



**THE DATASHEET OF  
JCA1024D01**



## 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"> <li>• 5 V (4.5-9.0 VDC)</li> <li>• 12 V (9-18 VDC)</li> <li>• 24 V (18-36 VDC)</li> <li>• 48 V (36-75 VDC)</li> </ul>
Input Current	<ul style="list-style-type: none"> <li>• See table</li> </ul>
Input Filter	<ul style="list-style-type: none"> <li>• Pi network</li> </ul>
Input Reflected Ripple Current	<ul style="list-style-type: none"> <li>• 80 mA, 5 V input models, 30 mA all others</li> <li>• 12 <math>\mu\text{H}</math> inductor, 5 Hz to 20 MHz</li> </ul>
Input Surge	<ul style="list-style-type: none"> <li>• 5 V models 10 V for 1 s max,</li> <li>• 12 V models 25 V for 1 s max,</li> <li>• 24 V models 50 V for 1 s max,</li> <li>• 48 V models 100 V for 1 s max</li> </ul>

## Output

Output Voltage	<ul style="list-style-type: none"> <li>• See table</li> </ul>
Initial Set Accuracy	<ul style="list-style-type: none"> <li>• <math>\pm 1\%</math> max</li> </ul>
Start Up Delay	<ul style="list-style-type: none"> <li>• 30 ms max</li> </ul>
Start Up Rise Time	<ul style="list-style-type: none"> <li>• 3.5 ms typical</li> </ul>
Minimum Load	<ul style="list-style-type: none"> <li>• No minimum load required</li> </ul>
Line Regulation	<ul style="list-style-type: none"> <li>• <math>\pm 0.3\%</math></li> </ul>
Load Regulation	<ul style="list-style-type: none"> <li>• <math>\pm 1\%</math></li> </ul>
Cross Regulation	<ul style="list-style-type: none"> <li>• <math>\pm 5\%</math> on dual output models with one output at 5% load and other varied from 5% to 100%</li> </ul>
Transient Response	<ul style="list-style-type: none"> <li>• 4% max deviation, recovery to within 1% in <math>&lt; 500\text{ }\mu\text{s}</math> for a 25% load change at 1 A/<math>\mu\text{s}</math></li> </ul>
Ripple & Noise	<ul style="list-style-type: none"> <li>• 50 mV pk-pk, 20 MHz bandwidth</li> </ul>
Overcurrent Protection	<ul style="list-style-type: none"> <li>• 150% typical, trip and restart (hiccup mode)</li> </ul>
Short Circuit Protection	<ul style="list-style-type: none"> <li>• Continuous with auto recovery</li> </ul>
Overvoltage Protection	<ul style="list-style-type: none"> <li>• 150% typical, Recycle input to reset</li> </ul>
Temperature Coefficient	<ul style="list-style-type: none"> <li>• <math>\pm 0.05\%/^{\circ}\text{C}</math></li> </ul>

## General

Efficiency	<ul style="list-style-type: none"> <li>• See table</li> </ul>
Isolation	<ul style="list-style-type: none"> <li>• 1500 VDC Input to Output, basic insulation</li> <li>• 500 VDC Input to Case</li> <li>• 500 VDC Output to Case</li> </ul>
Switching Frequency	<ul style="list-style-type: none"> <li>• 300 kHz typical</li> </ul>
Power Density	<ul style="list-style-type: none"> <li>• 31.25 W/in<sup>3</sup></li> </ul>
MTBF	<ul style="list-style-type: none"> <li>• <math>&gt; 950\text{ kHrs}</math> to MIL-HDBK-217F at <math>25\text{ }^{\circ}\text{C}</math>, GB</li> </ul>
Case	<ul style="list-style-type: none"> <li>• Five sided metal case with plastic base, silicone potted UL94V-0</li> </ul>
Water Wash	<ul style="list-style-type: none"> <li>• Use de-ionised water and dry thoroughly</li> </ul>
Solder Profile	<ul style="list-style-type: none"> <li>• Waveflow <math>260\text{ }^{\circ}\text{C}</math> max, 0.05" (1.5 mm) from case, 10 seconds max.</li> </ul>
Pin Material	<ul style="list-style-type: none"> <li>• Brass with matte copper and tin plating</li> </ul>

## Environmental

Operating Temperature	<ul style="list-style-type: none"> <li>• <math>-40\text{ }^{\circ}\text{C}</math> to <math>+100\text{ }^{\circ}\text{C}</math> output power derates from 100% load at <math>+70\text{ }^{\circ}\text{C}</math> linearly to 0% load at <math>+100\text{ }^{\circ}\text{C}</math></li> </ul>
Case Temperature	<ul style="list-style-type: none"> <li>• <math>+100\text{ }^{\circ}\text{C}</math> max</li> </ul>
Storage Temperature	<ul style="list-style-type: none"> <li>• <math>-55\text{ }^{\circ}\text{C}</math> to <math>+125\text{ }^{\circ}\text{C}</math></li> </ul>
Cooling	<ul style="list-style-type: none"> <li>• Convection cooled</li> </ul>
Operating Humidity	<ul style="list-style-type: none"> <li>• Up to 95% RH, non-condensing</li> </ul>

## EMC &amp; Safety

Emissions	<ul style="list-style-type: none"> <li>• EN55032, level A conducted (level B with external components, see application note), level B radiated</li> </ul>
ESD Immunity	<ul style="list-style-type: none"> <li>• EN61000-4-2, level 2 Perf Criteria A</li> </ul>
Radiated Immunity	<ul style="list-style-type: none"> <li>• EN61000-4-3, 3 V/m Perf Criteria A</li> </ul>
Conducted Immunity	<ul style="list-style-type: none"> <li>• EN61000-4-6, 3 V rms Perf Criteria A</li> </ul>
Magnetic Fields	<ul style="list-style-type: none"> <li>• EN61000-4-8, 10 A/m, Perf Criteria A</li> </ul>
Safety Approvals	<ul style="list-style-type: none"> <li>• IEC62368-1, EN62368-1, UL62368-1, CE &amp; UKCA meets all applicable directives &amp; legislation</li> </ul>

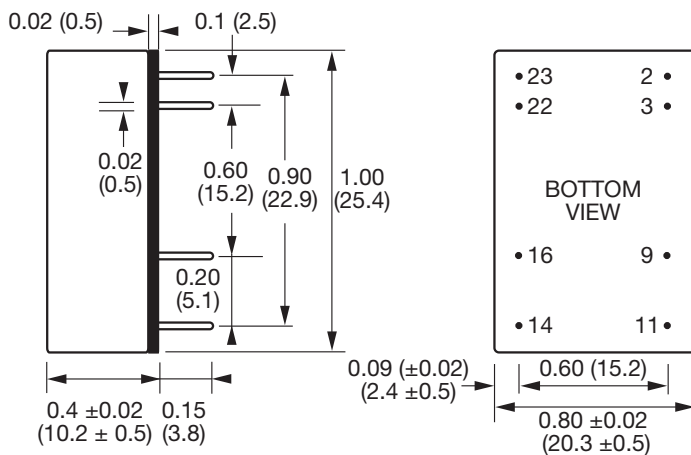
**Models and Ratings**

Input Voltage <sup>(1)</sup>	Output Voltage	Output Current	Input Current <sup>(2)</sup>		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.
- Efficiency is measured at nominal input and full load at 25 °C.

**Mechanical Details**



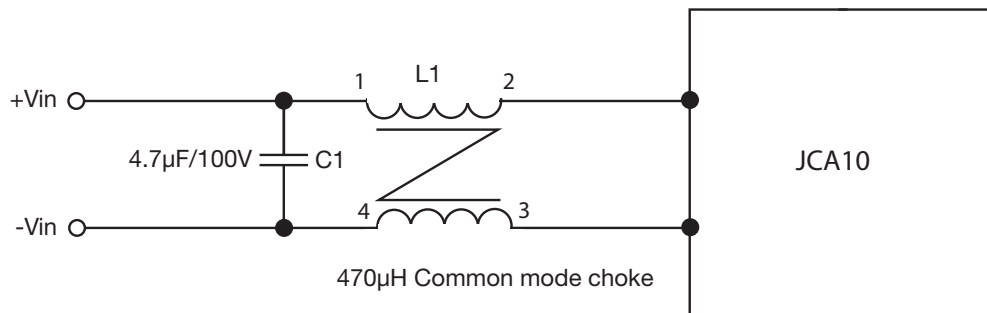
PIN CONNECTIONS		
Pin	Single Output	Dual Output
2	-Vin	-Vin
3	-Vin	-Vin
9	No pin	Common
11	N/C	-Vout
14	+Vout	+Vout
16	-Vout	Common
22	+Vin	+Vin
23	+Vin	+Vin

- 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)

**Application Note**



**Input Filter**

To meet level B conducted emissions.



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