

## JTA Series



- 4:1 Input Range
- -40 °C to +100 °C Operating Temperature
- Single & Dual Outputs
- Overvoltage & Overcurrent Protection
- UL Safety Approvals
- Remote On/Off
- 3 Year Warranty

## Specification

## Input

Input Voltage Range	<ul style="list-style-type: none"> <li>• 24 V (9-36 VDC)</li> <li>• 48 V (18-75 VDC)</li> </ul>
Input Current	<ul style="list-style-type: none"> <li>• JTA10: 1.65 A max at 9 VDC input</li> <li>• JTA15: 2.20 A max at 9 VDC input</li> <li>• JTA20: 2.90 A max at 9 VDC input</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 VDC for 100ms</li> <li>• 48 V models: 100 VDC for 100 ms</li> </ul>
Input Reflected Ripple Current	<ul style="list-style-type: none"> <li>• 24 V models, with a 100 <math>\mu</math>F capacitor: JTA10: 20mA pk-pk, JTA15: 35mA pk-pk, JTA20: 60mA pk-pk,</li> <li>• 48 V models, with a 22 <math>\mu</math>F capacitor: JTA10: 30 mA pk-pk, JTA15: 20 mA pk-pk, JTA20: 30 mA pk-pk</li> </ul>
Input Reverse Voltage Protection	<ul style="list-style-type: none"> <li>• None</li> </ul>

## Output

Output Voltage	<ul style="list-style-type: none"> <li>• See table</li> </ul>
Output Voltage Trim	<ul style="list-style-type: none"> <li>• <math>\pm</math>10% (15 &amp; 20 W models only)</li> </ul>
Voltage Balance	<ul style="list-style-type: none"> <li>• <math>\pm</math>1% max dual models, 100% load</li> </ul>
Minimum Load	<ul style="list-style-type: none"> <li>• No minimum load required for single output models, 10% required for dual output models</li> </ul>
Line Regulation	<ul style="list-style-type: none"> <li>• <math>\pm</math>1% max</li> </ul>
Load Regulation	<ul style="list-style-type: none"> <li>• Single output models: <math>\pm</math>1% max</li> <li>• Dual output models: <math>\pm</math>2% max for a 10-100% load change</li> </ul>
Setpoint Accuracy	<ul style="list-style-type: none"> <li>• <math>\pm</math>2%</li> </ul>
Ripple & Noise	<ul style="list-style-type: none"> <li>• Single output models: 50 mV pk-pk</li> <li>• Dual output models: 75 mV pk-pk typical at 20 MHz bandwidth</li> </ul>
Transient Response	<ul style="list-style-type: none"> <li>• 4% max deviation, recovery to within 1% in &lt;500 <math>\mu</math>s for a 25% load change</li> </ul>
Temperature Coefficient	<ul style="list-style-type: none"> <li>• 0.02%/°C</li> </ul>
Overvoltage Protection	<ul style="list-style-type: none"> <li>• See table</li> </ul>
Overcurrent Protection	<ul style="list-style-type: none"> <li>• 120-190%</li> <li>• JTA10: Constant current, auto recovery</li> <li>• JTA15/20: Trip &amp; restart (hiccup mode)</li> </ul>
Short Circuit Protection	<ul style="list-style-type: none"> <li>• Continuous with auto recovery</li> </ul>
Remote On/Off	<ul style="list-style-type: none"> <li>• On = Logic High or Open</li> <li>• Off = Logic Low or &lt;1.8 V (15 &amp; 20 W models only)</li> </ul>
Maximum Capacitive Load	<ul style="list-style-type: none"> <li>• Single outputs: 1000 <math>\mu</math>F, Dual outputs: 650 <math>\mu</math>F</li> </ul>

## General

Efficiency	<ul style="list-style-type: none"> <li>• See table</li> </ul>
Isolation Voltage	<ul style="list-style-type: none"> <li>• 1500 VDC Input to Output</li> </ul>
Isolation Resistance	<ul style="list-style-type: none"> <li>• <math>10^9 \Omega</math></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>• JTA10: 11.4 W/in<sup>3</sup></li> <li>• JTA15: 10.4 W/in<sup>3</sup></li> <li>• JTA20: 13.9 W/in<sup>3</sup></li> </ul>
MTBF	<ul style="list-style-type: none"> <li>• 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 70 °C (60 °C for JTA20) to no load at 100 °C</li> </ul>
Case Temperature	<ul style="list-style-type: none"> <li>• +100 °C max</li> </ul>
Cooling	<ul style="list-style-type: none"> <li>• Convection-cooled</li> </ul>
Operating Humidity	<ul style="list-style-type: none"> <li>• 5-95% RH, non-condensing</li> </ul>
Storage Temperature	<ul style="list-style-type: none"> <li>• -55 °C to +105 °C</li> </ul>

## EMC &amp; Safety

Emissions	<ul style="list-style-type: none"> <li>• EN55022, level A conducted (below -25 °C) level B conducted (-25 °C to +100 °C) (see note 1)</li> <li>• EN55022, level A 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 Vrms, Perf Criteria A</li> </ul>
Conducted Immunity	<ul style="list-style-type: none"> <li>• EN61000-4-6 3 V/m, Perf Criteria A</li> </ul>
Safety Approvals	<ul style="list-style-type: none"> <li>• UL60950-1</li> </ul>

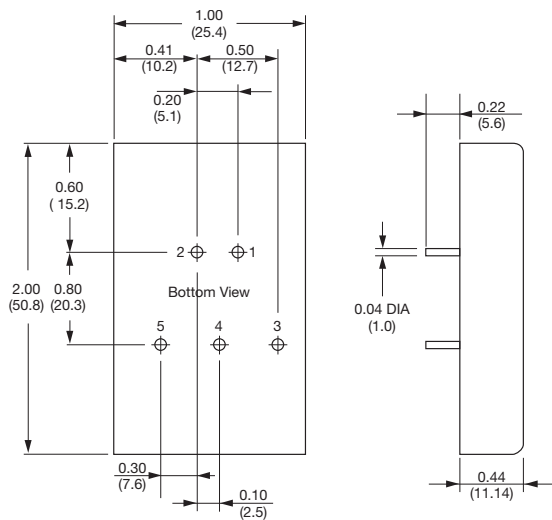
## Models and Ratings

Input Voltage	Maximum Power	Overvoltage Protection	Output V1		Output V2		Efficiency <sup>(2)</sup>	Model Number
			Voltage	Current	Voltage	Current		
9-36 VDC	6.6 W	3.9 V	3.3 V	2.00 A			77%	JTA1024S3V3
	10.0 W	6.8 V	5.0 V	2.00 A			79%	JTA1024S05
	10.0 W	15.0 V	12.0 V	0.83 A			81%	JTA1024S12
	10.0 W	18.0 V	15.0 V	0.67 A			81%	JTA1024S15
	10.0 W	6.8 V	+5.0 V	1.00 A	-5.0 V	1.00 A	80%	JTA1024D01
	10.0 W	15.0 V	+12.0 V	0.42 A	-12.0 V	0.42 A	80%	JTA1024D02
	10.0 W	18.0 V	+15.0 V	0.33 A	-15.0 V	0.33 A	80%	JTA1024D03
18-75 VDC	6.6 W	3.9 V	3.3 V	2.00 A			78%	JTA1048S3V3
	10.0 W	6.8 V	5.0 V	2.00 A			80%	JTA1048S05
	10.0 W	15.0 V	12.0 V	0.83 A			82%	JTA1048S12
	10.0 W	18.0 V	15.0 V	0.67 A			82%	JTA1048S15
	10.0 W	6.8 V	+5.0 V	1.00 A	-5.0 V	1.00 A	81%	JTA1048D01
	10.0 W	15.0 V	+12.0 V	0.42 A	-12.0 V	0.42 A	83%	JTA1048D02
	10.0 W	18.0 V	+15.0 V	0.33 A	-15.0 V	0.33 A	83%	JTA1048D03

### Notes

- For EN55022 Level B performance below -25 °C, a 100 µF (24 VDC input), 22 µF (48 VDC input) electrolytic capacitor is required across the input of the converter.
- Efficiency is measured at nominal input, full load and 25 °C

## Mechanical Details



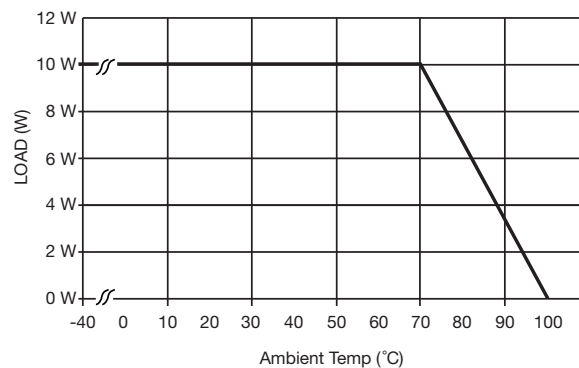
PIN CONNECTIONS		
Pin	Single Output	Dual Output
1	+Input	+Input
2	-Input	-Input
3	+Output	+Output
4	No pin	Common
5	-Output	-Output

### Notes

- All dimensions are in inches (mm)
- Weight: 0.06 lb (28 g) approx.
- Pin diameter tolerance: ±0.002 (±0.052)
- Pin pitch tolerance: ±0.01 (±0.25)
- Case tolerance: ±0.04 (±1.0)
- Packaging Style: Copper case with non-conducting base

## Application Notes

### Derating Curve

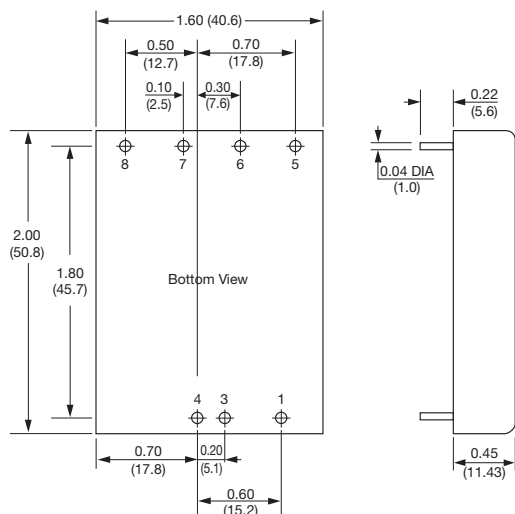


Input Voltage	Maximum Power	Overvoltage Protection	Output V1		Output V2		Efficiency <sup>(2)</sup>	Model Number
			Voltage	Current	Voltage	Current		
9-36 VDC	10 W	3.9 V	3.3 V	3.000 A			76%	JTA1524S3V3
	15 W	6.8 V	5.0 V	3.000 A			80%	JTA1524S05
	15 W	15.0 V	12.0 V	1.250 A			82%	JTA1524S12
	15 W	18.0 V	15.0 V	1.000 A			82%	JTA1524S15
	15 W	6.8 V	+5.0 V	1.500 A	-5.0 V	1.500 A	80%	JTA1524D01
	15 W	15.0 V	+12.0 V	0.625 A	-12.0 V	0.625 A	82%	JTA1524D02
	15 W	18.0 V	+15.0 V	0.500 A	-15.0 V	0.500 A	82%	JTA1524D03
18-75 VDC	10 W	3.9 V	3.3 V	3.000 A			76%	JTA1548S3V3
	15 W	6.8 V	5.0 V	3.000 A			80%	JTA1548S05
	15 W	15.0 V	12.0 V	1.250 A			82%	JTA1548S12
	15 W	18.0 V	15.0 V	1.000 A			82%	JTA1548S15
	15 W	6.8 V	+5.0 V	1.500 A	-5.0 V	1.500 A	80%	JTA1548D01
	15 W	15.0 V	+12.0 V	0.625 A	-12.0 V	0.625 A	82%	JTA1548D02
	15 W	18.0 V	+15.0 V	0.500 A	-15.0 V	0.500 A	82%	JTA1548D03

**Notes**

- For EN55022 Level B performance below -25 °C, a 220 µF (24 VDC input), 47 µF (48 VDC input) electrolytic capacitor is required across the input of the converter.
- Efficiency is measured at nominal input, full load and 25 °C

**Mechanical Details**



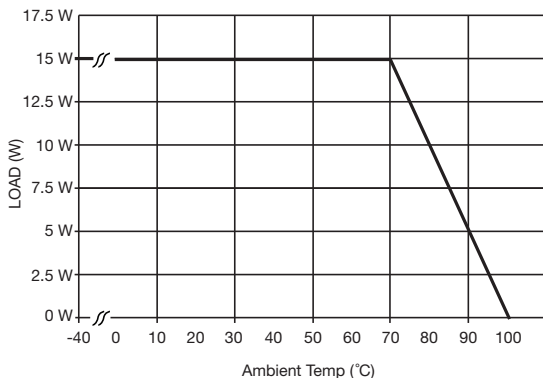
PIN CONNECTIONS		
Pin	Single Output	Dual Output
1	On/Off control	On/Off control
3	-Vin	-Vin
4	+Vin	+Vin
5	Trim	Trim
6	-Vout	-Vout
7	+Vout	Common
8	No pin	+Vout

**Notes**

- All dimensions are in inches (mm)
- Weight: 0.11 lb (50 g) approx.
- Pin diameter tolerance: ±0.001 (±0.025)
- Pin pitch tolerance: ±0.01 (±0.25)
- Case tolerance: ±0.04 (±1.0)
- Packaging Style: Copper case with non-conducting base

**Application Notes**

**Derating Curve**



**Output Trim**

Output Voltage	OUTPUT TRIM	
	R Trim Down (kΩ)	R Trim Up (kΩ)
3.3 V	(6.180 - (12.10 x ΔVo))/ΔVo	(3.484 - (7.511 x ΔVo))/ΔVo
5.0 V	(5.788 - (10.57 x ΔVo))/ΔVo	(5.788 - (8.250 x ΔVo))/ΔVo
12.0 V	(86.496 - (60.10 x ΔVo))/ΔVo	(19.763 - (14.366 x ΔVo))/ΔVo
15.0 V	(150.000 - (87.00 x ΔVo))/ΔVo	(25.585 - (14.516 x ΔVo))/ΔVo
±5.0 V	(68.296 - (48.10 x ΔVo))/ΔVo	(20.657 - (19.500 x ΔVo))/ΔVo
±12.0 V	(430.000 - (120.00 x ΔVo))/ΔVo	(42.141 - (13.793 x ΔVo))/ΔVo
±15.0 V	(743.000 - (177.00 x ΔVo))/ΔVo	(56.644 - (17.647 x ΔVo))/ΔVo

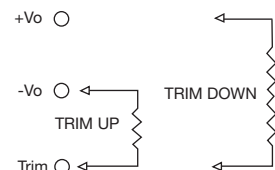
**Note:**

- ΔVo is the change in the trimmed output voltage from the nominal output voltage.

**Example:** JTA1524S05 trimmed to 5.3 V.  
For dual output models, Vo should be multiplied by 2.

ΔVo = 5.0 - 5.3 = 0.3 VDC  
The equation is (5.788 - (8.25 x 0.3))/0.3 = 11.04 KΩ

The value of resistor = (5.788 - (8.25 x 0.3))/0.3 = 11.04 KΩ  
Connect the resistor between TRIM pin and -Vo pin.



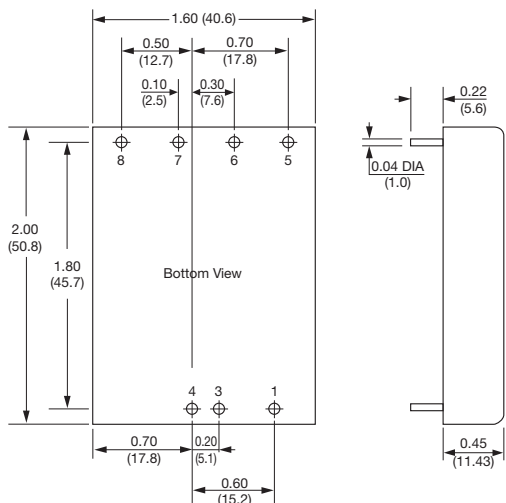
## Models and Ratings

Input Voltage	Maximum Power	Overvoltage Protection	Output V1		Output V2		Efficiency <sup>(2)</sup>	Model Number
			Voltage	Current	Voltage	Current		
9-36 VDC	13.2 W	3.9 V	3.3 V	4.00 A			78%	JTA2024S3V3
	20.0 W	6.8 V	5.0 V	4.00 A			81%	JTA2024S05
	20.0 W	15.0 V	12.0 V	1.67 A			83%	JTA2024S12
	20.0 W	18.0 V	15.0 V	1.33 A			83%	JTA2024S15
	20.0 W	6.8 V	+5.0 V	2.00 A	-5.0 V	2.00 A	83%	JTA2024D01
	20.0 W	15.0 V	+12.0 V	0.83 A	-12.0 V	0.83 A	83%	JTA2024D02
	20.0 W	18.0 V	+15.0 V	0.67 A	-15.0 V	0.67 A	83%	JTA2024D03
18-75 VDC	13.2 W	3.9 V	3.3 V	4.00 A			78%	JTA2048S3V3
	20.0 W	6.8 V	5.0 V	4.00 A			82%	JTA2048S05
	20.0 W	15.0 V	12.0 V	1.67 A			84%	JTA2048S12
	20.0 W	18.0 V	15.0 V	1.33 A			84%	JTA2048S15
	20.0 W	6.8 V	+5.0 V	2.00 A	-5.0 V	2.00 A	84%	JTA2048D01
	20.0 W	15.0 V	+12.0 V	0.83 A	-12.0 V	0.83 A	84%	JTA2048D02
	20.0 W	18.0 V	+15.0 V	0.67 A	-15.0 V	0.67 A	84%	JTA2048D03

### Notes

- For EN55022 Level B performance below -25 °C, a 220 µF (24 VDC input), 47 µF (48 VDC input) electrolytic capacitor is required across the input of the converter.
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## Mechanical Details



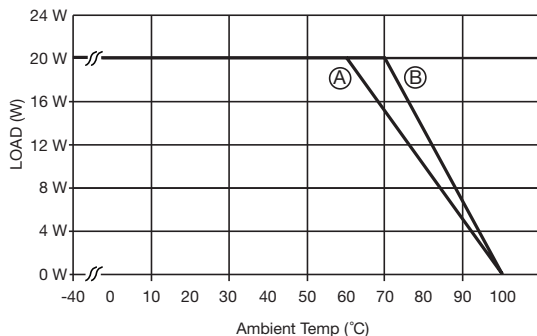
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Pin	Single Output	Dual Output
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### Notes

- All dimensions are in inches (mm)
- Weight: 0.11 lb (50 g) approx.
- Pin diameter tolerance: ±0.001 (±0.025)
- Pin pitch tolerance: ±0.01 (±0.25)
- Case tolerance: ±0.04 (±1.0)
- Packaging Style: Copper case with non-conducting base

## Application Notes

### Derating Curve



**Curve A:** Convection cooling  
 100% load at +60 °C to 0% load at +100 °C

**Curve B:** 150 LFM airflow  
 100% load at +70 °C to 0% load at +100 °C

### Output Trim

Output voltage	OUTPUT TRIM	
	R Trim Down (kΩ)	R Trim Up (kΩ)
3.3 V	(6.180 - (12.10 x ΔVo))/ΔVo	(3.484 - (7.511 x ΔVo))/ΔVo
5.0 V	(5.788 - (10.57 x ΔVo))/ΔVo	(5.788 - (8.250 x ΔVo))/ΔVo
12.0 V	(86.496 - (60.10 x ΔVo))/ΔVo	(19.763 - (14.366 x ΔVo))/ΔVo
15.0 V	(150.000 - (87.00 x ΔVo))/ΔVo	(25.585 - (14.516 x ΔVo))/ΔVo
±5.0 V	(68.296 - (48.10 x ΔVo))/ΔVo	(20.657 - (19.500 x ΔVo))/ΔVo
±12.0 V	(430.000 - (120.00 x ΔVo))/ΔVo	(42.141 - (13.793 x ΔVo))/ΔVo
±15.0 V	(743.000 - (177.00 x ΔVo))/ΔVo	(56.644 - (17.647 x ΔVo))/ΔVo

#### Note:

- ΔVo is the change in the trimmed output voltage from the nominal output voltage.

**Example:** JTA2024S05 trimmed to 5.3 V. For dual output models, Vo should be multiplied by 2.

$$\Delta V_o = 5.0 - 5.3 = 0.3 \text{ VDC}$$

The equation is  $(5.788 - (8.25 \times \Delta V_o)) / \Delta V_o$

The value of resistor =  $(5.788 - (8.25 \times 0.3)) / 0.3 = 11.04 \text{ K}\Omega$

Connect the resistor between TRIM pin and -Vo pin.

