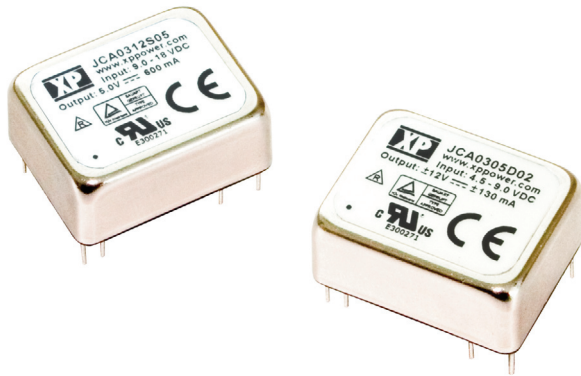




**THE DATASHEET OF
JCA0312S03**



JCA Series



- Compact 1.0" x 0.8" Metal Package
- Industry Standard Pin Out
- 2:1 Input Range
- Single & Dual Outputs
- Operating Temperature $-40\text{ }^{\circ}\text{C}$ to $+100\text{ }^{\circ}\text{C}$
- UL & TUV Approved
- 3 Year Warranty

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
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 $< 500\text{ }\mu\text{s}$ 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"> • $> 2\text{ Mhrs}$ to MIL-HDBK-217F at $25\text{ }^{\circ}\text{C}$, GB

Environmental

Operating Temperature	<ul style="list-style-type: none"> • $-40\text{ }^{\circ}\text{C}$ to $+100\text{ }^{\circ}\text{C}$ output power derates from 100% load at $+75\text{ }^{\circ}\text{C}$ linearly to 0% load at $+100\text{ }^{\circ}\text{C}$
Case Temperature	<ul style="list-style-type: none"> • $+100\text{ }^{\circ}\text{C}$ max
Storage Temperature	<ul style="list-style-type: none"> • $-55\text{ }^{\circ}\text{C}$ to $+125\text{ }^{\circ}\text{C}$
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"> • EN55032, 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"> • EN62368-1, UL62368-1, IEC62368-1 • CE & UKCA meets all applicable directives & legislation

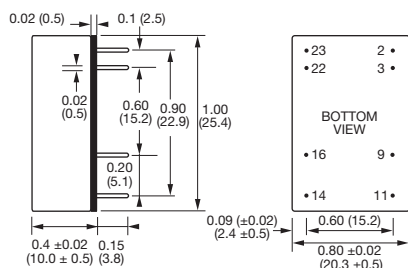
Input Voltage ⁽¹⁾	Output Voltage	Output Current	Input Current ⁽²⁾		Efficiency	Model Number
			No Load	Full Load		
4.5-9.0 VDC	3.3 VDC	0.600 A	28 mA	560 mA	69%	JCA0205S03
	5.0 VDC	0.400 A	10 mA	535 mA	73%	JCA0205S05
	12.0 VDC	0.170 A	15 mA	526 mA	74%	JCA0205S12
	15.0 VDC	0.140 A	26 mA	559 mA	74%	JCA0205S15
	±5.0 VDC	±0.200 A	15 mA	502 mA	74%	JCA0205D01
	±12.0 VDC	±0.085 A	19 mA	537 mA	73%	JCA0205D02
	±15.0 VDC	±0.070 A	25 mA	560 mA	70%	JCA0205D03
9-18 VDC	3.3 VDC	0.600 A	8 mA	225 mA	72%	JCA0212S03
	5.0 VDC	0.400 A	5 mA	224 mA	74%	JCA0212S05
	12.0 VDC	0.170 A	5 mA	223 mA	74%	JCA0212S12
	15.0 VDC	0.140 A	7 mA	227 mA	74%	JCA0212S15
	±5.0 VDC	±0.200 A	10 mA	219 mA	74%	JCA0212D01
	±12.0 VDC	±0.085 A	9 mA	223 mA	74%	JCA0212D02
	±15.0 VDC	±0.070 A	11 mA	232 mA	73%	JCA0212D03
18-36 VDC	3.3 VDC	0.600 A	3 mA	112 mA	73%	JCA0224S03
	5.0 VDC	0.400 A	3 mA	107 mA	75%	JCA0224S05
	12.0 VDC	0.170 A	4 mA	109 mA	75%	JCA0224S12
	15.0 VDC	0.140 A	4 mA	111 mA	75%	JCA0224S15
	±5.0 VDC	±0.200 A	3 mA	107 mA	76%	JCA0224D01
	±12.0 VDC	±0.085 A	5 mA	108 mA	76%	JCA0224D02
	±15.0 VDC	±0.070 A	6 mA	115 mA	73%	JCA0224D03
36-75 VDC	3.3 VDC	0.600 A	3 mA	62 mA	71%	JCA0248S03
	5.0 VDC	0.400 A	5 mA	58 mA	70%	JCA0248S05
	12.0 VDC	0.170 A	3 mA	58 mA	70%	JCA0248S12
	15.0 VDC	0.140 A	3 mA	59 mA	72%	JCA0248S15
	±5.0 VDC	±0.200 A	2 mA	56 mA	73%	JCA0248D01
	±12.0 VDC	±0.085 A	3 mA	57 mA	73%	JCA0248D02
	±15.0 VDC	±0.070 A	3 mA	60 mA	70%	JCA0248D03

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
	5.0 VDC	0.600 A	10 mA	835 mA	74%	JCA0305S05
	12.0 VDC	0.260 A	15 mA	805 mA	75%	JCA0305S12
	15.0 VDC	0.200 A	26 mA	804 mA	74%	JCA0305S15
	±5.0 VDC	±0.300 A	15 mA	778 mA	74%	JCA0305D01
	±12.0 VDC	±0.130 A	19 mA	793 mA	74%	JCA0305D02
	±15.0 VDC	±0.100 A	25 mA	820 mA	73%	JCA0305D03
9-18 VDC	3.3 VDC	0.910 A	8 mA	333 mA	74%	JCA0312S03
	5.0 VDC	0.600 A	5 mA	324 mA	75%	JCA0312S05
	12.0 VDC	0.260 A	5 mA	315 mA	78%	JCA0312S12
	15.0 VDC	0.200 A	7 mA	322 mA	77%	JCA0312S15
	±5.0 VDC	±0.300 A	10 mA	325 mA	75%	JCA0312D01
	±12.0 VDC	±0.130 A	9 mA	313 mA	75%	JCA0312D02
	±15.0 VDC	±0.100 A	11 mA	322 mA	73%	JCA0312D03
18-36 VDC	3.3 VDC	0.910 A	3 mA	165 mA	74%	JCA0324S03
	5.0 VDC	0.600 A	3 mA	157 mA	77%	JCA0324S05
	12.0 VDC	0.260 A	4 mA	154 mA	77%	JCA0324S12
	15.0 VDC	0.200 A	4 mA	157 mA	77%	JCA0324S15
	±5.0 VDC	±0.300 A	3 mA	156 mA	77%	JCA0324D01
	±12.0 VDC	±0.130 A	5 mA	154 mA	77%	JCA0324D02
	±15.0 VDC	±0.100 A	6 mA	160 mA	75%	JCA0324D03
36-75 VDC	3.3 VDC	0.910 A	3 mA	82 mA	73%	JCA0348S03
	5.0 VDC	0.600 A	5 mA	82 mA	74%	JCA0348S05
	12.0 VDC	0.260 A	6 mA	79 mA	75%	JCA0348S12
	15.0 VDC	0.200 A	6 mA	81 mA	75%	JCA0348S15
	±5.0 VDC	±0.300 A	2 mA	79 mA	76%	JCA0348D01
	±12.0 VDC	±0.130 A	3 mA	78 mA	76%	JCA0348D02
	±15.0 VDC	±0.100 A	3 mA	82 mA	74%	JCA0348D03

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

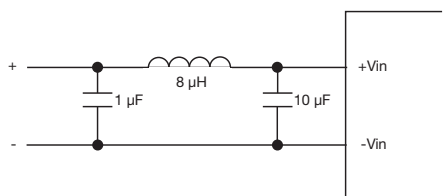


PIN CONNECTIONS		
Pin	Single Output	Dual Output
2	-Vin	-Vin
3	-Vin	-Vin
9	No pin	Common
11	N/C	-Vout
14	+Vout	+Vout
16	-Vout	Common
22	+Vin	+Vin
23	+Vin	+Vin

- 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.



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