JTD15 Series

DC-DC Converter

XP Power

15 Watts

- Single and Dual Outputs
- Wide 4:1 Input Range
- 1.6″ x 1″ Footprint
- -40 °C to +100 °C Operation
- Full Load at 80 °C Ambient
- 3000 VDC Isolation
- Output Trim ±10%
- Remote On/Off
- 3 Year Warranty



The JTD series offers a cost effective solution with many features including a metal case, short circuit protection, regulation, output trim and remote on/off.

Dimensions:

JTD15:
1.6 x 1.0 x 0.41″ (40.6 x 25.4 x 10.4 mm)

Models & Ratings

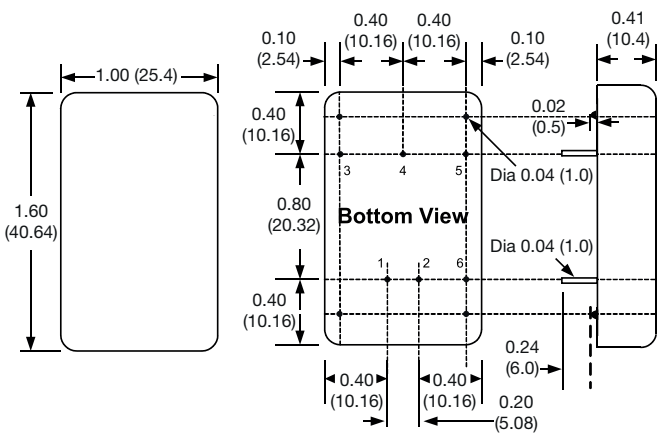
Input Voltage	Output Voltage	Output Current	Input Current[1]		Efficiency	Max capacitive load[2]	Model Number
			No Load	Full Load			
9-36 V	3.3 V	3000 mA	10 mA	515 mA	82%	3300 µF	JTD1524S3V3
	5.0 V	3000 mA	10 mA	755 mA	85%	3300 µF	JTD1524S05
	12.0 V	1250 mA	10 mA	735 mA	88%	680 µF	JTD1524S12
	15.0 V	1000 mA	10 mA	725 mA	89%	470 µF	JTD1524S15
	±5.0 V	±1500 mA	10 mA	755 mA	85%	±2200 µF	JTD1524D05
	±12.0 V	±625 mA	10 mA	735 mA	88%	±470 µF	JTD1524D12
	±15.0 V	±500 mA	15 mA	725 mA	89%	±330 µF	JTD1524D15
18-75 V	3.3 V	3000 mA	10 mA	255 mA	82%	3300 µF	JTD1548S3V3
	5.0 V	3000 mA	10 mA	375 mA	85%	3300 µF	JTD1548S05
	12.0 V	1250 mA	10 mA	365 mA	87%	680 µF	JTD1548S12
	15.0 V	1000 mA	10 mA	365 mA	88%	470 µF	JTD1548S15
	±5.0 V	±1500 mA	8 mA	375 mA	88%	±2200 µF	JTD1548D05
	±12.0 V	±625 mA	8 mA	375 mA	90%	±470 µF	JTD1548D12
	±15.0 V	±500 mA	10 mA	365 mA	88%	±330 µF	JTD1548D15

Notes

1. Input currents measured at nominal input voltage.

2. Maximum capacitive load is per output.

Mechanical Details



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

Notes

1. All dimensions are in inches (mm)
2. Weight: 0.042 lbs (19.0 g) approx.
3. Pin diameter: 0.04 ±0.002 (1.0 ±0.05)
4. Pin pitch tolerance: ±0.014 (±0.35)
5. Case tolerance: ±0.02 (±0.5)

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		20		mA pk-pk	Through 12 µH inductor and 47 µF 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	±10			%	Single output only, see Application Note
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
Start Up Time		30		ms	
Ripple & Noise			75/60	mV pk-pk	Single/Dual Output, Measured using 20 MHz bandwidth and 10 µF/25 V MLCC per output
Overload Protection			170	%	
Short Circuit Protection					Continuous hiccup mode, with auto recovery
Maximum Capacitive Load					
Temperature Coefficient			0.02	%/˚C	See Models and Ratings table
Remote On/Off	Output is on if remote on/off (pin 6) is open or high (3-12 VDC) Output turns off if remote on/off (pin 6) is low (<1.2 VDC max), e.g. short pin 6 to pin2 -Vin.				See Models and Ratings table

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		85		%	See Models and Ratings table
Isolation: Input to Output	3000			VDC	60 s Functional
Isolation: Input and output to Case	1600			VDC	60 s
Switching Frequency		270/330		kHz	3V3 & 5 V models/other models
Isolation Resistance	10^9			Ω	
Isolation Capacitance		2000		pF	
Power Density			22	W/in^3	
Mean Time Between Failure	600			kHrs	MIL-HDBK-217F, +25 °C GB
Case Material	Copper, Base plastic UL94V-0				
PCB Pin Material	Brass, Solder coated				
Potting Material	Epoxy, UL94V-0 rated				
Solder Profile	260 °C max, 1.5mm from case, 10s max				
Weight	0.064 (29.0)			lb (g)	

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	
Humidity			95	%RH	Non-condensing
Cooling					Natural convection
Thermal Impedance to Air	12			°C/W	

Safety Approvals

Safety Agency	Safety Standard	Notes & Conditions
UL/cUL	UL/cUL60950-1, 62368-1	ITE

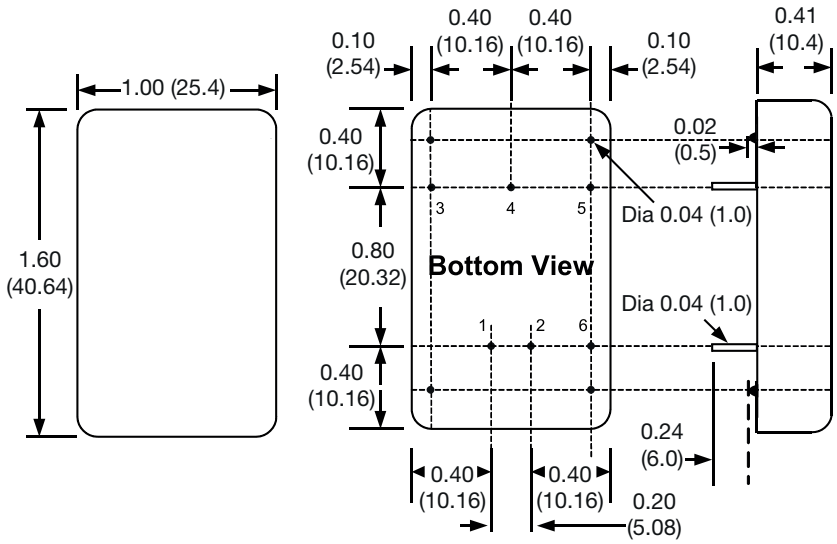
EMC: Emissions

Phenomenon	Standard	Test Level	Notes & Conditions
Conducted	EN55032	Class A	No external components required
Radiated	EN55032	Class A	No external components required

EMC: Immunity

Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
ESD Immunity	IEC1000-4-2	±6 kV/±8 kV	A	Contact Discharge/Air Discharge
Radiated Immunity	IEC1000-4-3	20 Vrms	A	
EFT/Burst	IEC61000-4-4	2 kV	A	Requires 330 µF/100 V electrolytic and 3 kW TVS (SMDJ58A for 24 V input, SMDJ120A for 48 V input) See application notes.
Surge	IEC61000-4-5	2 kV	A	Requires 330 µF/100 V electrolytic and 3 kW TVS (SMDJ58A for 24 V input, SMDJ120A for 48 V input) See application notes.
Conducted Immunity	IEC61000-4-6	10 V rms	A	
Magnetic Fields	IEC61000-4-8	100 A/m	A	

Mechanical Details

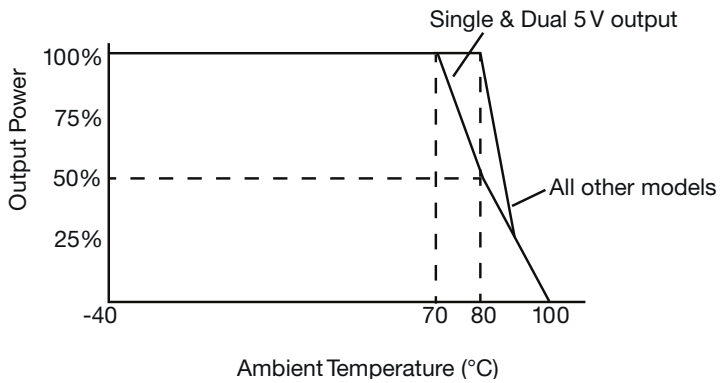


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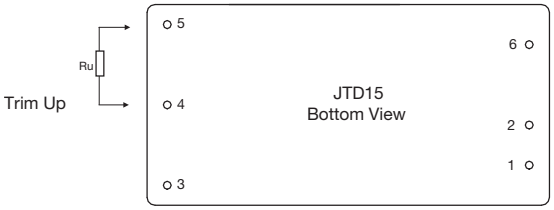
Derating Curve

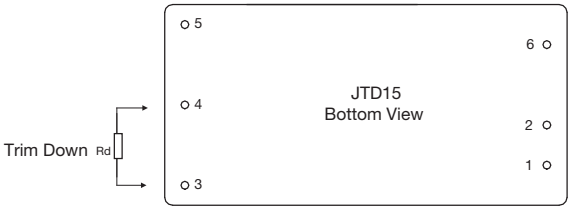


Application Notes

External Output Trimming

Output can be externally trimmed by using the method as below, (single output models only)





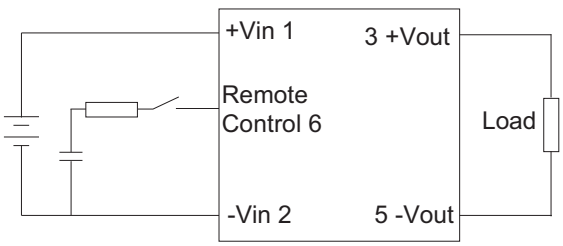
Trim Down Resistor Values (Rd)

Models	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
3V3	309.0 k	165.4 k	105.6 k	72.9 k	52.3 k	38.0 k	27.6 k	19.7 k	13.5 k	8.40 k
5V	119.9 k	77.70 k	50.50 k	35.2 k	25.3 k	18.4 k	13.4 k	9.50 k	6.40 k	3.90 k
12V	345.0 k	138.1 k	79.90 k	51.5 k	34.6 k	23.4 k	15.5 k	9.50 k	4.90 k	1.26 k
15V	174.4 k	91.10 k	56.60 k	37.7 k	25.8 k	17.6 k	11.6 k	7.00 k	3.50 k	0.55 k

Trim Up Resistor Values (Ru)

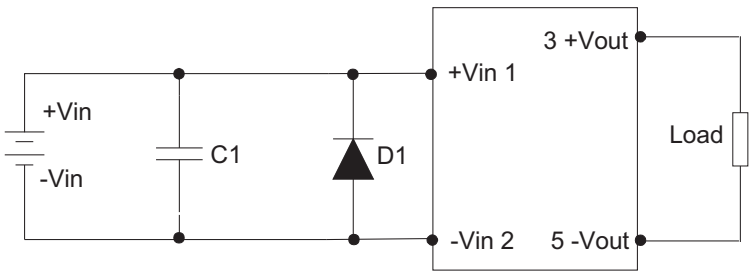
Models	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
3V3	537.7 k	177.1 k	96.40 k	60.8 k	40.8 k	27.9 k	19.0 k	12.4 k	7.30 k	3.40 k
5V	635.2 k	170.0 k	92.80 k	61.1 k	43.8 k	32.9 k	25.4 k	20.0 k	15.8 k	12.5 k
12V	367.4 k	179.6 k	113.6 k	79.9 k	59.5 k	45.8 k	35.9 k	28.5 k	22.7 k	18.1 k
15V	661.5 k	231.3 k	134.0 k	91.0 k	66.8 k	51.3 k	40.4 k	32.5 k	26.4 k	21.5 k

Remote On/Off



The module is enabled by positive logic. Adding a switch function between the remote control pin 6 and -Vin pin 2.

EFT Surge Filter



Models	C1	D1
JTD1524	330 µF, 100 V	TVS, 58V, 3kW
JTD1548	330 µF, 100 V	TVS, 120V, 3kW