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JTL30 series

XP Power

30W Convection cooled

DC-DC converters

The 30W JTL30 series is housed in a 50.8 x 25.4 x 10.16 mm (2" x 1" x 0.4") metal case. Featuring a 4:1 input voltage range of 9 to 36VDC or 18 to 75VDC with single, dual and triple outputs, singles have 3.3, 5, 12 or 15VDC with duals having either ±12 or ±15VDC, triples offer +3.3V or +5V in combination with either ±12 or ±15VDC. Single output models are adjustable +/-10% with an external trim resistor.

The JTL30 has 1.6kVDC isolation between input and output. Operating temperature range is from -40°C to +75°C, with derating above +50°C. An optional heatsink (-HK) extends the full power operating temperature when fitted. Remote on/off is standard for all models.



Features

- Regulated single outputs 5 to 15VDC
- Regulated dual outputs ±12 & ±15VDC
- Regulated triple outputs +3 or +5 with ±12 & ±15VDC
- 4:1 input range
- 50.8 x 25.4mm (2" x 1") footprint, 10.16mm profile
- Output trim ±10% (single O/P)
- 1.6kVDC isolation
- Remote On/Off
- Optional heatsink
- -40°C to +75°C operating temperature
- Full power to +50°C
- 3 year warranty

Applications

Autonomous equipment

Industrial electronics & robotics

Technology

Dimensions

50.8 x 50.8 x 10.16mm (2.00" x 2.00" x 0.40")

More resources

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Models & ratings

Model number	Input voltage	Output voltage	Output current	Efficiency	Input current[1]		Maximum capacitive load
					No load	Full load	
JTL3024S3V3	9-36VDC	3.3V	7.50A	89%	60mA	1185mA	20000µF
JTL3024S05		5.0V	6.00A	91%	100mA	1420mA	14000µF
JTL3024S12		12.0V	2.50A	90%	30mA	1436mA	2000µF
JTL3024S15		15.0V	2.00A	91%	30mA	1420mA	2000µF
JTL3024D05		±5.0V	±3.00A	90%	120mA	1437mA	±3000µF
JTL3024D12		±12.0V	±1.25A	89%	30mA	1453mA	±1300µF
JTL3024D15		±15.0V	±1.00A	89%	40mA	1437mA	±1300µF
JTL3024T0312		+3.3V, ±12.0V	5.00A, ±0.42A	89%	80mA	1287mA	15000, ±220µF
JTL3024T0315		+3.3V, ±15.0V	5.00A, ±0.33A	89%	90mA	1279mA	15000, ±220µF
JTL3024T0512		+5.0V, ±12.0V	4.00A, ±0.42A	89%	100mA	1440mA	8000, ±220µF
JTL3024T0515		+5.0V, ±15.0V	4.00A, ±0.33A	90%	110mA	1431mA	8000, ±220µF

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Models & ratings

Model number	Input voltage	Output voltage	Output current	Efficiency	Input current[1]		Maximum capacitive load
					No load	Full load	
JTL3048S3V3	18-75VDC	3.3V	7.50A	89%	50mA	593mA	20000µF
JTL3048S05		5.0V	6.00A	91%	60mA	702mA	14000µF
JTL3048S12		12.0V	2.50A	90%	30mA	718mA	2000µF
JTL3048S15		15.0V	2.00A	90%	30mA	710mA	2000µF
JTL3048D05		±5.0V	±3.00A	91%	70mA	710mA	±3000µF
JTL3048D12		±12.0V	±1.25A	90%	30mA	718mA	±1300µF
JTL3048D15		±15.0V	±1.00A	90%	40mA	718mA	±1300µF
JTL3048T0312		+3.3V, ±12.0V	5.00A, ±0.42A	89%	50mA	663mA	15000, ±220µF
JTL3048T0315		+3.3V, ±15.0V	5.00A, ±0.33A	89%	50mA	640mA	15000, ±220µF
JTL3048T0512		+5.0V, ±12.0V	4.00A, ±0.42A	91%	60mA	712mA	8000, ±220µF
JTL3048T0515		+5.0V, ±15.0V	4.00A, ±0.33A	90%	50mA	707mA	8000, ±220µF

Notes:

1. Input current specified at nominal 24V or 48V input.
2. Cross regulation for duals is ±5% when one output is at 100% and the other is varied between 25% and 100%. Cross regulation for triples is ±5% when main output and one auxiliary is at 25% and the other is varied between 25% and 100%.
3. Measured with 1µF ceramic capacitor across output rails.
4. For heatsink option add '-HK' to the end of the part number.

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency	See models & ratings table				
Isolation: input to output	1600			VDC	
Isolation: input to case	1600			VDC	
Isolation: output to case	1600			VDC	
Switching frequency		330		kHz	
Power density		0.95 (37.5)		W/cm^3 (W/in^3)	
Water Wash	Using de-ionised water, do not soak, dry thoroughly				
Solder Profile	Wave solder, 260°C max 1.5mm from case for 10s max				
Pin Material	Brass, solder coated				
Case Material	Copper, nickel coated with non-conductive plastic base UL94V-0 rated				
Potting Material	Epoxy, UL94V-0 rated				
Mean time between failure	320			kHrs	MIL-HDBK-217F, +25°C GB

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Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	See models & ratings table				
Output voltage trim		±10		%	Single outputs only
Minimum load		0		%	No minimum load required for all single & dual outputs
		10			Triple outputs
Line regulation			±0.2	%	Single & dual outputs
			±1		Main
			±5.0		Aux triple outputs
Load regulation			±0.5	%	Single & dual outputs
			±1		Main
			±1		Triple outputs (±5% aux)
Cross regulation		±5		%	Dual and triple outputs
Setpoint accuracy		±1		%	Single & dual outputs
		±5			Triple outputs
Start up time		30		ms	
Transient response			±3	%	Deviation, recovery to within 1% in <250µs for a 25% load change
Ripple & noise		100		mV	Or 1% pk-pk, whichever is greater single & dual output models, 50/75mV pk-pk main/auxiliary outputs of triple output models, 20MHz bandwidth
Temperature coefficient		0.02		%/°C	
Short circuit protection	Trip & restart (hiccup mode), auto recovery				
Temperature coefficient		0.02		%/ ˚C	
Overload protection		115		%	
Remote on/off	On = Logic High (>3.0VDC) or Open				
	Off = Logic Low (<1.2VDC) or short pin 2 to 3				
Overvoltage protection		3.9		VDC	3.3VDC models
		6.2			5VDC models
		15			12VDC models
		18			15VDC models
		±6.2			±5VDC models
		±15			±12VDC models
		±18			±15VDC models

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range	9		36	VDC	24VDC nominal
	18		75		48VDC nominal
Input current	See models & ratings table				
Input reflected ripple current		20		mA/pk-pk	12µH inductor, 5Hz to 20MHz
Input filter	Pi network				
Input surge			50	VDC	24VDC models (for 100ms)
			100		48VDC models (for 100ms)
Undervoltage lockout	On at 8.6VDC Off at 7.9VDC				24VDC models
	On at 17.8VDC Off at16VDC				48VDC models

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Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+75	°C	See derating curve
Storage temperature	-55		+125	°C	
Case temperature			+105	°C	
Cooling	Convection convection				
Operating altitude	5		95	%	RH, non condensing

Safety approvals

Safety agency	Standard	Notes & conditions
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Emissions - EMC

Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55032	Level A	With no external components
Radiated	EN55032	Level A	

Immunity - EMC

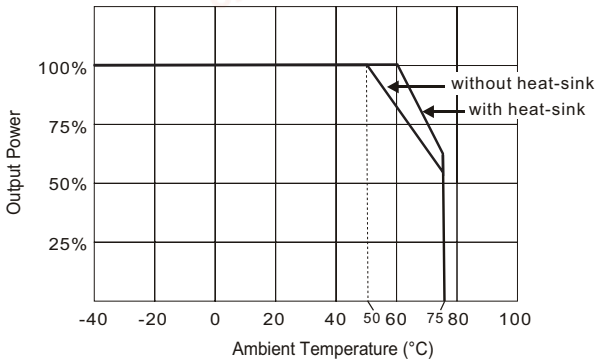
Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD immunity	EN61000-4-2	3	A	
Radiated immunity	EN61000-4-3	10V/m	A	
EFT/Burst	EN61000-4-4	1	A	External input capacitor required 220µF/250V
Surge	EN61000-4-5	2	A	
Conducted immunity	EN61000-4-6	10Vrms	A	
Magnetic fields	EN61000-4-8	1A/m	A	

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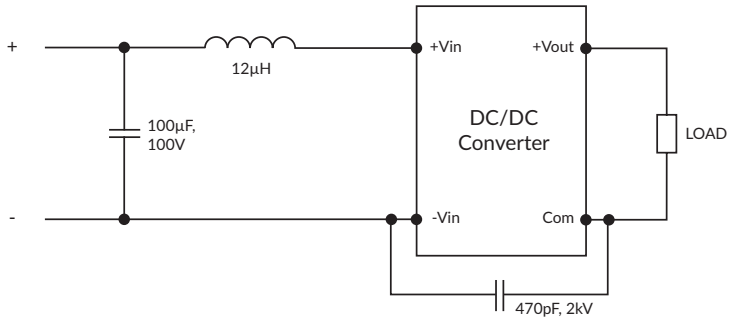
DC-DC converters

Application notes

Derating curve



Input Filter

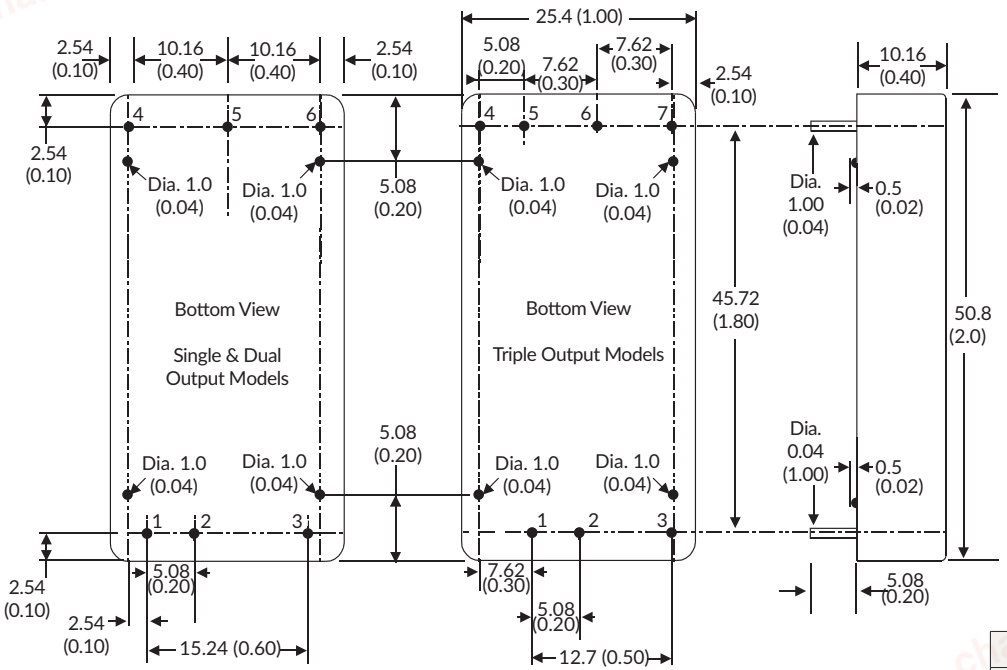


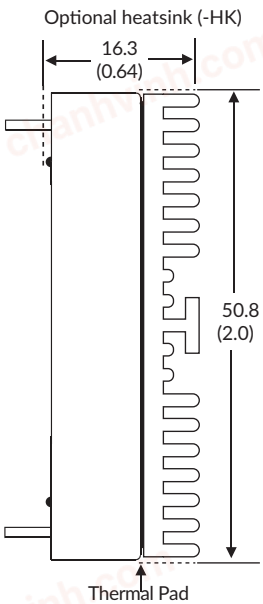
External Output Trim

Output can be externally trimmed using this method.



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:

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