

## JTB03/05 Series



- 4:1 Input Range
- DIP-24 Metal Package
- Operating Temperature  $-25\text{ }^{\circ}\text{C}$  to  $+100\text{ }^{\circ}\text{C}$
- Fully Regulated Single & Dual Outputs
- Optional 1500 VDC Isolation
- Continuous Short Circuit Protection
- 3 Year Warranty

### Specification

#### 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 Surge	<ul style="list-style-type: none"> <li>• 24 V models 50 V for 100 ms</li> <li>• 48 V models 100 V 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>
Initial Set Accuracy	<ul style="list-style-type: none"> <li>• <math>\pm 2\%</math> max</li> </ul>
Start Up Delay	<ul style="list-style-type: none"> <li>• 90 ms max</li> </ul>
Start Up Rise Time	<ul style="list-style-type: none"> <li>• 35 ms typical</li> </ul>
Line Regulation	<ul style="list-style-type: none"> <li>• <math>\pm 0.5\%</math> max (high line to low line)</li> </ul>
Load Regulation	<ul style="list-style-type: none"> <li>• <math>\pm 0.5\%</math> max single output models,</li> <li>• <math>\pm 1.0\%</math> max for dual output models</li> </ul>
Cross Regulation	<ul style="list-style-type: none"> <li>• 2.2% on dual output models</li> </ul>
Transient Response	<ul style="list-style-type: none"> <li>• <math>&lt; 1.5\%</math> max deviation, recovery to within 1% in 800 <math>\mu\text{s}</math> for a 50% load change</li> </ul>
Ripple & Noise	<ul style="list-style-type: none"> <li>• 100 mV or 1% pk-pk, whichever is greater, 20 MHz bandwidth</li> </ul>
Overcurrent Protection	<ul style="list-style-type: none"> <li>• JTB03: <math>&gt; 170\%</math> fold back at nominal input voltage</li> <li>• JTB05: <math>&gt; 130\%</math> constant power</li> </ul>
Short Circuit Protection	<ul style="list-style-type: none"> <li>• JTB03: Continuous, hiccup mode, auto-restart</li> <li>• JTB05: Continuous, current limit, auto-restart</li> </ul>
Maximum Capacitive Load	<ul style="list-style-type: none"> <li>• 10,000 <math>\mu\text{F}</math></li> </ul>
Temperature Coefficient	<ul style="list-style-type: none"> <li>• <math>\pm 0.05/^{\circ}\text{C}</math> max</li> </ul>

#### General

Efficiency	<ul style="list-style-type: none"> <li>• See table</li> </ul>
Isolation	<ul style="list-style-type: none"> <li>• JTB03: 500 VDC Input to Output</li> <li>• 1500 VDC Input to Output, add suffix '-H'</li> <li>• JTB05: 1500 VDC Input to Output</li> </ul>
Isolation Capacitance	<ul style="list-style-type: none"> <li>• 80 pF max</li> </ul>
Switching Frequency	<ul style="list-style-type: none"> <li>• Variable 100-700 kHz</li> </ul>
MTBF	<ul style="list-style-type: none"> <li>• <math>&gt; 1.0</math> Mhrs to MIL-HDBK-217F at 25 <math>\mu\text{C}</math>, GB</li> </ul>

#### Environmental

Operating Temperature	<ul style="list-style-type: none"> <li>• <math>-25\text{ }^{\circ}\text{C}</math> to <math>+100\text{ }^{\circ}\text{C}</math>, derate linearly from 100% load at <math>+70\text{ }^{\circ}\text{C}</math> to no load at 100 <math>\mu\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>-40\text{ }^{\circ}\text{C}</math> to <math>+100\text{ }^{\circ}\text{C}</math></li> </ul>
Shock	<ul style="list-style-type: none"> <li>• 30 g, half sine wave 18 ms pulse applied 3 times on each of 6 axes</li> </ul>
Vibration	<ul style="list-style-type: none"> <li>• 5-500 Hz, 3 g, for 10 mins on each of 3 axes</li> </ul>

#### EMC

Emissions	<ul style="list-style-type: none"> <li>• EN55022, level A conducted &amp; radiated with external components, see application note</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>

**Models and Ratings**

Input Voltage <sup>(1)</sup>	Output Voltage	Output Current	Input Current <sup>(3)</sup>		Efficiency	Model Number <sup>(2,4)</sup>
			No Load	Full Load		
9-36 VDC	3.3 VDC	600 mA	15.0 mA	117 mA	70%	JTB0324S3V3
	5.0 VDC	600 mA	15.0 mA	174 mA	72%	JTB0324S05
	12.0 VDC	250 mA	15.0 mA	165 mA	76%	JTB0324S12
	15.0 VDC	200 mA	15.0 mA	165 mA	76%	JTB0324S15
	±5.0 VDC	±300 mA	25.0 mA	179 mA	70%	JTB0324D05
	±12.0 VDC	±125 mA	25.0 mA	174 mA	72%	JTB0324D12
	±15.0 VDC	±100 mA	25.0 mA	174 mA	72%	JTB0324D15
18-72 VDC	3.3 VDC	600 mA	7.5 mA	58 mA	70%	JTB0348S3V3
	5.0 VDC	600 mA	7.5 mA	87 mA	72%	JTB0348S05
	12.0 VDC	250 mA	7.5 mA	81 mA	77%	JTB0348S12
	15.0 VDC	200 mA	7.5 mA	81 mA	77%	JTB0348S15
	±5.0 VDC	±300 mA	12.0 mA	88 mA	71%	JTB0348D05
	±12.0 VDC	±125 mA	12.0 mA	87 mA	72%	JTB0348D12
	±15.0 VDC	±100 mA	12.0 mA	87 mA	70%	JTB0348D15
9-36 VDC	3.3 VDC	1000 mA	15.0 mA	191 mA	72%	JTB0524S3V3
	5.0 VDC	1000 mA	15.0 mA	267 mA	78%	JTB0524S05
	12.0 VDC	470 mA	15.0 mA	294 mA	80%	JTB0524S12
	15.0 VDC	400 mA	15.0 mA	313 mA	80%	JTB0524S15
	±5.0 VDC	±500 mA	25.0 mA	267 mA	78%	JTB0524D05
	±12.0 VDC	±230 mA	25.0 mA	288 mA	80%	JTB0524D12
	±15.0 VDC	±190 mA	25.0 mA	297 mA	80%	JTB0524D15
18-72 VDC	3.3 VDC	1000 mA	7.5 mA	100 mA	70%	JTB0548S3V3
	5.0 VDC	1000 mA	7.5 mA	134 mA	78%	JTB0548S05
	12.0 VDC	470 mA	7.5 mA	149 mA	79%	JTB0548S12
	15.0 VDC	400 mA	12.0 mA	157 mA	80%	JTB0548S15
	±5.0 VDC	±500 mA	12.0 mA	135 mA	77%	JTB0548D05
	±12.0 VDC	±230 mA	12.0 mA	146 mA	79%	JTB0548D12
	±15.0 VDC	±190 mA	12.0 mA	149 mA	80%	JTB0548D15

**Notes**

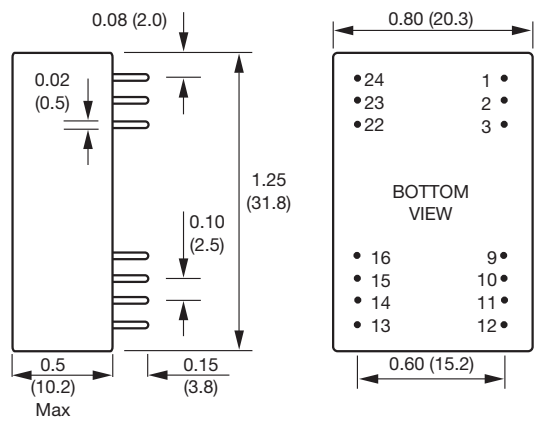
1. Nominal input voltage 24 or 48 VDC.
2. For optional 1500 VDC isolation add suffix '-H' to model number (JTB03 models only).
3. Input current is at nominal input voltage.
4. Surface mount versions with plastic case available in OEM quantities. Consult sales

**Mechanical Details and Application Note**

All dimensions are in inches (mm)  
Weight: 0.04 lbs (20 g) approx.

JTB03 Pin Connections		
Pin	Single Output	Dual Output
1	+V input	+V input
2	N/C	-V output
3	N/C	Common
9	No pin	No pin
10	-V output	Common
11	+V output	+V output
12	-V input	-V input
13	-V input	-V input
14	+V output	+V output
15	-V output	Common
16	No pin	No pin
22	N/C	Common
23	N/C	-V output
24	+V input	+V input

JTB03-H & JTB05 Pin Connections		
Pin	Single Output	Dual Output
1	No pin	No pin
2	-V input	-V input
3	-V input	-V input
9	N/C	Common
10	N/C	N/C
11	N/C	-V output
12	No pin	No pin
13	No pin	No pin
14	+V output	+V output
15	N/C	N/C
16	-V output	Common
22	+V input	+V input
23	+V input	+V input
24	No pin	No pin



Pin diameter tolerance: ±0.00079 (±0.02)  
Pin pitch tolerance: ±0.01 (±0.25)  
Case tolerance: ±0.02 (±0.5)

**Input Filter**

JTB05	JTB03
24 Vin: 220 µF	47 µF
48 Vin: 47 µF	47 µF

