

JTL30 SERIES

DC/DC Single & Dual Output: 30 Watts



Specification

Input

Input Voltage Range	• 24 V (9-36 VDC), 48 V (18-75 VDC)
Input Current	• See table
Input Reflected Ripple	• 20 mA pk-pk through 12 μ H inductor
Input Filter	• Pi network
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 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% on single outputs models only
Minimum Load	• No minimum load required for single and dual output models, 10% required on all outputs for triple output models
Line Regulation	• \pm 0.2% max for single and dual output models, \pm 1.0% main, \pm 5% auxiliary for triple output models
Load Regulation	• Single output models: \pm 0.5% max Dual output models: \pm 1% max balanced outputs Triple output models: \pm 1% max main, \pm 5% auxiliaries
Cross Regulation	• \pm 5% for dual and triples output (see note 2)
Setpoint Accuracy	• \pm 1% (\pm 5% for triple auxiliaries)
Start Up Time	• 30 ms typical
Ripple & Noise	• 100 mV or 1% pk-pk, whichever is greater single & dual output models, 50/75 mV pk-pk main/auxiliary outputs of triple output models, 20 MHz bandwidth (see note 3)
Transient Response	• 3% max deviation, recovery to within 1% in $<$ 250 μ s for a 25% load change
Temp. 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 \pm 5 V models: \pm 6.2 V typical \pm 12 V models: \pm 15 V typical \pm 15 V models: \pm 18 V typical
Overload Protection	• $>$ 150% of full load
Short Circuit Protection	• Trip & restart (hiccup mode), auto recovery
Overtemperature Protection	• 115 $^{\circ}$ C typical
Remote On/Off	• On = Logic High ($>$ 3.0) or Open Off = Logic Low ($<$ 1.2 V) or short pin 2 to 3
Maximum Capacitive Load	• See table

Features

- 4:1 Input Range
- High Power Density
- Single, Dual and Triple Outputs
- High Efficiency - Up to 91%
- Remote On/Off
- 1600 VDC Isolation
- 3 Year Warranty

General

Efficiency	• See table
Isolation Voltage	• 1600 VDC Input to Output 1600 VDC Input to Case 1600 VDC Output to Case
Switching Frequency	• 330 kHz typical
Power Density	• 37.5 W/in ³
MTBF	• 320 kHrs min to MIL-HDBK-217F at 25 $^{\circ}$ C, GB

Environmental

Operating Temperature	• -40 $^{\circ}$ C to +75 $^{\circ}$ 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

Emissions	• EN55022, class A conducted & radiated with external components, see application note
ESD Immunity	• EN61000-4-2, level 3, Perf Criteria A
Radiated Immunity	• EN61000-4-3 10 V/m Perf Criteria A*
EFT/Burst	• EN61000-4-4 level 3, Perf Criteria A*
Surge	• EN61000-4-5 installation class 2, Perf Criteria A
Conducted Immunity	• EN61000-4-6 10 V/rms, Perf Criteria A
Magnetic Field	• EN61000-4-8 1 A/m, Perf Criteria A

*External input capacitor required 220 μ F/250 V

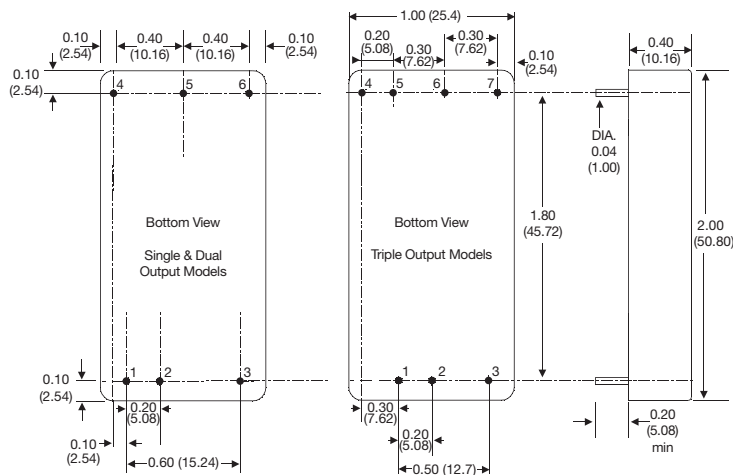
Models and Ratings

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	7.50 A	60 mA	1185 mA	20000 μ F	89%	JTL3024S3V3†^A
	5.0 V	6.00 A	100 mA	1420 mA	14000 μ F	91%	JTL3024S05†^A
	12.0 V	2.50 A	30 mA	1436 mA	2000 μ F	90%	JTL3024S12†^A
	15.0 V	2.00 A	30 mA	1420 mA	2000 μ F	91%	JTL3024S15†^A
	\pm 5.0 V	\pm 3.00 A	120 mA	1437 mA	\pm 3000 μ F	90%	JTL3024D05†^A
	\pm 12.0 V	\pm 1.25 A	30 mA	1453 mA	\pm 1300 μ F	89%	JTL3024D12†^A
	\pm 15.0 V	\pm 1.00 A	40 mA	1437 mA	\pm 1300 μ F	89%	JTL3024D15†^A
	+3.3 V, \pm 12.0 V	5.00 A, \pm 0.42 A	80 mA	1287 mA	15000, \pm 220 μ F	89%	JTL3024T0312†^A
	+3.3 V, \pm 15.0 V	5.00 A, \pm 0.33 A	90 mA	1279 mA	15000, \pm 220 μ F	89%	JTL3024T0315†^A
	+5.0 V, \pm 12.0 V	4.00 A, \pm 0.42 A	100 mA	1440 mA	8000, \pm 220 μ F	89%	JTL3024T0512†^A
+5.0 V, \pm 15.0 V	4.00 A, \pm 0.33 A	110 mA	1431 mA	8000, \pm 220 μ F	90%	JTL3024T0515†^A	
18-75 VDC	3.3 V	7.50 A	50 mA	593 mA	20000 μ F	89%	JTL3048S3V3†^A
	5.0 V	6.00 A	60 mA	702 mA	14000 μ F	91%	JTL3048S05†^A
	12.0 V	2.50 A	30 mA	718 mA	2000 μ F	90%	JTL3048S12†^A
	15.0 V	2.00 A	30 mA	710 mA	2000 μ F	90%	JTL3048S15†^A
	\pm 5.0 V	\pm 3.00 A	70 mA	710 mA	\pm 3000 μ F	91%	JTL3048D05†^A
	\pm 12.0 V	\pm 1.25 A	30 mA	718 mA	\pm 1300 μ F	90%	JTL3048D12†^A
	\pm 15.0 V	\pm 1.00 A	40 mA	718 mA	\pm 1300 μ F	90%	JTL3048D15†^A
	+3.3 V, \pm 12.0 V	5.00 A, \pm 0.42 A	50 mA	663 mA	15000, \pm 220 μ F	89%	JTL3048T0312†^A
	+3.3 V, \pm 15.0 V	5.00 A, \pm 0.33 A	50 mA	640 mA	15000, \pm 220 μ F	89%	JTL3048T0315†^A
	+5.0 V, \pm 12.0 V	4.00 A, \pm 0.42 A	60 mA	712 mA	8000, \pm 220 μ F	91%	JTL3048T0512†^A
+5.0 V, \pm 15.0 V	4.00 A, \pm 0.33 A	50 mA	707 mA	8000, \pm 220 μ F	90%	JTL3048T0515†^A	

Notes

- Input current specified at nominal 24 V or 48 V input.
- Cross regulation for duals is \pm 5% when one output is at 100% and the other is varied between 25% and 100%. Cross regulation for triples is \pm 5% when main output and one auxiliary is at 25% and the other is varied between 25% and 100%.
- Measured with 1 μ F ceramic capacitor across output rails.

Mechanical Details



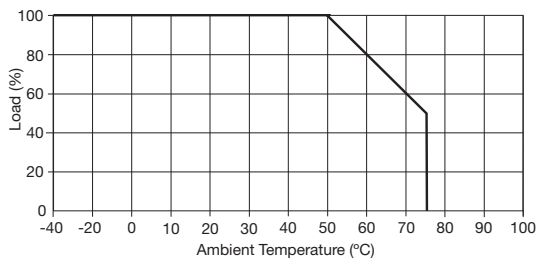
PIN CONNECTIONS			
Pin	Single	Dual	Triple
1	+Vin	+Vin	+Vin
2	-Vin	-Vin	-Vin
3	Remote On/Off	Remote On/Off	Remote On/Off
4	+Vout	+Vout	+Vout 2
5	-Vout	Com	-Vout 3
6	Trim	-Vout	Com
7			+Vout 1

Notes

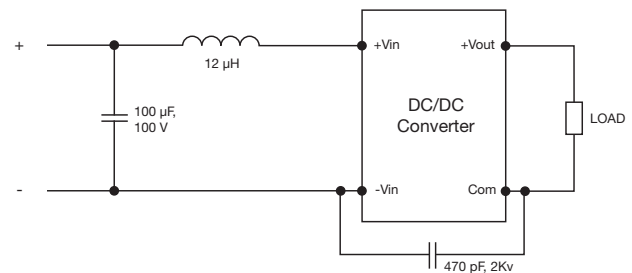
- All dimensions are in inches (mm).
- Weight: 0.07 lbs (30 g) approx
- Pin diameter: 0.04 \pm 0.002 (1.0 \pm 0.05)
- Pin pitch tolerance: \pm 0.014 (\pm 0.35)
- Case tolerance: \pm 0.02 (\pm 0.5)

Application Notes

Derating Curve



Input Filter



External Output Trim

