

The JTK30 series is housed in a 25.4 x 25.4 x 10.9mm (1" x 1" x 0.46") metal case.

Featuring a 4:1 input voltage range of 9 to 36VDC or 18 to 75VDC with both single and dual outputs, singles have 3.3, 5, 12 or 15VDC with duals having either ± 12 or ± 15 VDC. Single output models are adjustable $\pm 10\%$ with a trim resistor.

The JTK30 provides 1.6kVDC isolation between input and output. Operating temperature range is from -40°C to $+100^{\circ}\text{C}$, with derating above $+55^{\circ}\text{C}$. An optional heatsink (-HK) extends the full power operating temperature when fitted. Remote on/off is standard.



Features

- ▶ Regulated single outputs 3.3 to 15VDC
- ▶ Regulated dual outputs ± 12 & ± 15 VDC
- ▶ 4:1 input range
- ▶ 25.4 x 25.4mm (1" x 1") footprint, 10.9mm (0.46") profile
- ▶ Output trim $\pm 10\%$ (single O/P)
- ▶ 1.6kVDC isolation
- ▶ Remote On/Off
- ▶ Optional heatsink
- ▶ -40°C to $+100^{\circ}\text{C}$ operating temperature
- ▶ Full power to $+55^{\circ}\text{C}$
- ▶ 3 year warranty

Applications



Autonomous
equipment



Industrial
electronics &
robotics



Technology

Dimensions

25.4 x 25.0 x 10.9mm (1.0" x 1.0" x 0.43")

Models & ratings

Model number ⁽³⁾	Input voltage	Output voltage	Output current	Efficiency	Input current ⁽¹⁾		Overvoltage Protection	Maximum capacitive load ⁽²⁾
					No load	Full load		
JTK3024S3V3	9-36VDC	3V3VDC	7.0A	88%	10mA	1095mA	3.9VDC	10000 μF
JTK3024S05		5.0VDC	6.0A	89%	10mA	1405mA	6.2VDC	7200 μF
JTK3024S12		12.0VDC	2.5A	89%	10mA	1405mA	15.0VDC	1200 μF
JTK3024S15		15.0VDC	2.0A	91%	10mA	1375mA	18.0VDC	1000 μF
JTK3024D12		± 12.0 VDC	± 1.25 A	89%	10mA	1405mA	± 15.0 VDC	± 750 μF
JTK3024D15		± 15.0 VDC	± 1.0 A	91%	10mA	1375mA	± 18.0 VDC	± 500 μF

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Notes:

1. Input currents measured at nominal input voltage.
2. Maximum capacitive load is per output.

3. Add suffix '-HK' for optional heatsink.

Models & ratings

Model number ⁽³⁾	Input voltage	Output voltage	Output current	Efficiency	Input current ⁽¹⁾		Overvoltage Protection	Maximum capacitive load ⁽²⁾
					No load	Full load		
JTK3048S3V3	18-75VDC	3V3VDC	7.0A	89%	8mA	540mA	3.9VDC	10000μF
JTK3048S05		5.0VDC	6.0A	90%	8mA	695mA	6.2VDC	7200μF
JTK3048S12		12.0VDC	2.5A	90%	8mA	695mA	15.0VDC	1200μF
JTK3048S15		15.0VDC	2.0A	92%	8mA	680mA	18.0VDC	1000μF
JTK3048D12		±12.0VDC	±1.25A	90%	8mA	695mA	±15.0VDC	±750μF
JTK3048D15		±15.0VDC	±1.0A	91%	8mA	685mA	±18.0VDC	±500μF

Notes:

1. Input currents measured at nominal input voltage.
2. Maximum capacitive load is per output.

3. Add suffix '-HK' for optional heatsink.

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range	9		36	VDC	24VDC nominal
	18		75		48VDC nominal
Input reflected ripple		30		mA pk-pk	Through 12μH inductor and 47μF capacitor
Input surge			50		24VDC models (for 1s)
			100		48VDC models (for 1s)

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	3.3		30	VDC	See models and ratings table
Output voltage trim	±10			%	Single output versions
Initial set accuracy			±1	%	At full load
Minimum load	0			%	No minimum load required
Line regulation			±0.5	%	From minimum to maximum input at full load
Load regulation			0.5/1.0	%	From 0% to full load for single/dual output
Cross regulation			±5	%	On dual output models, when one output is at 100% load and other is varied from 25% load to full load
Ripple & noise			75/60	mV pk-pk	Single output 10μF X7R MLCC Dual output with 10μF/25V X7R MLCC on each output measured using 20MHz bandwidth
Short circuit protection	Trip and restart (hiccup), with auto recovery				
Temperature coefficient			0.02	%/ °C	
Overload protection		170		%	
Over protection voltage	See models and ratings table				
Remote on/off	Output is on if remote on/off (pin 3) is open Output turns off if remote on/off (pin 3) is low (<1.2VDC)				

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency		90		%	See models & ratings table
Isolation: input to output	1600			VDC	
Isolation: input to case	1600			VDC	
Isolation capacitance			2200	pF	
Isolation resistance	10 ⁹			Ω	
		330			
Power density			4.45 (73.0)	W/cm ³ (W/in ³)	
Mean time between failure	370			khrs	MIL-HDBK-217F, +25°C GB
Case material	Copper with plastic non conductive base UL95V-0 rated				
Pin material	Brass solder coated				
Solder profile	260°C max 1.5mm from case 10s max				
Weight		19.0 (0.042)		g (lb)	

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+100	°C	See derating curve
Storage temperature	-55		+125	°C	
Case temperature			+105	°C	
Cooling	Natural convection				
Humidity			95	%	RH, non condensing

Safety approvals

Safety agency	Standard	Notes & conditions
UL	UL60950-1, UL62368-1	
CB	IEC60950-1, IEC62368-1	
EN	EN60950-1, EN62368-1	
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Emissions - EMC

Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55032	Class A	See application note
Radiated	EN55032	Class A	See application note

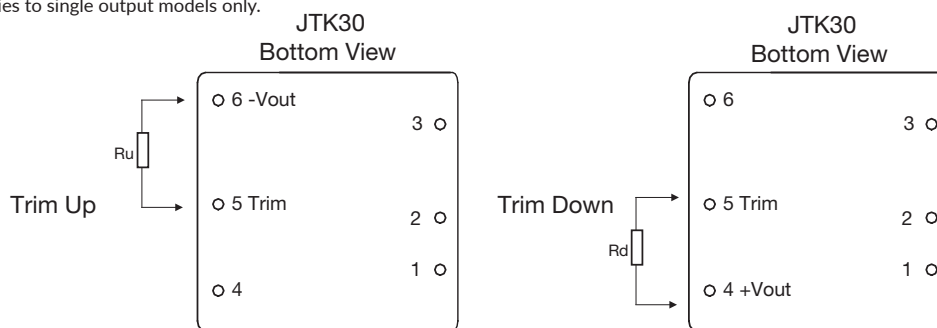
Immunity - EMC

Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD immunity	EN61000-4-2	±6kV/±8kV	A	Contact discharge/air discharge
Radiated immunity	EN61000-4-3	20Vrms	A	
EFT/burst	EN61000-4-4	2kV	A	External input filter required, see applications note
Surge	EN61000-4-5	2kV	A	External input filter required, see applications note
Conducted immunity	EN61000-4-6	10Vrms	A	
Magnetic fields	EN61000-4-8	100A/m	A	

Application notes

External output trimming

Note: Trim function applies to single output models only.



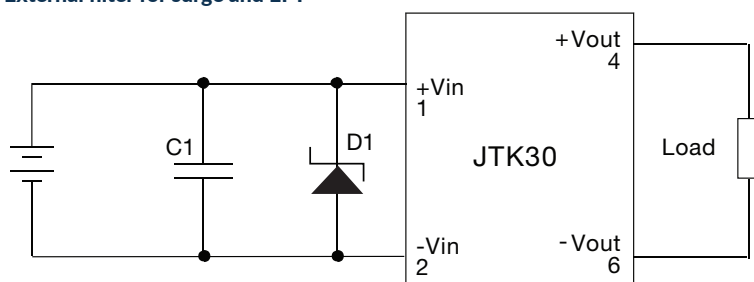
Trim down resistor values (Rd)

Model	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
	Voutx0.99	Voutx0.98	Voutx0.97	Voutx0.96	Voutx0.95	Voutx0.94	Voutx0.93	Voutx0.92	Voutx0.91	Voutx0.90
3V3DC	817.54k Ω	362.23k Ω	215.45k Ω	142.96k Ω	99.75k Ω	71.06k Ω	50.62k Ω	35.33k Ω	23.45k Ω	13.96k Ω
5VDC	117.89k Ω	61.63k Ω	38.39k Ω	25.69k Ω	17.68k Ω	12.18k Ω	8.16k Ω	5.10k Ω	2.68k Ω	0.74k Ω
12VDC	345.03k Ω	164.83k Ω	98.86k Ω	64.65k Ω	43.71k Ω	29.57k Ω	19.39k Ω	11.7k Ω	5.70k Ω	0.87k Ω
15VDC	174.37k Ω	91.10k Ω	56.59k Ω	37.71k Ω	25.8k Ω	17.6k Ω	11.61k Ω	7.05k Ω	3.45k Ω	0.55k Ω

Trim up resistor values (Ru)

Model	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
	Voutx0.99	Voutx0.98	Voutx0.97	Voutx0.96	Voutx0.95	Voutx0.94	Voutx0.93	Voutx0.92	Voutx0.91	Voutx0.90
3V3DC	567.59k Ω	263.17k Ω	158.47k Ω	105.50k Ω	73.51k Ω	52.10k Ω	36.76k Ω	25.24k Ω	16.26k Ω	9.07k Ω
5VDC	616.02k Ω	221.40k Ω	131.34k Ω	91.4k Ω	68.9k Ω	54.43k Ω	44.35k Ω	36.93k Ω	31.24k Ω	26.73k Ω
12VDC	1015.59k Ω	448.88k Ω	280.56k Ω	199.79k Ω	152.36k Ω	121.16k Ω	99.08k Ω	82.63k Ω	69.89k Ω	59.75k Ω
15VDC	661.51k Ω	231.25k Ω	134.02k Ω	91.04k Ω	66.82k Ω	51.27k Ω	40.45k Ω	32.48k Ω	26.36k Ω	21.52k Ω

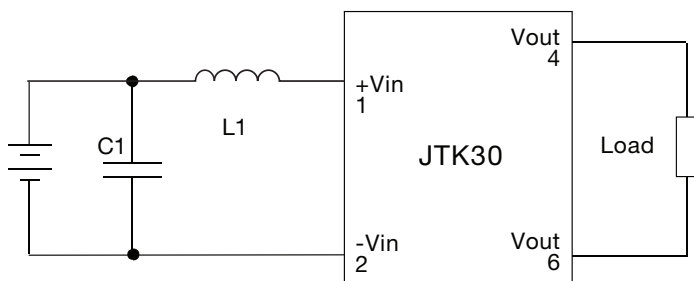
External filter for surge and EFT



Model	C1	D1
JTK3024	330 μ F/100VDC	TVS 58VDC 3kW
JTK3048	330 μ F/100VDC	TVS 120VDC 3kW

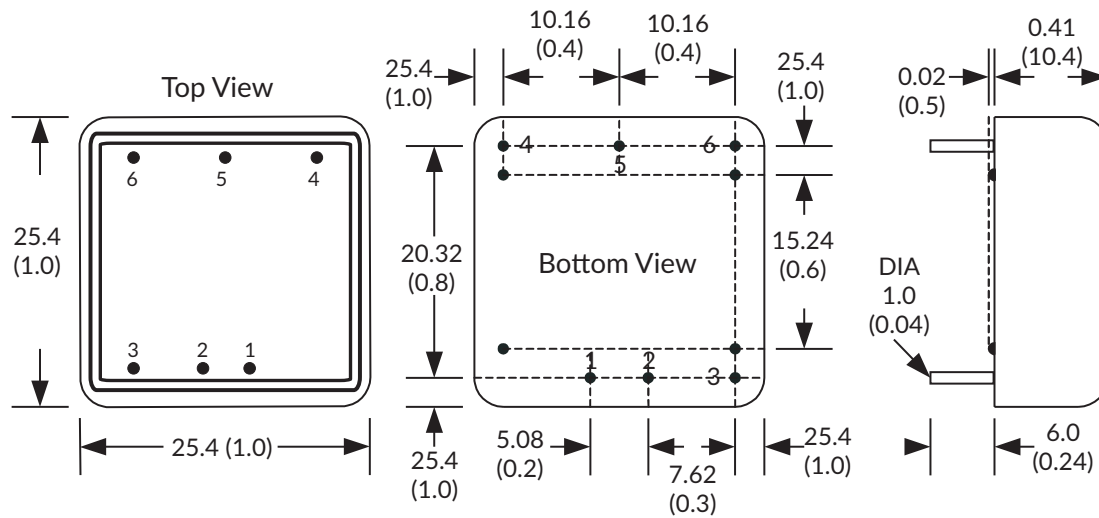
C1 is 330 μ F, 100VDC electrolytic capacitor
D1 is 58VDC, 3kW TVS for 24VDC input or 120VDC, 3kW TVS for 48VDC input

External EMI filter

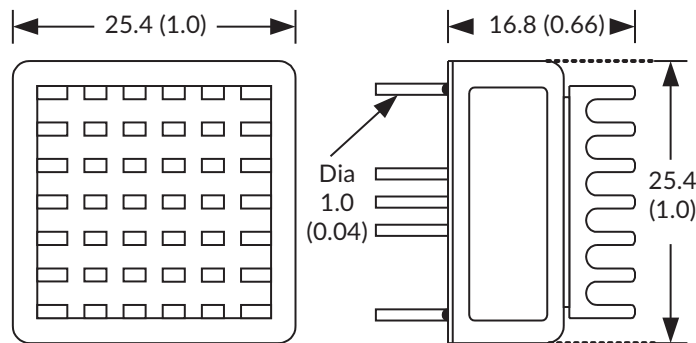


Model	C1	L1
JTK3024	1206, 3.3 μ F/100VDC	0.82 μ H
JTK3048	1206, 1 μ F/100VDC	2.2 μ H

Mechanical details



Optional Heatsink (-HK)



Pin connections		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	Remote On/Off	Remote On/Off
4	+Vout	+Vout
5	Trim	Common
6	-Vout	-Vout

Notes:

1. All dimensions are in mm (inches).
2. Pin diameter: 1.0 ±0.05 (0.04 ±0.002)
3. Pin pitch tolerance: ±0.35 (±0.002)

4. Weight: 19.0g (0.042lb) approx
5. Case tolerance: ±0.5 (±0.02)

Specifications subject to change without notice.