

### 30 Watts

- Single and Dual Outputs
- 1" x 1" Footprint
- -40 °C to +100 °C Operation
- Full Load at 55 °C Ambient
- 1600 VDC Isolation
- Output Trim  $\pm 10\%$
- Remote On/Off
- MTBF 370 kHrs
- 3 Year Warranty



#### Dimensions:

JTK30:

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

### Models & Ratings

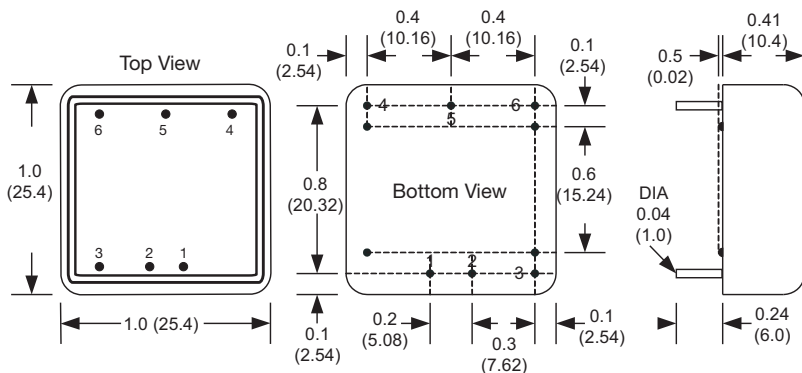
Input Voltage	Output Voltage	Output Current	Input Current <sup>(1)</sup>		OVP setting	Efficiency	Max. capacitive load <sup>(2)</sup>	Model Number <sup>(3)</sup>
			No Load	Full Load				
9-36 V	3.3 V	7.0 A	10 mA	1095 mA	3.9 V	88%	10000 $\mu$ F	JTK3024S3V3
	5.0 V	6.0 A	10 mA	1405 mA	6.2 V	89%	7200 $\mu$ F	JTK3024S05
	12.0 V	2.5 A	10 mA	1405 mA	15.0 V	89%	1200 $\mu$ F	JTK3024S12
	15.0 V	2.0 A	10 mA	1375 mA	18.0 V	91%	1000 $\mu$ F	JTK3024S15
	$\pm 12.0$ V	$\pm 1.25$ A	10 mA	1405 mA	$\pm 15.0$ V	89%	$\pm 750$ $\mu$ F	JTK3024D12
18-75 V	$\pm 15$ V	$\pm 1.0$ A	10 mA	1375 mA	$\pm 18.0$ V	91%	$\pm 500$ $\mu$ F	JTK3024D15
	3.3 V	7.0 A	8 mA	540 mA	3.9 V	89%	10000 $\mu$ F	JTK3048S3V3
	5 V	6.0 A	8 mA	695 mA	6.2 V	90%	7200 $\mu$ F	JTK3048S05
	12 V	2.5 A	8 mA	695 mA	15.0 V	90%	1200 $\mu$ F	JTK3048S12
	15 V	2.0 A	8 mA	680 mA	18.0 V	92%	1000 $\mu$ F	JTK3048S15
	$\pm 12$ V	$\pm 1.25$ A	8 mA	695 mA	$\pm 15.0$ V	90%	$\pm 750$ $\mu$ F	JTK3048D12
	$\pm 15$ V	$\pm 1.0$ A	8 mA	685 mA	$\pm 18.0$ V	91%	$\pm 500$ $\mu$ F	JTK3048D15

#### Notes

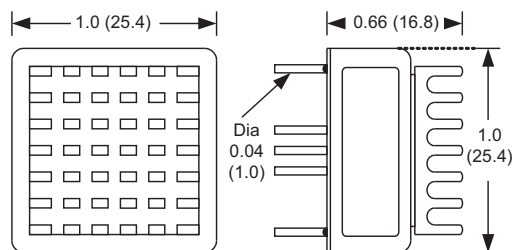
1. Input currents measured at nominal input voltage.
2. Maximum capacitive load is per output.

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

### Mechanical Details



#### Optional Heatsink (-HK)



#### Notes

1. All dimensions are in inches (mm)
2. Weight: 0.042 lbs (19 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:  $\pm 0.02$  ( $\pm 0.5$ )

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

### Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage Range	9		36	VDC	24 V nominal
	18		75	VDC	48 V nominal
Input Reflected Ripple Current		30		mA pk-pk	Through 12 $\mu$ H inductor and 47 $\mu$ F capacitor
Input Surge			50	VDC for 100 ms	24 V models
			100	VDC for 100 ms	48 V models

### Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage	3.3		30	VDC	See Models and Ratings table
Output Trim	$\pm 10$			%	Single Output Versions
Initial Set Accuracy			$\pm 1$	%	At full load
Minimum Load	0			%	No minimum load required
Line Regulation			$\pm 0.5$	%	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			$\pm 5$	%	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 with 10 $\mu$ F/25 V X7R MLCC on output Dual output with 10 $\mu$ F/25 V X7R MLCC on each output measured using 20 MHz bandwidth
Overload Protection		170		%	
Short Circuit Protection					Trip and Restart (hiccup), with auto recovery
Maximum Capacitive Load					See Models and Ratings table
Temperature Coefficient			0.02	%/ $^{\circ}$ C	
Overvoltage Protection					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 (<1.2 VDC)				

### General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		90		%	See Models and Ratings table
Isolation: Input to Output	1600			VDC	
Isolation: Input to Case	1600			VDC	
Switching Frequency		330		kHz	
Isolation Resistance	$10^9$			$\Omega$	
Isolation Capacitance			2000	pF	
Power Density			73	W/in <sup>3</sup>	
Case Material	Copper with plastic non conductive base UL95V-0 rated				
Potting Material	Epoxy UL94V-0 rated				
Pin Material	Brass solder coated				
Solder Profile	260 $^{\circ}$ C max 1.5mm from case 10s max				
Mean Time Between Failure	370			kHrs	MIL-HDBK-217F, +25 $^{\circ}$ C GB
Weight		0.042 (19.0)		lb (g)	

### Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature	-40		+100	$^{\circ}$ C	Derate from 100% load at +55 $^{\circ}$ C to 50% load at +80 $^{\circ}$ C or from 100% load at 60 $^{\circ}$ C to 50% load at 85 $^{\circ}$ C with optional heatsink
Storage Temperature	-55		+125	$^{\circ}$ C	
Case Temperature			+105	$^{\circ}$ C	
Humidity			95	%RH	Non-condensing
Cooling					Natural convection

### EMC: Emissions

Phenomenon	Standard	Test Level	Notes & Conditions
Conducted	EN55032	Class A	See Application Note
Radiated	EN55032	Class A	

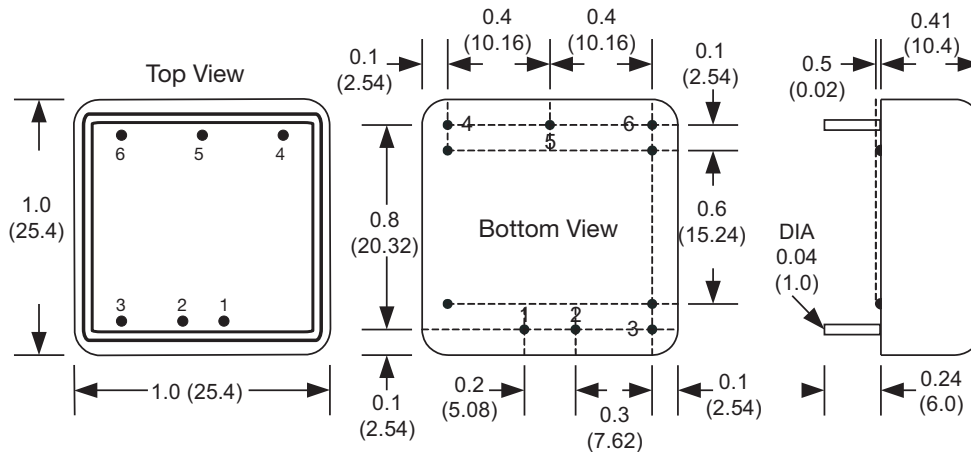
### EMC: Immunity

Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
ESD Immunity	EN61000-4-2	±6 kV / ±8 kV	A	Contact Discharge / Air Discharge
Radiated Immunity	EN61000-4-3	20 Vrms	A	
EFT/Burst	EN61000-4-4	2 kV	A	External input filter required, see applications note
Surge	EN61000-4-5	2 kV	A	External input filter required, see applications note
Conducted Immunity	EN61000-4-6	10 V rms	A	
Magnetic Fields	EN61000-4-8	100 A/m	A	

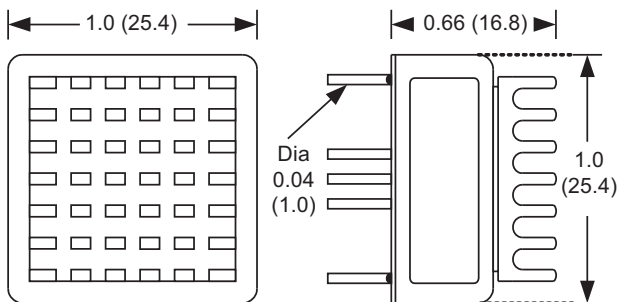
### Safety Approvals

Safety Agency	Safety 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	

### Mechanical Details



### Optional Heatsink (-HK)



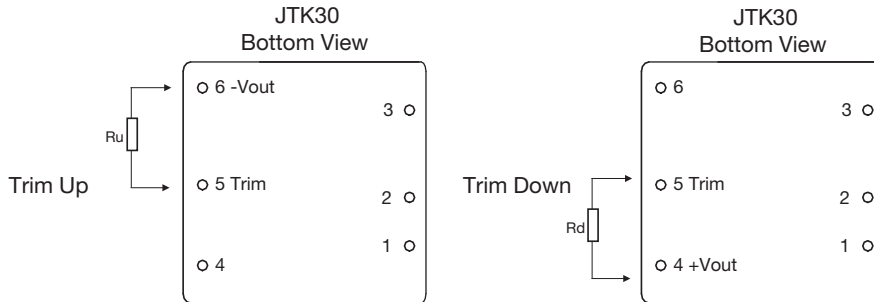
Pin	Pin Connections	
	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	Remote On/Off	Remote On/Off
4	+Vout	+Vout
5	Trim	Common
6	-Vout	-Vout

### Notes

- All dimensions are in inches (mm)
- Weight: 0.042 lbs (19 g) approx.
- Pin diameter: 0.04±0.002 (1.0±0.05)
- Pin pitch tolerance: ±0.014 (±0.35)
- Case tolerance: ±0.02 (±0.5)

### Application Notes

#### External Output Trimming



Note: Trim function applies to single output models only.

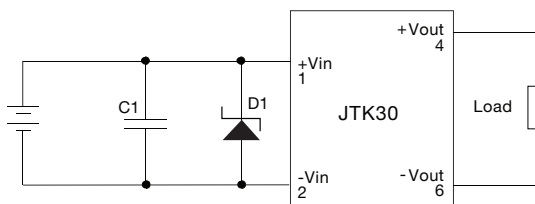
#### Trim Down Resistor Values (Rd)

Models	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
3V3	817.54 k	362.23 k	215.45 k	142.96 k	99.75 k	71.06 k	50.62 k	35.33 k	23.45 k	13.96 k
5V	117.89 k	61.63 k	38.39 k	25.69 k	17.68 k	12.18 k	8.16 k	5.10 k	2.68 k	0.74 k
12V	345.03 k	164.83 k	98.86 k	64.65 k	43.71 k	29.57 k	19.39 k	11.7 k	5.70 k	0.87 k
15V	174.37 k	91.10 k	56.59 k	37.71 k	25.8 k	17.6 k	11.61 k	7.05 k	3.45 k	0.55 k

#### Trim Up Resistor Values (Ru)

Models	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
	Voutx1.01	Voutx1.02	Voutx1.03	Voutx1.04	Voutx1.05	Voutx1.06	Voutx1.07	Voutx1.08	Voutx1.09	Voutx1.10
3V3	567.59 k	263.17 k	158.47 k	105.50 k	73.51 k	52.10 k	36.76 k	25.24 k	16.26 k	9.07 k
5V	616.02 k	221.40 k	131.34 k	91.43 k	68.9 k	54.43 k	44.35 k	36.93 k	31.24 k	26.73 k
12V	1015.59 k	448.88 k	280.56 k	199.79 k	152.36 k	121.16 k	99.08 k	82.63 k	69.89 k	59.75 k
15V	661.51 k	231.25 k	134.02 k	91.04 k	66.82 k	51.27 k	40.45 k	32.48 k	26.36 k	21.52 k

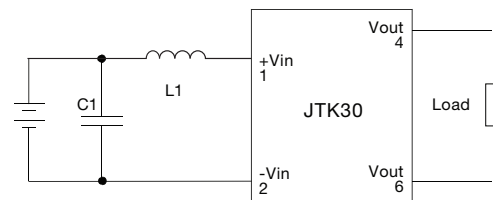
#### External Filter for Surge and EFT



C1 is 330  $\mu$ F, 100 V electrolytic capacitor  
 D1 is 58 V, 3 kW TVS for 24 V input or 120 V, 3 kW TVS for 48 V input

Models	C1	D1
JTK3024	330 $\mu$ F/100 V	TVS 58 V 3 kW
JTK3048	330 $\mu$ F/100 V	TVS 120 V 3 kW

#### External EMI Filter



Models	C1	L1
JTK3024	1206, 3.3 $\mu$ F/100 V	0.82 $\mu$ H
JTK3048	1206, 1 $\mu$ F/100 V	2.2 $\mu$ H