

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	• 24 V (9-36 VDC) • 48 V (18-75 VDC)
Input Current	• JTA10: 1.65 A max at 9 VDC input • JTA15: 2.20 A max at 9 VDC input • JTA20: 2.90 A max at 9 VDC input
Input Filter	• Pi Network
Input Surge	• 24 V models: 50 VDC for 100ms • 48 V models: 100 VDC for 100 ms
Input Reflected Ripple Current	• 24 V models, with a 100 μF capacitor: JTA10: 20mA pk-pk, JTA15: 35mA pk-pk, JTA20: 60mA pk-pk, • 48 V models, with a 22 μF capacitor: JTA10: 30 mA pk-pk, JTA15: 20 mA pk-pk, JTA20: 30 mA pk-pk
Input Reverse Voltage Protection	• None

Output

Output Voltage	• See table
Output Voltage Trim	• $\pm 10\%$ (15 & 20 W models only)
Voltage Balance	• $\pm 1\%$ max dual models, 100% load
Minimum Load	• No minimum load required for single output models, 10% required for dual output models
Line Regulation	• $\pm 1\%$ max
Load Regulation	• Single output models: $\pm 1\%$ max • Dual output models: $\pm 2\%$ max for a 10-100% load change
Setpoint Accuracy	• $\pm 2\%$
Ripple & Noise	• Single output models: 50 mV pk-pk • Dual output models: 75 mV pk-pk typical at 20 MHz bandwidth
Transient Response	• 4% max deviation, recovery to within 1% in <500 μs for a 25% load change
Temperature Coefficient	• 0.02%/°C
Overvoltage Protection	• See table
Overcurrent Protection	• 120-190% • JTA10: Constant current, auto recovery • JTA15/20: Trip & restart (hiccup mode)
Short Circuit Protection	• Continuous with auto recovery
Remote On/Off	• On = Logic High or Open • Off = Logic Low or <1.8 V (15 & 20 W models only)
Maximum Capacitive Load	• Single outputs: 1000 μF, Dual outputs: 650 μF

General

Efficiency	• See table
Isolation Voltage	• 1500 VDC Input to Output
Isolation Resistance	• $10^9 \Omega$
Switching Frequency	• 300 kHz typical
Power Density	• JTA10: 11.4 W/in³ • JTA15: 10.4 W/in³ • JTA20: 13.9 W/in³
MTBF	• 1.0 MHrs to MIL-HDBK-217F at 25°C, GB

Environmental

Operating Temperature	• -40 °C to +100 °C, derate from 100% load at 70 °C (60 °C for JTA20) to no load at 100 °C
Case Temperature	• +100 °C max
Cooling	• Convection-cooled
Operating Humidity	• 5-95% RH, non-condensing
Storage Temperature	• -55 °C to +105 °C

EMC & Safety

Emissions	• EN55022, level A conducted (below -25 °C) • level B conducted (-25 °C to +100 °C) (see note 1) • EN55022, level A radiated
ESD Immunity	• EN61000-4-2, level 2 Perf Criteria A
Radiated Immunity	• EN61000-4-3 3 Vrms, Perf Criteria A
Conducted Immunity	• EN61000-4-6 3 V/m, Perf Criteria A
Safety Approvals	• UL60950-1

Models and Ratings

JTA10 **XP**

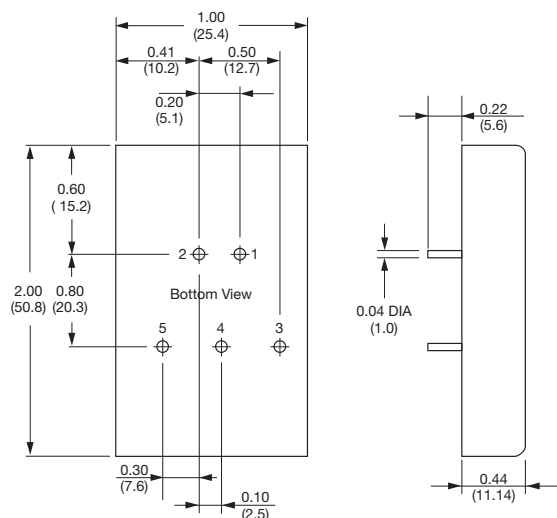
Input Voltage	Maximum Power	Overvoltage Protection	Output V1		Output V2		Efficiency ⁽²⁾	Model Number
			Voltage	Current	Voltage	Current		
9-36 VDC	6.6 W	3.9 V	3.3 V	2.00 A			77%	JTA1024S3V3
	10.0 W	6.8 V	5.0 V	2.00 A			79%	JTA1024S05 [^]
	10.0 W	15.0 V	12.0 V	0.83 A			81%	JTA1024S12
	10.0 W	18.0 V	15.0 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 [^]
18-75 VDC	10.0 W	18.0 V	+15.0 V	0.33 A	-15.0 V	0.33 A	80%	JTA1024D03
	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

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

[^] Available from Newark. See pages 291-296

Mechanical Details



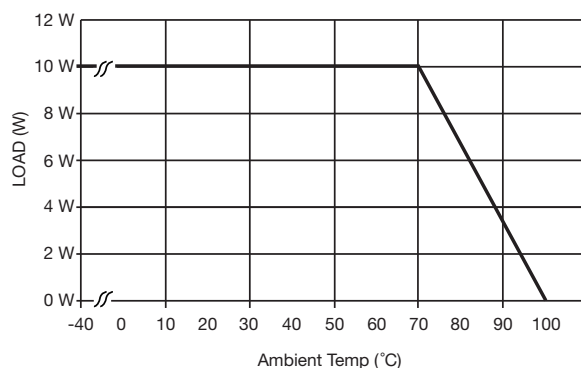
PIN CONNECTIONS		
Pin	Single Output	Dual Output
1	+Input	+Input
2	-Input	-Input
3	+Output	+Output
4	No pin	Common
5	-Output	-Output

Notes

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

Application Notes

Derating Curve



Models and Ratings

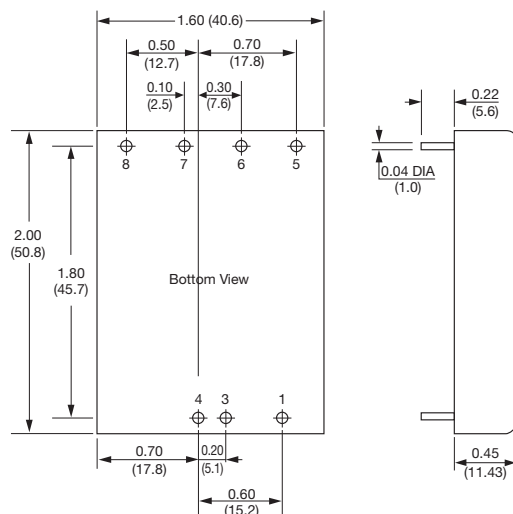
Input Voltage	Maximum Power	Overvoltage Protection	Output V1		Output V2		Efficiency ⁽²⁾	Model Number
			Voltage	Current	Voltage	Current		
9-36 VDC	10 W	3.9 V	3.3 V	3.000 A			76%	JTA1524S3V3
	15 W	6.8 V	5.0 V	3.000 A			80%	JTA1524S05 [^]
	15 W	15.0 V	12.0 V	1.250 A			82%	JTA1524S12
	15 W	18.0 V	15.0 V	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
18-75 VDC	15 W	18.0 V	+15.0 V	0.500 A	-15.0 V	0.500 A	82%	JTA1524D03
	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

[^] Available from Newark. See pages 291-296

Mechanical Details



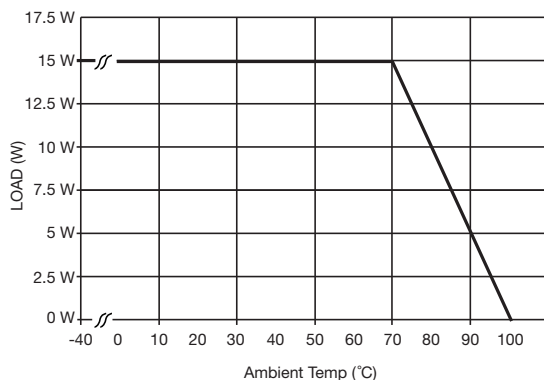
PIN CONNECTIONS		
Pin	Single Output	Dual Output
1	On/Off control	On/Off control
3	-Vin	-Vin
4	+Vin	+Vin
5	Trim	Trim
6	-Vout	-Vout
7	+Vout	Common
8	No pin	+Vout

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

Note:

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

Example: JTA1524S05 trimmed to 5.3 V.

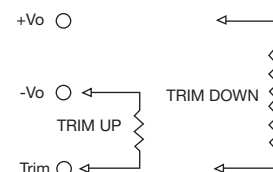
For dual output models, Vo should be multiplied by 2.

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

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

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

Connect the resistor between TRIM pin and -Vo pin.



Models and Ratings

JTA20 XP

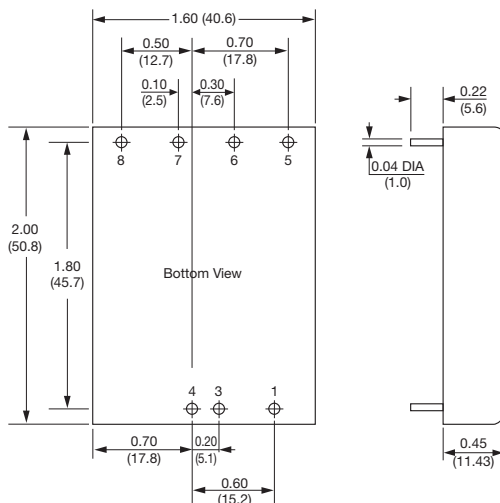
Input Voltage	Maximum Power	Overvoltage Protection	Output V1		Output V2		Efficiency ⁽²⁾	Model Number
			Voltage	Current	Voltage	Current		
9-36 VDC	13.2 W	3.9 V	3.3 V	4.00 A			78%	JTA2024S3V3
	20.0 W	6.8 V	5.0 V	4.00 A			81%	JTA2024S05
	20.0 W	15.0 V	12.0 V	1.67 A			83%	JTA2024S12
	20.0 W	18.0 V	15.0 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 [^]
18-75 VDC	20.0 W	18.0 V	+15.0 V	0.67 A	-15.0 V	0.67 A	83%	JTA2024D03
	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

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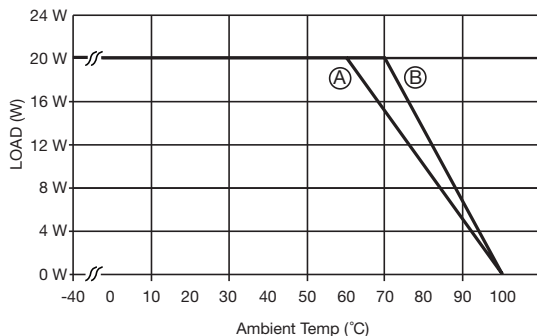
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