Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

JTD20 Series

DC-DC Converter

XP Power

20 Watts

- Single and Dual Outputs
- Wide 4:1 Input Range
- 1.6″ x 1″ Footprint
- -40 °C to +100 °C Operation
- Full Load at 65 °C Ambient
- 3000 VDC Isolation
- Output Trim ±10%
- Remote On/Off
- 3 Year Warranty

Dimensions:

JTD20:
1.6 x 1.0 x 0.41″ (40.6 x 25.4 x 10.4 mm)

Models & Ratings

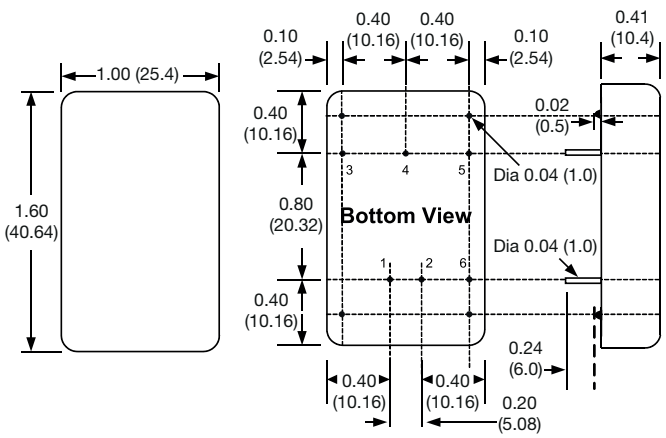
Input Voltage	Output Voltage	Output Current	Input Current[1]		Efficiency	Max. capacitive load[2]	Model Number
			No Load	Full Load			
9-36V	3.3 V	5500 mA	10 mA	850 mA	89.0%	10000 µF	JTD2024S3V3
	5 V	4000 mA	10 mA	935 mA	89.0%	6800 µF	JTD2024S05
	12 V	1670 mA	10 mA	945 mA	88.5%	1000 µF	JTD2024S12
	15 V	1330 mA	15 mA	945 mA	88.0%	680 µF	JTD2024S15
	±5 V	±2000 mA	10 mA	970 mA	86.0%	±2200 µF	JTD2024D05
	±12 V	±835 mA	15 mA	945 mA	88.5%	±470 µF	JTD2024D12
	±15 V	±665 mA	15 mA	940 mA	88.5%	±330 µF	JTD2024D15
18-75V	3.3 V	5500 mA	8 mA	425 mA	89.5%	10000 µF	JTD2048S3V3
	5 V	4000 mA	8 mA	465 mA	90.0%	6800 µF	JTD2048S05
	12 V	1670 mA	8 mA	465 mA	90.0%	1000 µF	JTD2048S12
	15 V	1330 mA	8 mA	455 mA	91.0%	680 µF	JTD2048S15
	±5 V	±2000 mA	8 mA	480 mA	87.0%	±2200 µF	JTD2048D05
	±12 V	±835 mA	8 mA	465 mA	90.0%	±470 µF	JTD2048D12
	±15 V	±665 mA	10 mA	460 mA	90.5%	±330 µF	JTD2048D15

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: 0.064 lbs (29.0 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					See Models and Ratings table
Temperature Coefficient			0.02	%/°C	
Overvoltage Protection			140	%	
Remote On/Off	Output is on if remote on/off (pin 3) is open or high (3-12 VDC) Output turns off if remote on/off (pin 3) is low (<1.2 VDC max)				

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		85		%	See Models and Ratings table
Isolation: Input to Output	3000			VDC	60 s
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			30	W/in^3	
Mean Time Between Failure	400			kHrs	MIL-HDBK-217F, +25 °C GB
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	

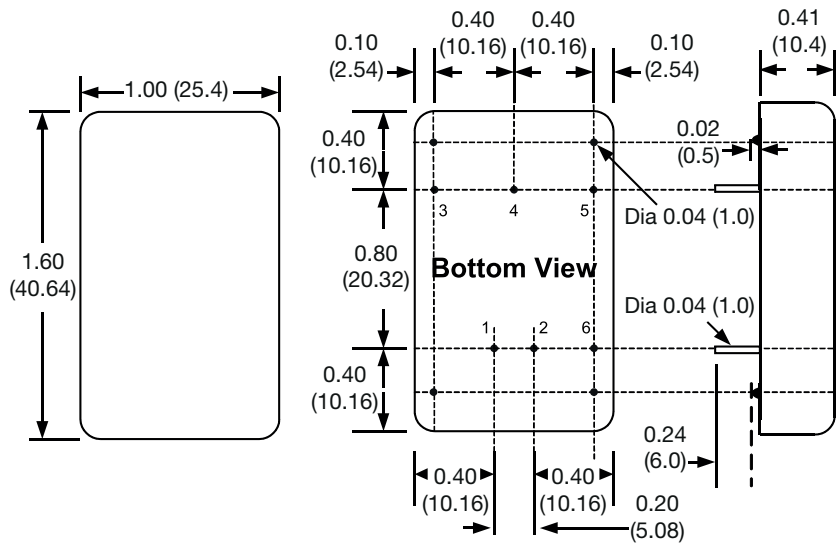
EMC: Emissions

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	EN61000-4-2	±6 kV/±8 kV	B	Contact Discharge/Air Discharge
Radiated Immunity	EN61000-4-3	20 Vrms	A	
EFT/Burst	EN61000-4-4	2 kV	A	Requires 330 µF/100 V electrolytic and 3 kW TVS (SMDJ58A for 24 V input, SMDJ120A for 48 V input)
Surge	EN61000-4-5	2 kV	A	Required 330 µF/100 V electrolytic and 3 kW TVS (SMDJ58A for 24 V input, SMDJ120A for 48 V input)
Conducted Immunity	EN61000-4-6	10 V rms	A	
Magnetic Fields	EN61000-4-8	100 A/m	A	

Mechanical Details

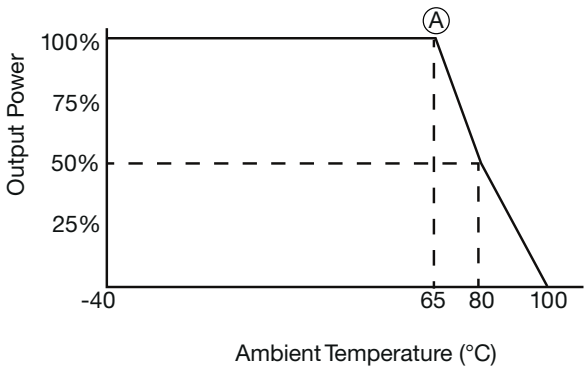


Pin Connections		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	Trim	Common
5	-Vout	-Vout
6	Remote On/Off	Remote On/Off

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)

Derating Curve

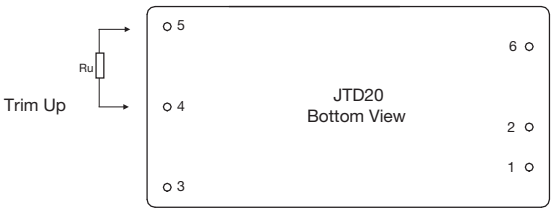


Note: Point Ⓐ is 60 °C for dual 5 V output models

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