



**THE DATASHEET OF
JCA1005D02**



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, CB, & TUV Approval
- 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 with one output at 5% load and other varied from 5% to 100%
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"> • 31.25 W/in³
MTBF	<ul style="list-style-type: none"> • $> 950\text{ kHrs}$ to MIL-HDBK-217F at $25\text{ }^{\circ}\text{C}$, GB
Case	<ul style="list-style-type: none"> • Five sided metal case with plastic base, silicone potted UL94V-0
Water Wash	<ul style="list-style-type: none"> • Use de-ionised water and dry thoroughly
Solder Profile	<ul style="list-style-type: none"> • Waveflow $260\text{ }^{\circ}\text{C}$ max, 0.05" (1.5 mm) from case, 10 seconds max.
Pin Material	<ul style="list-style-type: none"> • Brass with matte copper and tin plating

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 $+70\text{ }^{\circ}\text{C}$ 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"> • IEC62368-1, EN62368-1, UL62368-1, CE & UKCA meets all applicable directives & legislation

Models and Ratings

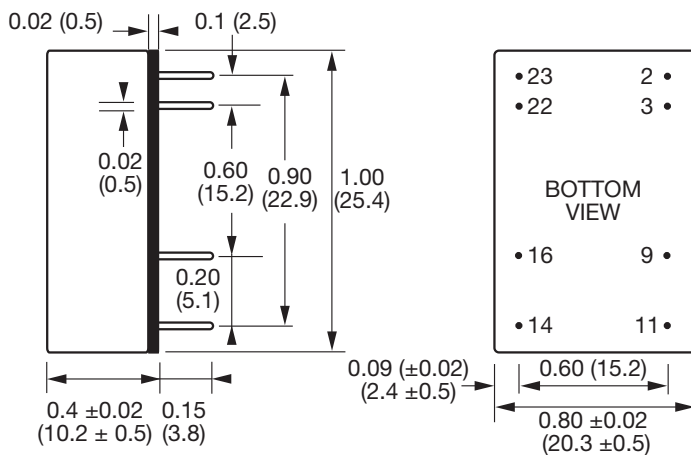
Input Voltage ⁽¹⁾	Output Voltage	Output Current	Input Current ⁽²⁾		Efficiency	Max. Capacitive Load	Model Number
			No Load	Full Load			
4.5-9.0 VDC	3.3 VDC	2.42 A	100 mA	1.905 A	82%	3300 µF	JCA1005S03
	5.0 VDC	1.60 A	84 mA	1.839 A	86%	2200 µF	JCA1005S05
	12.0 VDC	0.83 A	126 mA	2.324 A	85%	1000 µF	JCA1005S12
	15.0 VDC	0.66 A	120 mA	2.271 A	86%	940 µF	JCA1005S15
	±5.0 VDC	±0.80 A	129 mA	1.918 A	82%	1000 µF	JCA1005D01
	±12.0 VDC	±0.42 A	126 mA	2.388 A	84%	470 µF	JCA1005D02
9-18 VDC	3.3 VDC	2.42 A	52 mA	0.784 A	84%	3300 µF	JCA1012S03
	5.0 VDC	1.60 A	49 mA	0.745 A	89%	2200 µF	JCA1012S05
	12.0 VDC	0.83 A	42 mA	0.930 A	89%	1000 µF	JCA1012S12
	15.0 VDC	0.66 A	42 mA	0.916 A	89%	940 µF	JCA1012S15
	±5.0 VDC	±0.80 A	45 mA	0.778 A	85%	1000 µF	JCA1012D01
	±12.0 VDC	±0.42 A	44 mA	0.944 A	88%	470 µF	JCA1012D02
18-36 VDC	3.3 VDC	2.42 A	28 mA	0.388 A	85%	3300 µF	JCA1024S03
	5.0 VDC	1.60 A	27 mA	0.375 A	88%	2200 µF	JCA1024S05
	12.0 VDC	0.83 A	19 mA	0.461 A	89%	1000 µF	JCA1024S12
	15.0 VDC	0.66 A	18 mA	0.455 A	90%	940 µF	JCA1024S15
	±5.0 VDC	±0.80 A	16 mA	0.387 A	85%	1000 µF	JCA1024D01
	±12.0 VDC	±0.42 A	22 mA	0.469 A	89%	470 µF	JCA1024D02
36-75 VDC	3.3 VDC	2.42 A	13 mA	0.199 A	82%	3300 µF	JCA1048S03
	5.0 VDC	1.60 A	11 mA	0.186 A	89%	2200 µF	JCA1048S05
	12.0 VDC	0.83 A	7 mA	0.231 A	89%	1000 µF	JCA1048S12
	15.0 VDC	0.66 A	9 mA	0.229 A	89%	940 µF	JCA1048S15
	±5.0 VDC	±0.80 A	5 mA	0.194 A	85%	1000 µF	JCA1048D01
	±12.0 VDC	±0.42 A	9 mA	0.236 A	89%	470 µF	JCA1048D02
	±15.0 VDC	±0.33 A	10 mA	0.229 A	89%	470 µF	JCA1048D03

Notes

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

3. Efficiency is measured at nominal input and full load at 25 °C.

Mechanical Details



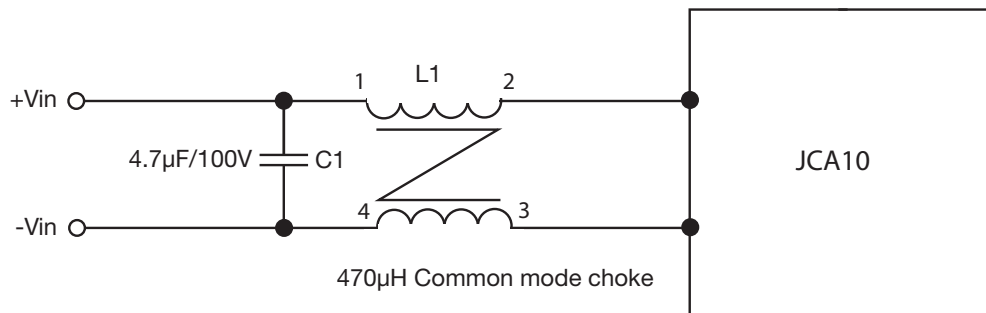
Pin	PIN CONNECTIONS	
	Single Output	Dual Output
2	-Vin	-Vin
3	-Vin	-Vin
9	No pin	Common
11	N/C	-Vout
14	+Vout	+Vout
16	-Vout	Common
22	+Vin	+Vin
23	+Vin	+Vin

- 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)

Application Note



Input Filter

To meet level B conducted emissions.



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