

JCA02-03 SERIES

DC/DC Single & Dual Output: 2 - 3 Watts



Specification

Input

Input Voltage Range	<ul style="list-style-type: none"> 5 V (4.5-9.0 VDC) 12 V (9-18 VDC) 24 V (18-36 VDC) 48 V (36-75 VDC)
Input Current	<ul style="list-style-type: none"> See table
Input Filter	<ul style="list-style-type: none"> Pi network
Undervoltage Lockout	<ul style="list-style-type: none"> Turn On at >90-95% of rated input Turn Off at <80% of rated input
Input Reflected Ripple Current	<ul style="list-style-type: none"> 80 mA, 5 V input models, 30 mA all others 12 μH inductor, 5 Hz to 20 MHz
Input Surge	<ul style="list-style-type: none"> 5 V models 10 V for 1 s max, 12 V models 25 V for 1 s max, 24 V models 50 V for 1 s max, 48 V models 100 V for 1 s max

Output

Output Voltage	<ul style="list-style-type: none"> See table
Initial Set Accuracy	<ul style="list-style-type: none"> $\pm 1\%$ max
Start Up Delay	<ul style="list-style-type: none"> 30 ms max
Start Up Rise Time	<ul style="list-style-type: none"> 3.5 ms typical
Minimum Load	<ul style="list-style-type: none"> No minimum load required
Line Regulation	<ul style="list-style-type: none"> $\pm 0.3\%$
Load Regulation	<ul style="list-style-type: none"> $\pm 1\%$
Cross Regulation	<ul style="list-style-type: none"> $\pm 5\%$ on dual output models
Transient Response	<ul style="list-style-type: none"> 4% max deviation, recovery to within 1% in <500 μs for a 25% load change at 1 A/μs
Ripple & Noise	<ul style="list-style-type: none"> 50 mV pk-pk, 20 MHz bandwidth
Overcurrent Protection	<ul style="list-style-type: none"> 150% typical, trip and restart (hiccup mode)
Short Circuit Protection	<ul style="list-style-type: none"> Continuous with auto recovery
Overvoltage Protection	<ul style="list-style-type: none"> 150% typical, Recycle input to reset
Temperature Coefficient	<ul style="list-style-type: none"> $\pm 0.05\%/^{\circ}\text{C}$

Features

- Compact 1.0" x 0.8" Metal Package
- Industry Standard Pin Out
- 2:1 Input Range
- Single & Dual Outputs
- Operating Temperature -40 °C to +100 °C
- UL & TUV Approved

General

Efficiency	<ul style="list-style-type: none"> See table
Isolation	<ul style="list-style-type: none"> 1500 VDC Input to Output, basic insulation 500 VDC Input to Case 500 VDC Output to Case
Switching Frequency	<ul style="list-style-type: none"> 300 kHz typical
Power Density	<ul style="list-style-type: none"> JCA02: 6.25 W/in³, JCA03: 9.38 W/in³
MTBF	<ul style="list-style-type: none"> >2 Mhrs to MIL-HDBK-217F at 25 °C, GB

Environmental

Operating Temperature	<ul style="list-style-type: none"> -40 °C to +100 °C output power derates from 100% load at +75 °C linearly to 0% load at +100 °C
Case Temperature	<ul style="list-style-type: none"> +100 °C max
Storage Temperature	<ul style="list-style-type: none"> -55 °C to +125 °C
Cooling	<ul style="list-style-type: none"> Convection cooled
Operating Humidity	<ul style="list-style-type: none"> Up to 95% RH, non-condensing

EMC & Safety

Emissions	<ul style="list-style-type: none"> EN55022, level A conducted (level B with external components, see application note), level B radiated
ESD Immunity	<ul style="list-style-type: none"> EN61000-4-2, level 2 Perf Criteria A
Radiated Immunity	<ul style="list-style-type: none"> EN61000-4-3, 3 V/m Perf Criteria A
Conducted Immunity	<ul style="list-style-type: none"> EN61000-4-6, 3 V rms Perf Criteria A
Magnetic Fields	<ul style="list-style-type: none"> EN61000-4-8, 10 A/m, Perf Criteria A
Safety Approvals	<ul style="list-style-type: none"> EN60950-1, UL60950-1, CSA C22.2 No. 60950-1-03, CE Mark LVD

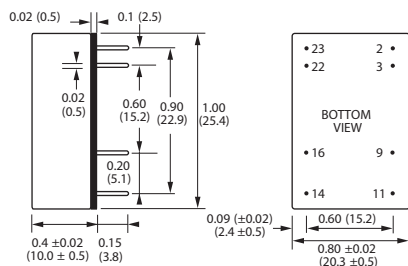
Input Voltage ⁽¹⁾	Output Voltage	Output Current	Input Current ⁽²⁾		Efficiency	Model Number
			No Load	Full Load		
4.5-9.0 VDC	3.3 VDC	0.600 A	28 mA	560 mA	69%	JCA0205S03 $\uparrow\downarrow$
	5.0 VDC	0.400 A	10 mA	535 mA	73%	JCA0205S05 $\uparrow\downarrow$
	12.0 VDC	0.170 A	15 mA	526 mA	74%	JCA0205S12 $\uparrow\downarrow$
	15.0 VDC	0.140 A	26 mA	559 mA	74%	JCA0205S15 $\uparrow\downarrow$
	± 5.0 VDC	± 0.200 A	15 mA	502 mA	74%	JCA0205D01 $\uparrow\downarrow$
	± 12.0 VDC	± 0.085 A	19 mA	537 mA	73%	JCA0205D02 $\uparrow\downarrow$
9-18 VDC	3.3 VDC	0.600 A	8 mA	225 mA	72%	JCA0212S03 $\uparrow\downarrow$
	5.0 VDC	0.400 A	5 mA	224 mA	74%	JCA0212S05 $\uparrow\downarrow$
	12.0 VDC	0.170 A	5 mA	223 mA	74%	JCA0212S12 $\uparrow\downarrow$
	15.0 VDC	0.140 A	7 mA	227 mA	74%	JCA0212S15 $\uparrow\downarrow$
	± 5.0 VDC	± 0.200 A	10 mA	219 mA	74%	JCA0212D01 $\uparrow\downarrow$
	± 12.0 VDC	± 0.085 A	9 mA	223 mA	74%	JCA0212D02 $\uparrow\downarrow$
18-36 VDC	3.3 VDC	0.600 A	3 mA	112 mA	73%	JCA0224S03 $\uparrow\downarrow$
	5.0 VDC	0.400 A	3 mA	107 mA	75%	JCA0224S05 $\uparrow\downarrow$
	12.0 VDC	0.170 A	4 mA	109 mA	75%	JCA0224S12 $\uparrow\downarrow$
	15.0 VDC	0.140 A	4 mA	111 mA	75%	JCA0224S15 $\uparrow\downarrow$
	± 5.0 VDC	± 0.200 A	3 mA	107 mA	76%	JCA0224D01 $\uparrow\downarrow$
	± 12.0 VDC	± 0.085 A	5 mA	108 mA	76%	JCA0224D02 $\uparrow\downarrow$
36-75 VDC	3.3 VDC	0.600 A	3 mA	62 mA	71%	JCA0248S03 $\uparrow\downarrow$
	5.0 VDC	0.400 A	5 mA	58 mA	70%	JCA0248S05 $\uparrow\downarrow$
	12.0 VDC	0.170 A	3 mA	58 mA	70%	JCA0248S12 $\uparrow\downarrow$
	15.0 VDC	0.140 A	3 mA	59 mA	72%	JCA0248S15 $\uparrow\downarrow$
	± 5.0 VDC	± 0.200 A	2 mA	56 mA	73%	JCA0248D01 $\uparrow\downarrow$
	± 12.0 VDC	± 0.085 A	3 mA	57 mA	73%	JCA0248D02 $\uparrow\downarrow$
	± 15.0 VDC	± 0.070 A	3 mA	60 mA	70%	JCA0248D03 $\uparrow\downarrow$

Input Voltage ⁽¹⁾	Output Voltage	Output Current	Input Current ⁽²⁾		Efficiency	Model Number
			No Load	Full Load		
4.5-9.0 VDC	3.3 VDC	0.910 A	28 mA	873 mA	68%	JCA0305S03 $\uparrow\downarrow$
	5.0 VDC	0.600 A	10 mA	835 mA	74%	JCA0305S05 $\uparrow\downarrow$
	12.0 VDC	0.260 A	15 mA	805 mA	75%	JCA0305S12 $\uparrow\downarrow$
	15.0 VDC	0.200 A	26 mA	804 mA	74%	JCA0305S15 $\uparrow\downarrow$
	± 5.0 VDC	± 0.300 A	15 mA	778 mA	74%	JCA0305D01 $\uparrow\downarrow$
	± 12.0 VDC	± 0.130 A	19 mA	793 mA	74%	JCA0305D02 $\uparrow\downarrow$
9-18 VDC	3.3 VDC	0.910 A	8 mA	333 mA	74%	JCA0312S03 $\uparrow\downarrow$
	5.0 VDC	0.600 A	5 mA	324 mA	75%	JCA0312S05 $\uparrow\downarrow$
	12.0 VDC	0.260 A	5 mA	315 mA	78%	JCA0312S12 $\uparrow\downarrow$
	15.0 VDC	0.200 A	7 mA	322 mA	77%	JCA0312S15 $\uparrow\downarrow$
	± 5.0 VDC	± 0.300 A	10 mA	325 mA	75%	JCA0312D01 $\uparrow\downarrow$
	± 12.0 VDC	± 0.130 A	9 mA	313 mA	75%	JCA0312D02 $\uparrow\downarrow$
18-36 VDC	3.3 VDC	0.910 A	3 mA	165 mA	74%	JCA0324S03 $\uparrow\downarrow$
	5.0 VDC	0.600 A	3 mA	157 mA	77%	JCA0324S05 $\uparrow\downarrow$
	12.0 VDC	0.260 A	4 mA	154 mA	77%	JCA0324S12 $\uparrow\downarrow$
	15.0 VDC	0.200 A	4 mA	157 mA	77%	JCA0324S15 $\uparrow\downarrow$
	± 5.0 VDC	± 0.300 A	3 mA	156 mA	77%	JCA0324D01 $\uparrow\downarrow$
	± 12.0 VDC	± 0.130 A	5 mA	154 mA	77%	JCA0324D02 $\uparrow\downarrow$
36-75 VDC	3.3 VDC	0.910 A	3 mA	82 mA	73%	JCA0348S03 $\uparrow\downarrow$
	5.0 VDC	0.600 A	5 mA	82 mA	74%	JCA0348S05 $\uparrow\downarrow$
	12.0 VDC	0.260 A	6 mA	79 mA	75%	JCA0348S12 $\uparrow\downarrow$
	15.0 VDC	0.200 A	6 mA	81 mA	75%	JCA0348S15 $\uparrow\downarrow$
	± 5.0 VDC	± 0.300 A	2 mA	79 mA	76%	JCA0348D01 $\uparrow\downarrow$
	± 12.0 VDC	± 0.130 A	3 mA	78 mA	76%	JCA0348D02 $\uparrow\downarrow$
	± 15.0 VDC	± 0.100 A	3 mA	82 mA	74%	JCA0348D03 $\uparrow\downarrow$

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.

Mechanical Details and Application Note



PIN CONNECTIONS		
Pin	Single Output	Dual Output
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

1. All dimensions in inches (mm)
2. Weight: 0.03 lbs (12 g)
3. Pin diameter tolerance: ± 0.00079 (± 0.02)
4. Pin pitch tolerance: ± 0.01 (± 0.25)
5. Case tolerance: ± 0.02 (± 0.5)

Input Filter

To meet level B conducted emissions.

