

JCA02-03 SERIES

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



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

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">• $\pm 0.05\%/^{\circ}\text{C}$

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

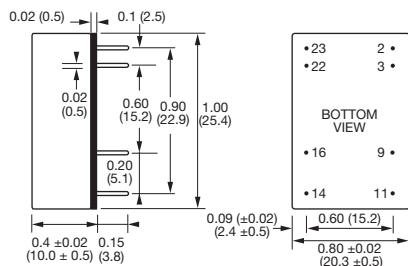
Input Voltage ⁽¹⁾	Output Voltage	Output Current	Input Current ⁽²⁾		Efficiency	Model Number
			No Load	Full Load		
4.5-9.0 VDC	3.3 VDC	0.600 A	28 mA	560 mA	69%	JCA0205S03† ^A
	5.0 VDC	0.400 A	10 mA	535 mA	73%	JCA0205S05† ^A
	12.0 VDC	0.170 A	15 mA	526 mA	74%	JCA0205S12† ^A
	15.0 VDC	0.140 A	26 mA	559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

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† ^A
	5.0 VDC	0.600 A	10 mA	835 mA	74%	JCA0305S05† ^A
	12.0 VDC	0.260 A	15 mA	805 mA	75%	JCA0305S12† ^A
	15.0 VDC	0.200 A	26 mA	804 mA	74%	JCA0305S15† ^A
	±5.0 VDC	±0.300 A	15 mA	778 mA	74%	JCA0305D01† ^A
	±12.0 VDC	±0.130 A	19 mA	793 mA	74%	JCA0305D02† ^A
9-18 VDC	3.3 VDC	0.910 A	8 mA	333 mA	74%	JCA0312S03† ^A
	5.0 VDC	0.600 A	5 mA	324 mA	75%	JCA0312S05† ^A
	12.0 VDC	0.260 A	5 mA	315 mA	78%	JCA0312S12† ^A
	15.0 VDC	0.200 A	7 mA	322 mA	77%	JCA0312S15† ^A
	±5.0 VDC	±0.300 A	10 mA	325 mA	75%	JCA0312D01† ^A
	±12.0 VDC	±0.130 A	9 mA	313 mA	75%	JCA0312D02† ^A
18-36 VDC	3.3 VDC	0.910 A	3 mA	165 mA	74%	JCA0324S03† ^A
	5.0 VDC	0.600 A	3 mA	157 mA	77%	JCA0324S05† ^A
	12.0 VDC	0.260 A	4 mA	154 mA	77%	JCA0324S12† ^A
	15.0 VDC	0.200 A	4 mA	157 mA	77%	JCA0324S15† ^A
	±5.0 VDC	±0.300 A	3 mA	156 mA	77%	JCA0324D01† ^A
	±12.0 VDC	±0.130 A	5 mA	154 mA	77%	JCA0324D02† ^A
36-75 VDC	3.3 VDC	0.910 A	3 mA	82 mA	73%	JCA0348S03† ^A
	5.0 VDC	0.600 A	5 mA	82 mA	74%	JCA0348S05† ^A
	12.0 VDC	0.260 A	6 mA	79 mA	75%	JCA0348S12† ^A
	15.0 VDC	0.200 A	6 mA	81 mA	75%	JCA0348S15† ^A
	±5.0 VDC	±0.300 A	2 mA	79 mA	76%	JCA0348D01† ^A
	±12.0 VDC	±0.130 A	3 mA	78 mA	76%	JCA0348D02† ^A
36-75 VDC	3.3 VDC	0.910 A	3 mA	82 mA	74%	JCA0348D03† ^A

Notes

- Nominal input voltage 5, 12, 24 or 48 VDC.
- Input current is at nominal input voltage.
- 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

- All dimensions in inches (mm)
- Weight: 0.03 lbs (12 g)
- Pin diameter tolerance: ±0.00079 (±0.02)
- Pin pitch tolerance: ±0.01 (±0.25)
- Case tolerance: ±0.02 (±0.5)

Input Filter

To meet level B conducted emissions.

