JCA10 series

10W Convection cooled

DC-DC converters

The JCA10 series is housed in a 25.4 x 20.3 x 10.2mm (1" x 0.8" x 0.4") 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 10W JCA10 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 +70°C.

Features

- Regulated single & dual outputs
- 2:1 input range
- Single outputs 3.3 to 15VDC
- Dual outputs ±5.0 to ±15VDC
- 25.4 x 20.3mm (1.0" x 0.8") metal case
- 1.5kVDC isolation
- -40°C to +100°C operating temperature
- Full power to +75°C
- 3 year warranty

Applications

Autonomous equipment

Industrial

Technology

Instrumentation

Robotics

Dimensions

20.3 x 25.4 x 10.2mm (0.80" x 1.00" x 0.40")

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Models & ratings

Model number	Input voltage[1]	Output voltage	Output current	Efficiency[3]	Input current[2]		Maximum capacitive load
					No load	Full load	
JCA1005S03	4.5-9.0VDC	3.3VDC	2.42A	82%	100mA	1.905A	3300µF
JCA1005S05		5.0VDC	1.60A	86%	84mA	1.839A	2200µF
JCA1005S12		12.0VDC	0.83A	85%	126mA	2.324A	1000µF
JCA1005S15		15.0VDC	0.66A	86%	120mA	2.271A	940µF
JCA1005D01		±5.0VDC	±0.80A	82%	129mA	1.918A	1000µF
JCA1005D02		±12.0VDC	±0.42A	84%	126mA	2.388A	470µF
JCA1005D03		±15.0VDC	±0.33A	85%	105mA	2.297A	470µF

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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.

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Models & ratings

Model number	Input voltage[1]	Output voltage	Output current	Efficiency[3]	Input current[2]		Maximum capacitive load
					No load	Full load	
JCA1012S03	9-18VDC	3.3VDC	2.42A	84%	52mA	0.784A	3300µF
JCA1012S05		5.0VDC	1.60A	89%	49mA	0.745A	2200µF
JCA1012S12		12.0VDC	0.83A	89%	42mA	0.930A	1000µF
JCA1012S15		15.0VDC	0.66A	89%	42mA	0.916A	940µF
JCA1012D01		±5.0VDC	±0.80A	85%	45mA	0.778A	1000µF
JCA1012D02		±12.0VDC	±0.42A	88%	44mA	0.944A	470µF
JCA1012D03		±15.0VDC	±0.33A	89%	44mA	0.915A	470µF
JCA1024S03	18-36VDC	3.3VDC	2.42A	85%	28mA	0.388A	3300µF
JCA1024S05		5.0VDC	1.60A	88%	27mA	0.375A	2200µF
JCA1024S12		12.0VDC	0.83A	89%	19mA	0.461A	1000µF
JCA1024S15		15.0VDC	0.66A	90%	18mA	0.455A	940µF
JCA1024D01		±5.0VDC	±0.80A	85%	16mA	0.387A	1000µF
JCA1024D02		±12.0VDC	±0.42A	89%	22mA	0.469A	470µF
JCA1024D03		±15.0VDC	±0.33A	90%	25mA	0.455A	470µF
JCA1048S03	36-75VDC	3.3VDC	2.42A	82%	13mA	0.199A	3300µF
JCA1048S05		5.0VDC	1.60A	89%	11mA	0.186A	2200µF
JCA1048S12		12.0VDC	0.83A	89%	7mA	0.231A	1000µF
JCA1048S15		15.0VDC	0.66A	89%	9mA	0.229A	940µF
JCA1048D01		±5.0VDC	±0.80A	85%	5mA	0.194A	1000µF
JCA1048D02		±12.0VDC	±0.42A	89%	9mA	0.236A	470µF
JCA1048D03		±15.0VDC	±0.33A	89%	10mA	0.229A	470µF

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.

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		VDC	
Isolation: output to case		500		VDC	
Isolation capacitance		1200		pF	
Switching frequency		300		kHz	
Power density		512.09 (31.25)		W/cm^3 (W/in^3)	
Mean time between failure		>950		khrs	MIL-HDBK-217F, +25°C GB

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 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)

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Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	See models & ratings table				
Output voltage trim		±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 with one output at 5% load and other varied from 5% to 100%
Start up delay		30		ms	
Start up rise time		3.5		ms	
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	

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+100	°C	Derates from 100% load at +70°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	UL62368-1	
EN	IEC62368-1, EN62368-1	
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Emissions - EMC

Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55032	Level A	Level B with external components, see application note
Radiated	EN55032	Level B	

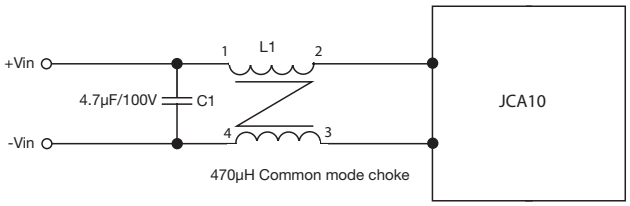
Immunity - EMC

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	

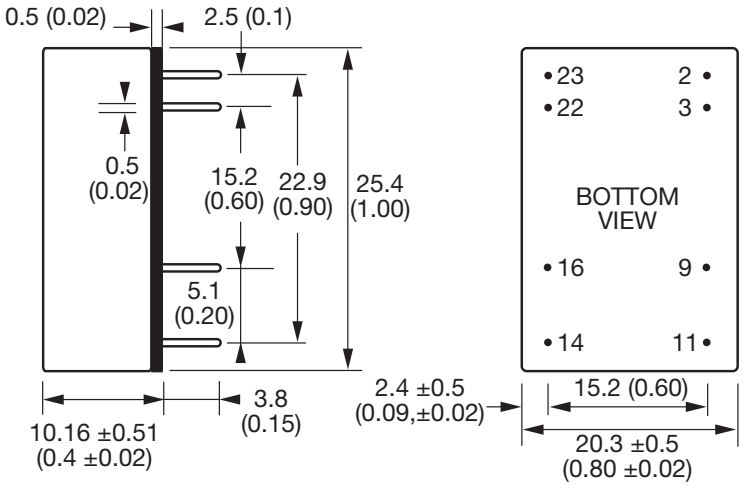
Application notes

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 inches (mm)
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)