

40 Watts

JTL Series



- 4:1 Input Range
- High Power Density
- Single and Dual Outputs
- High Efficiency – Up to 92%
- Remote On/Off
- 1600 VDC Isolation
- 3 Year Warranty

Specification

Input

Input Voltage Range	• 24 V (9-36 VDC), 48 V (18-75 VDC)
Input Current	• See table
Input Reflected Ripple Current	• 20 mA pk-pk through 12 μ H inductor
Input Reverse Voltage Protection	• None
Undervoltage Lockout	• 24 V models: ON 8.6 V, OFF 7.9 V typical 48 V models: ON 17.8 V, OFF 16 V typical
Input Filter	• Pi network
Input Surge	• 24 V models 50 VDC for 100 ms 48 V models 100 VDC for 100 ms

Output

Output Voltage	• See table
Output Voltage Trim	• $\pm 10\%$
Minimum Load	• No minimum load required
Line Regulation	• $\pm 0.5\%$ max
Load Regulation	• Single output models: $\pm 0.5\%$ max Dual output models: $\pm 1\%$ max balanced outputs
Cross Regulation	• $\pm 5\%$ for dual outputs (see note 2)
Setpoint Accuracy	• $\pm 1\%$
Start Up Time	• 25 ms typical
Ripple & Noise	• 50 mV pk-pk max for 3.3 V & 5 V models, 75 mV pk-pk max for other single output models, 150 mV pk-pk max for dual output models, 20 MHz bandwidth, (see note 3)
Transient Response	• 3% max deviation, recovery to within 1% in $< 250 \mu$ s for a 25% load change
Temperature Coefficient	• 0.02%/ $^{\circ}$ C
Overvoltage Protection	• 3.3 V models: 3.9 V typical 5 V models: 6.2 V typical 12 V models: 15 V typical 15 V models: 18 V typical ± 12 V models: ± 15 V typical ± 15 V models: ± 18 V typical
Overload Protection	• $> 130\%$ of full load
Short Circuit Protection	• Trip & restart (Hiccup mode), auto recovery
Remote On/Off	• On = Logic High (> 3.0) or Open Off = Logic Low (< 1.2 V) or short pin 2 to 3
Max Capacitive Load	• See table

General

Efficiency	• See table
Isolation	• 1600 VDC Input to Output 1600 VDC Input to Case 1600 VDC Output to Case
Isolation Capacitance	• 2500 pF max
Switching Frequency	• 270 kHz, typical
Power Density	• 25 W/in ³
MTBF	• 150 kHrs min to MIL-HDBK-217F at 25 $^{\circ}$ C, GB

Environmental

Operating Temperature	• -40 $^{\circ}$ C to +85 $^{\circ}$ C, see derating curve
Case Temperature	• +105 $^{\circ}$ C max
Cooling	• Convection-cooled
Operating Humidity	• 5-95% RH, non-condensing
Storage Temperature	• -40 $^{\circ}$ C to +125 $^{\circ}$ C

EMC & Safety

Emissions	• EN55022, class A conducted and radiated with external components
ESD Immunity	• EN61000-4-2, level 3, Perf Criteria A
EFT/Burst	• EN61000-4-4, level 3, Perf Criteria A (see note 4)
Surge	• EN61000-4-5, installation class 2, Perf Criteria A (see note 4)
Conducted Immunity	• EN61000-4-6, 3 Vrms, Perf Criteria A
Magnetic Fields	• EN61000-4-8, 1 A/m, Perf Criteria A

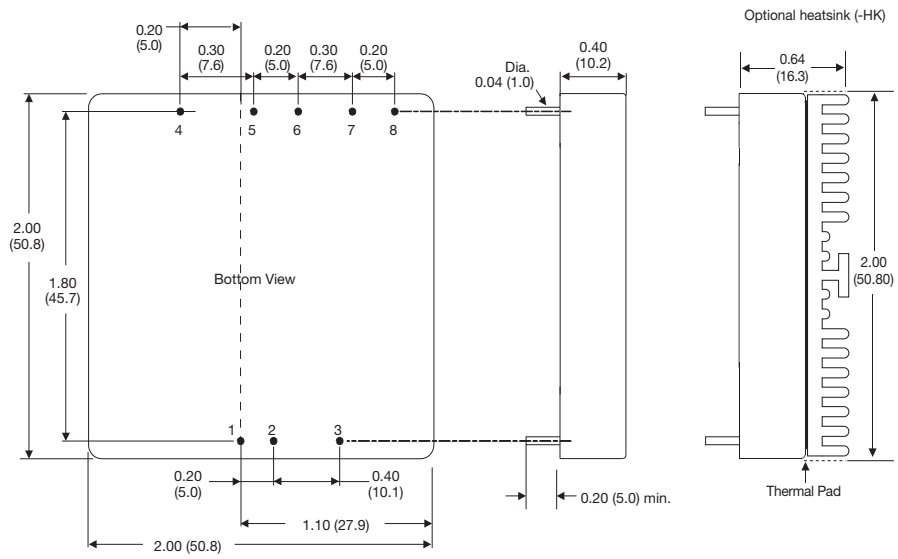
Models and Ratings

Input Voltage	Output Voltage	Output Current	Input Current ⁽¹⁾		Maximum Capacitive Load	Efficiency	Model Number
			No Load	Full Load			
9-36 VDC	3.3 V	10.00 A	80 mA	1600 mA	25000 μ F	89%	JTL4024S3V3
	5.0 V	8.00 A	100 mA	1900 mA	13000 μ F	91%	JTL4024S05
	12.0 V	3.35 A	50 mA	1930 mA	2300 μ F	90%	JTL4024S12
	15.0 V	2.65 A	50 mA	1910 mA	1500 μ F	90%	JTL4024S15
	\pm 12.0 V	\pm 1.65 A	60 mA	1920 mA	\pm 1200 μ F	89%	JTL4024D12
	\pm 15.0 V	\pm 1.35 A	60 mA	1960 mA	\pm 750 μ F	89%	JTL4024D15
18-75 VDC	3.3 V	10.00 A	60 mA	800 mA	25000 μ F	89%	JTL4048S3V3
	5.0 V	8.00 A	60 mA	940 mA	13000 μ F	92%	JTL4048S05
	12.0 V	3.35 A	30 mA	970 mA	2300 μ F	90%	JTL4048S12
	15.0 V	2.65 A	30 mA	940 mA	1500 μ F	91%	JTL4048S15
	\pm 12.0 V	\pm 1.65 A	30 mA	950 mA	\pm 1200 μ F	90%	JTL4048D12
	\pm 15.0 V	\pm 1.35 A	30 mA	970 mA	\pm 750 μ F	90%	JTL4048D15

Notes

1. Input current specified at nominal 24 V or 48 V input.
2. Cross regulation for duals is \pm 5% when one output is at 100% and the other is varied between 25% and 100%.
3. Measured with 1 μ F ceramic capacitor across output rails.
4. A 220 μ F/250 V capacitor across the input is required in order to meet EN61000-4-4 and EN61000-4-5.
5. Efficiency is measured at full load and nominal input at 25 °C.
6. For heatsink option, add '-HK' to the end of the part number.

Mechanical Details



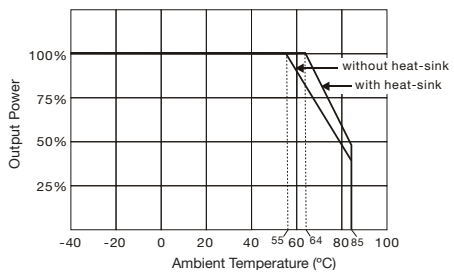
PIN CONNECTIONS		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	Remote On/Off	Remote On/Off
4	-Sense	+Vout
5	+Sense	Com
6	+Vout	Com
7	-Vout	-Vout
8	Trim	Trim

Notes

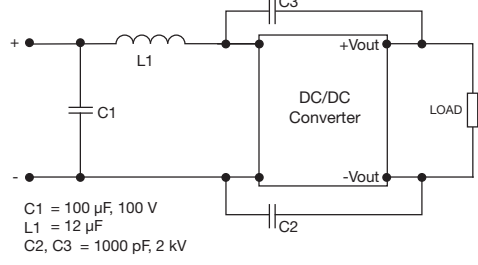
1. All dimensions are in inches (mm).
2. Weight: 0.07 lbs (30 g) approx
3. Pin diameter: 0.04 \pm 0.002 (1.0 \pm 0.05)
4. Pin pitch tolerance: \pm 0.014 (\pm 0.35)
5. Case tolerance: \pm 0.02 (\pm 0.5)

Application Notes

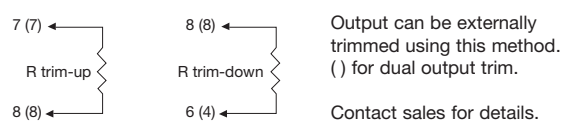
Derating Curve



Input Filter



External Output Trim



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