

## JTC04/06 Series



- 4:1 Input Range
- DIP-24 Metal Package
- Operating Temperature -40 °C to +100 °C
- Single & Dual Outputs
- Continuous Short Circuit Protection
- 1500 VDC Isolation, 3500 VDC Option
- 3 Year Warranty

## Specification

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### Input

Input Voltage Range	<ul style="list-style-type: none"> <li>• 24 V (9-36 VDC)</li> <li>• 48 V (18-72 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	<ul style="list-style-type: none"> <li>• 35 mA pk-pk through 12 <math>\mu</math>H inductor, 5 Hz to 20 MHz</li> </ul>
Input Surge	<ul style="list-style-type: none"> <li>• 24 V models 40 VDC for 100 ms</li> <li>• 48 V models 80 VDC for 100 ms</li> </ul>

### Output

Output Voltage	<ul style="list-style-type: none"> <li>• See table</li> </ul>
Output Voltage Balance	<ul style="list-style-type: none"> <li>• <math>\pm 1\%</math> max, dual output models</li> </ul>
Minimum Load	<ul style="list-style-type: none"> <li>• No minimum load required</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>• &lt;800 ms</li> </ul>
Start Up Rise Time	<ul style="list-style-type: none"> <li>• &lt;10 ms</li> </ul>
Line Regulation	<ul style="list-style-type: none"> <li>• <math>\pm 0.5\%</math> max</li> </ul>
Load Regulation	<ul style="list-style-type: none"> <li>• <math>\pm 0.5\%</math> max</li> </ul>
Cross Regulation	<ul style="list-style-type: none"> <li>• <math>\pm 5\%</math> on dual output models</li> </ul>
Transient Response	<ul style="list-style-type: none"> <li>• &lt;1.5% max deviation, recovery to within 1% in 200 <math>\mu</math>s for a 50% load change</li> </ul>
Ripple & Noise	<ul style="list-style-type: none"> <li>• 60 mV pk-pk for 3.3 V to 15 V models, 100 mV pk-pk for 18 V models, 150 mV pk-pk for 24 V models, 20 MHz bandwidth</li> </ul>
Short Circuit Protection	<ul style="list-style-type: none"> <li>• Trip &amp; restart (Hiccup mode), auto recovery</li> </ul>
Maximum Capacitive Load	<ul style="list-style-type: none"> <li>• See tables</li> </ul>
Temperature Coefficient	<ul style="list-style-type: none"> <li>• <math>\pm 0.02/^\circ\text{C}</math> max</li> </ul>

### General

Efficiency	<ul style="list-style-type: none"> <li>• See tables</li> </ul>
Isolation	<ul style="list-style-type: none"> <li>• 1500 VDC Input to Output, for optional high isolation version 3500 VDC input to output add suffix '-H' to model number</li> <li>• 1000 VDC Input to Case</li> <li>• 1000 VDC Output to Case</li> </ul>
Isolation Capacitance	<ul style="list-style-type: none"> <li>• 500 pF max</li> </ul>
Switching Frequency	<ul style="list-style-type: none"> <li>• 266 kHz typical</li> </ul>
MTBF	<ul style="list-style-type: none"> <li>• &gt;1.0 Mhrs to MIL-HDBK-217F at 25 °C, GB</li> </ul>

### Environmental

Operating Temperature	<ul style="list-style-type: none"> <li>• -40 °C to +100 °C, derate from 100% load at +85 °C to no load at +100 °C</li> </ul>
Case Temperature	<ul style="list-style-type: none"> <li>• +100 °C max</li> </ul>
Storage Temperature	<ul style="list-style-type: none"> <li>• -40 °C to +125 °C</li> </ul>
Humidity	<ul style="list-style-type: none"> <li>• Up to 95%, non-condensing</li> </ul>
Cooling	<ul style="list-style-type: none"> <li>• Natural convection</li> </ul>

### EMC

Emissions	<ul style="list-style-type: none"> <li>• EN55022 Class A conducted with external components - see application note</li> </ul>
ESD Immunity	<ul style="list-style-type: none"> <li>• EN61000-4-2, 8 kV air discharge Perf Criteria B, 4 kV contact discharge Perf Criteria B</li> </ul>
Radiated Immunity	<ul style="list-style-type: none"> <li>• EN61000-4-3 Level 2 3 V/m Perf Criteria A</li> </ul>
EFT/Burst	<ul style="list-style-type: none"> <li>• EN61000-4-4 Perf Criteria A</li> </ul>
Conducted Immunity	<ul style="list-style-type: none"> <li>• EN61000-4-6 3 Vrms Perf Criteria A</li> <li>• EN61000-4-8 Perf Criteria A</li> </ul>

Input Voltage	Output Voltage	Output Current	Input Current <sup>(2)</sup>		Maximum Capacitive Load <sup>(3)</sup>	Efficiency	Model Number <sup>(1)</sup>
			No Load	Full Load			
9-36 V	3.3 V	1200 mA	12 mA	220 mA	1000 µF	75%	JTC0424S3V3†^
	5.0 V	800 mA	15 mA	211 mA	1000 µF	79%	JTC0424S05†^
	9.0 V	445 mA	12 mA	203 mA	220 µF	82%	JTC0424S09
	12.0 V	333 mA	15 mA	203 mA	100 µF	82%	JTC0424S12†^
	15.0 V	267 mA	15 mA	203 mA	220 µF	82%	JTC0424S15†^
	18.0 V	223 mA	15 mA	203 mA	10 µF	82%	JTC0424S18
	24.0 V	167 mA	18 mA	203 mA	220 µF	82%	JTC0424S24
	±3.3 V	±606 mA	12 mA	222 mA	±470 µF	75%	JTC0424D03†^
	±5.0 V	±400 mA	15 mA	211 mA	±100 µF	79%	JTC0424D05†^
	±9.0 V	±222 mA	15 mA	208 mA	±47 µF	80%	JTC0424D09
	±12.0 V	±167 mA	15 mA	203 mA	±47 µF	82%	JTC0424D12†^
	±15.0 V	±134 mA	20 mA	208 mA	±10 µF	80%	JTC0424D15†^
±24.0 V	±84 mA	18 mA	208 mA	±22 µF	80%	JTC0424D24	
18-72 V	3.3 V	1200 mA	10 mA	110 mA	1000 µF	76%	JTC0448S3V3†^
	5.0 V	800 mA	8 mA	106 mA	470 µF	79%	JTC0448S05†^
	9.0 V	445 mA	10 mA	100 mA	330 µF	83%	JTC0448S09
	12.0 V	333 mA	12 mA	104 mA	1000 µF	80%	JTC0448S12†^
	15.0 V	267 mA	10 mA	99 mA	47 µF	84%	JTC0448S15†^
	18.0 V	223 mA	10 mA	99 mA	10 µF	84%	JTC0448S18
	24.0 V	167 mA	15 mA	102 mA	22 µF	82%	JTC0448S24
	±3.3 V	±606 mA	10 mA	107 mA	±680 µF	78%	JTC0448D03†^
	±5.0 V	±400 mA	15 mA	106 mA	±330 µF	79%	JTC0448D05†^
	±9.0 V	±222 mA	15 mA	104 mA	±47 µF	80%	JTC0448D09
	±12.0 V	±167 mA	12 mA	102 mA	±100 µF	82%	JTC0448D12†^
	±15.0 V	±134 mA	15 mA	104 mA	±100 µF	80%	JTC0448D15†^
±24.0 V	±84 mA	15 mA	104 mA	±10 µF	80%	JTC0448D24	

Input Voltage	Output Voltage	Output Current	Input Current <sup>(2)</sup>		Maximum Capacitive Load <sup>(3)</sup>	Efficiency	Model Number <sup>(1)</sup>
			No Load	Full Load			
9-36 V	3.3 V	1400 mA	12 mA	253 mA	1000 µF	76%	JTC0624S3V3†^
	5.0 V	1200 mA	10 mA	312 mA	1000 µF	80%	JTC0624S05†^
	9.0 V	667 mA	12 mA	301 mA	220 µF	83%	JTC0624S09
	12.0 V	500 mA	15 mA	301 mA	1000 µF	83%	JTC0624S12†^
	15.0 V	400 mA	18 mA	301 mA	470 µF	83%	JTC0624S15†^
	18.0 V	334 mA	15 mA	301 mA	47 µF	83%	JTC0624S18
	24.0 V	250 mA	18 mA	305 mA	47 µF	82%	JTC0624S24
	±3.3 V	±909 mA	12 mA	338 mA	±470 µF	74%	JTC0624D03†^
	±5.0 V	±600 mA	10 mA	312 mA	±680 µF	80%	JTC0624D05†^
	±9.0 V	±333 mA	18 mA	309 mA	±100 µF	81%	JTC0624D09
	±12.0 V	±250 mA	20 mA	301 mA	±330 µF	83%	JTC0624D12†^
	±15.0 V	±200 mA	22 mA	305 mA	±100 µF	82%	JTC0624D15†^
±24.0 V	±125 mA	18 mA	312 mA	±22 µF	80%	JTC0624D24	
18-72 V	3.3 V	1400 mA	15 mA	126 mA	1000 µF	76%	JTC0648S3V3†^
	5.0 V	1200 mA	8 mA	156 mA	1000 µF	80%	JTC0648S05†^
	9.0 V	667 mA	10 mA	153 mA	220 µF	82%	JTC0648S09
	12.0 V	500 mA	10 mA	151 mA	1000 µF	83%	JTC0648S12†^
	15.0 V	400 mA	10 mA	149 mA	100 µF	84%	JTC0648S15†^
	18.0 V	334 mA	10 mA	151 mA	10 µF	83%	JTC0648S18
	24.0 V	250 mA	12 mA	151 mA	22 µF	83%	JTC0648S24
	±3.3 V	±909 mA	10 mA	162 mA	±330 µF	77%	JTC0648D03†^
	±5.0 V	±600 mA	10 mA	158 mA	±470 µF	79%	JTC0648D05†^
	±9.0 V	±330 mA	15 mA	154 mA	±100 µF	81%	JTC0648D09
	±12.0 V	±250 mA	10 mA	152 mA	±100 µF	82%	JTC0648D12†^
	±15.0 V	±200 mA	15 mA	149 mA	±47 µF	84%	JTC0648D15†^
±24.0 V	±125 mA	15 mA	154 mA	±22 µF	81%	JTC0648D24	

**Notes**

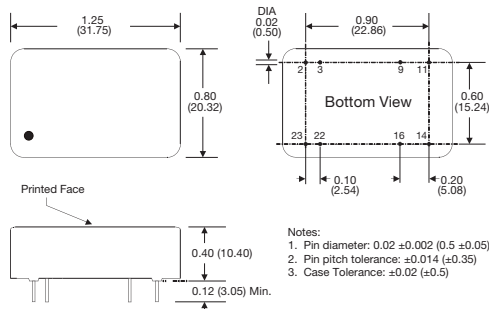
- 1. For optional 3500 VDC isolation add suffix '-H' to model number.
- 2. Input current measured at nominal input voltage.

- 3. Maximum capacitive load is per output.

† Available from Farnell. See pages 266-269.

^ Available from Newark. See pages 270-272.

**Mechanical Details and Application Note**



Pin	Single	Dual
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 are in inches (mm)  
 Weight: 0.04 lbs (20 g) approx.

**Input Filter**

