCA0412D03		±15.0VDC	±0.14A	83%	25mA	998mA	150 µF
JCA0424S03	18-36VDC	3.3VDC	1.22A	82%	38mA	403mA	1520 µF
JCA0424S05		5.0VDC	0.80A	80%	46mA	396mA	1000 µF
JCA0424S12		12.0VDC	0.34A	82%	18mA	404mA	222 µF
JCA0424S15		15.0VDC	0.28A	83%	22mA	416mA	133 µF
JCA0424D01		±5.0VDC	±0.40A	81%	15mA	409mA	400 µF
JCA0424D02		±12.0VDC	±0.17A	83%	21mA	407mA	100 µF
JCA0424D03		±15.0VDC	±0.14A	81%	25mA	422mA	100 µF
JCA0448S03	36-75VDC	3.3VDC	1.22A	82%	21mA	204mA	1520 µF
JCA0448S05		5.0VDC	0.80A	80%	34mA	205mA	1000 µF
JCA0448S12		12.0VDC	0.34A	80%	13mA	205mA	500 µF
JCA0448S15		15.0VDC	0.28A	81%	13mA	211mA	300 µF
JCA0448D01		±5.0VDC	±0.40A	80%	11mA	207mA	400 µF
JCA0448D02		±12.0VDC	±0.17A	82%	16mA	209mA	250 µF
JCA0448D03		±15.0VDC	±0.14A	82%	17mA	213mA	150 µF

Notes:

1. Nominal input voltage 5, 12, 24 or 48 VDC.
2. Input current is at nominal input voltage.
3. Efficiency is measured at nominal input and full load at 25°C.

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range	4.5		9	VDC	5VDC nominal
	9		18		12VDC nominal
	18		36		24VDC nominal
	36		75		48VDC nominal
Input current	See models & ratings table				
Input filter	Pi network				
Input Reflected Ripple		80		mA	30mA for all other models
Input surge		10		VDC	5VDC models (for 1s max)
		25			12VDC models (for 1s max)
		50			24VDC models (for 1s max)
		100			48VDC models (for 1s max)

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	See models & ratings table				
Initial set accuracy			±1	%	Single outputs models only
Minimum load	0			%	No minimum load required
Line regulation		±0.3		%	
Load regulation		±1		%	
Cross regulation		±5.0		%	Dual output models
Start up delay			200	ms	
Start up rise time		3.5		ms	
Transient response			4	%	Deviation, recovery to within 1% in <500µs for a 25% load change at 1Aµs
Ripple & noise		50		mV	Measured with 20MHz bandwidth
Overcurrent protection		150		%	Trip and restart (hiccup mode)
Short circuit protection	Continuous with auto recovery				
Temperature coefficient		±0.05		%/°C	
Overvoltage protection		150		%	Recycle input to reset
Temperature coefficient		±0.05		%/°C	

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency	See models & ratings table				
Isolation: input to output		1500		VDC	Basic insulation
Isolation: input to case		500			
Isolation: output to case		500			
Isolation capacitance		1200		pF	
Switching frequency		300		kHz	
Power density		204.83 (12.5)		W/cm^3 (W/in^3)	
Mean time between failure		1		mhrs	MIL-HDBK-217F, +25°C GB

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+100	°C	Derates from 100% load at +75°C linearly to 0% 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, UL62368-1	
EN	EN62368-1, IEC60950-1, IEC62368-1	
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Emissions - EMC

Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55022	Level A	Level B with external components, see application note
Radiated	EN55022	Level B	

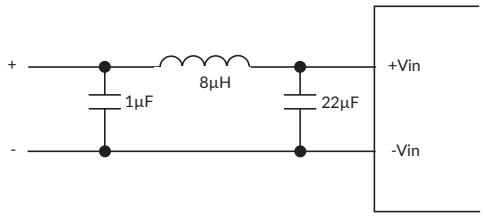
Immunity - EMC

Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD immunity	EN61000-4-2	Level 2	A	
Radiated immunity	EN61000-4-3	3V/m	A	
Conducted immunity	EN61000-4-6	3Vrms	A	
Magnetic fields	EN61000-4-8	10A/m	A	

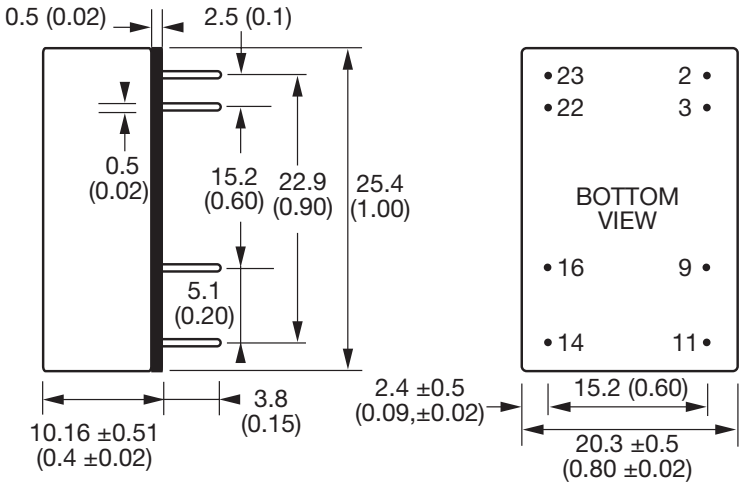
Application notes

Input filter

To meet level B conducted emissions.



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: 12g (0.03lbs)
3. Pin diameter tolerance: ±0.02 (±0.00079)
4. Pin pitch tolerance: ±0.25 (±0.01)
5. Case tolerance: ±0.5 (±0.02)