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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!



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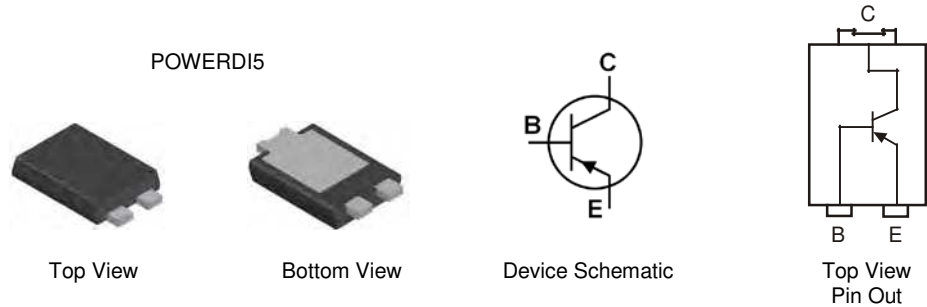


## Features

- $BV_{CEO} > -40V$
- $I_C = -3A$  high Continuous Collector Current
- $I_{CM} = -6A$  Peak Pulse Current
- 43% smaller than SOT223; 60% smaller than TO252
- Maximum Height Just 1.1mm
- Rated up to 3.2W
- Low Saturation, High Gain Transistor,
- **Totally Lead-Free & Fully RoHS compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

- Case: POWERDI5
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208  $\text{e3}$
- Weight: 0.093 grams (approximate)

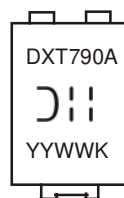


## Ordering Information (Note 4)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
DXT790AP5-13	DXT790A	13	16	5,000

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>

## Marking Information



- DXT790A = Product Type Marking Code  
 J11 = Manufacturers' Code Marking  
 K = Factory Designator  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 09 for 2009)  
 WW = Week code (01 to 53)

**Maximum Ratings** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

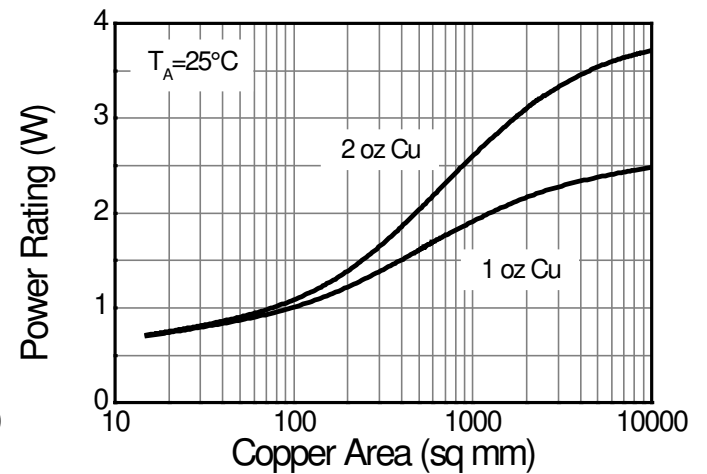
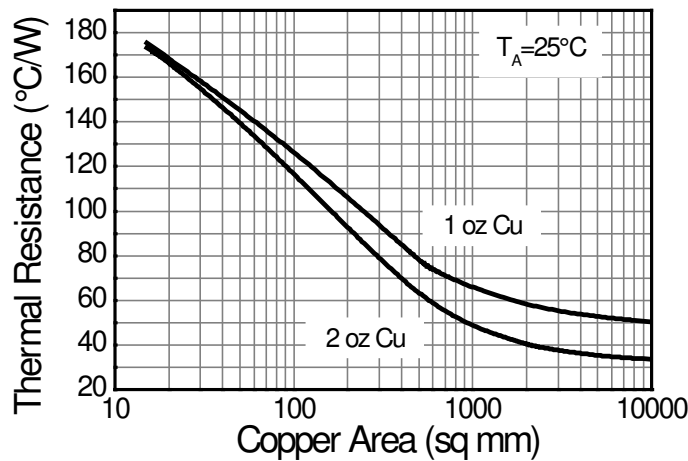
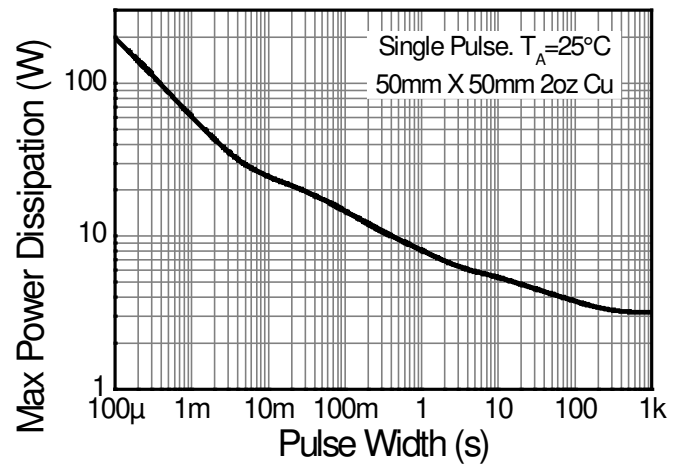
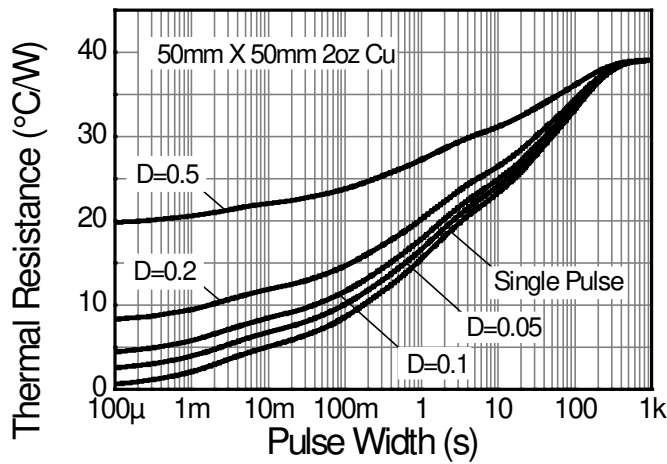
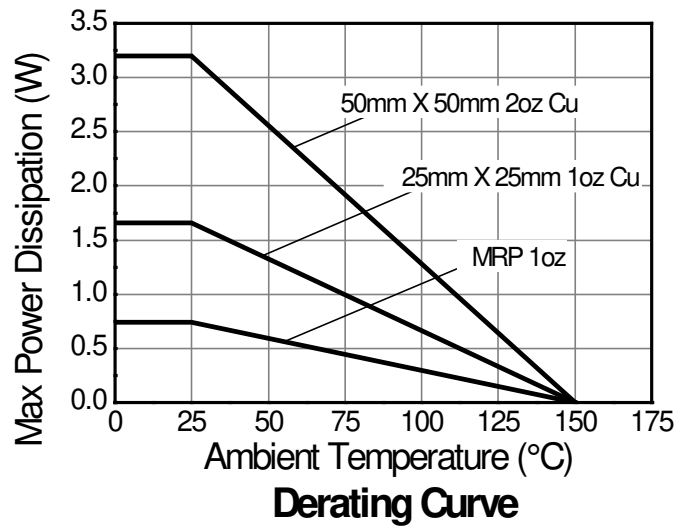
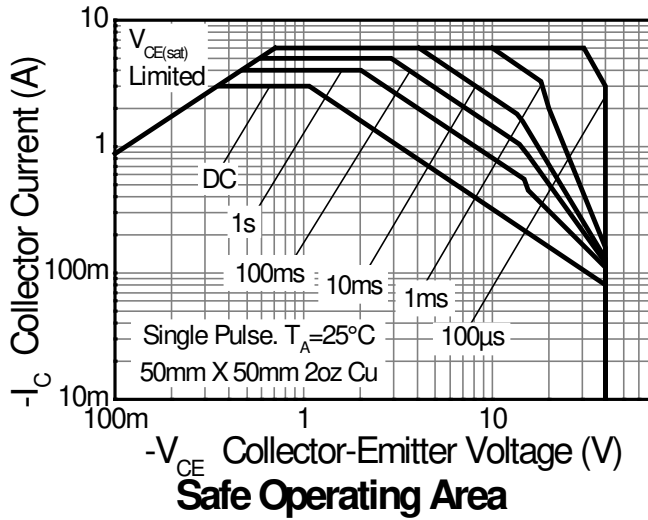
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	$V_{CBO}$	-50	V
Collector-Emitter Voltage	$V_{CEO}$	-40	V
Emitter-Base Voltage	$V_{EBO}$	-6	V
Continuous Collector Current	$I_C$	-3	A
Peak Pulse Current	$I_{CM}$	-6	A
Base Current	$I_B$	-0.5	A

**Thermal Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation	$P_D$	(Note 5)	3.2
		(Note 6)	1.7
		(Note 7)	0.74
Thermal Resistance, Junction to Ambient Air	$R_{\theta JA}$	(Note 5)	39
		(Note 6)	75
		(Note 7)	169
Thermal Resistance, Junction to Lead	$R_{\theta JL}$	8.9	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

- Notes:
5. For a device mounted with the exposed collector pad on 50mm x 50mm 2oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
  6. Same as note (5), except the device is mounted on 25mm x 25mm 1oz copper.
  7. Same as note (5), except the device is mounted on minimum recommended pad (MRP) layout 1oz copper.
  8. Thermal resistance from junction to solder-point (on the exposed collector pad).

**Thermal Characteristics and Derating Information**

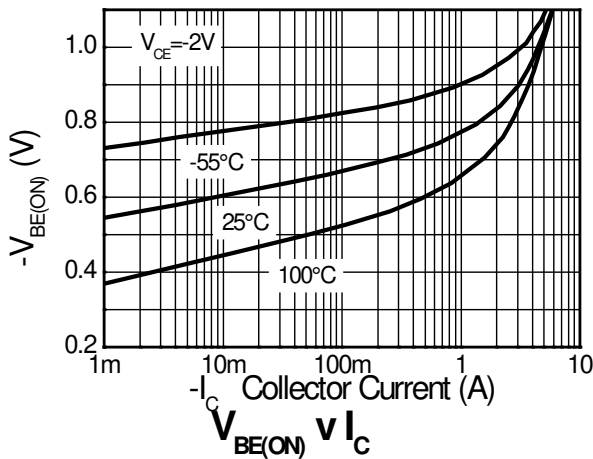
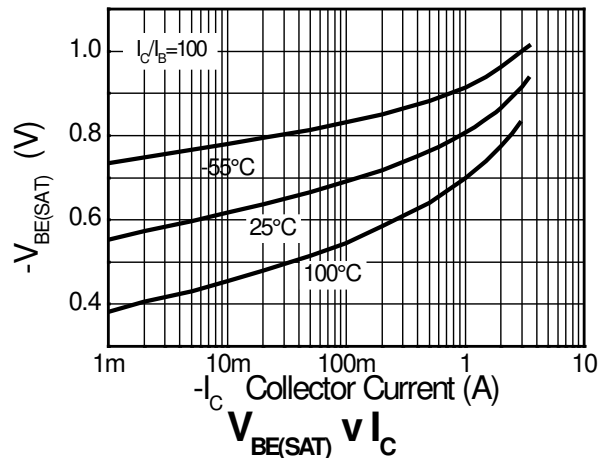
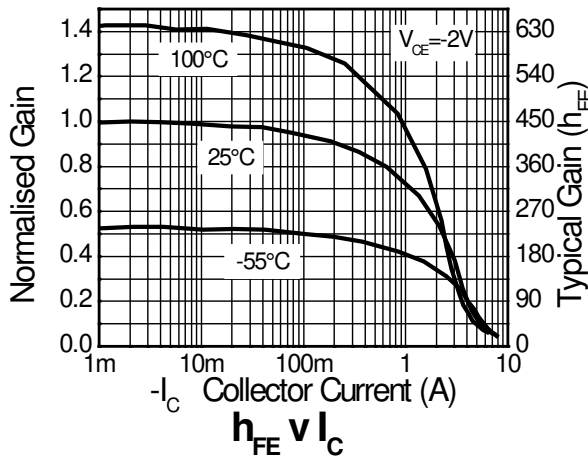
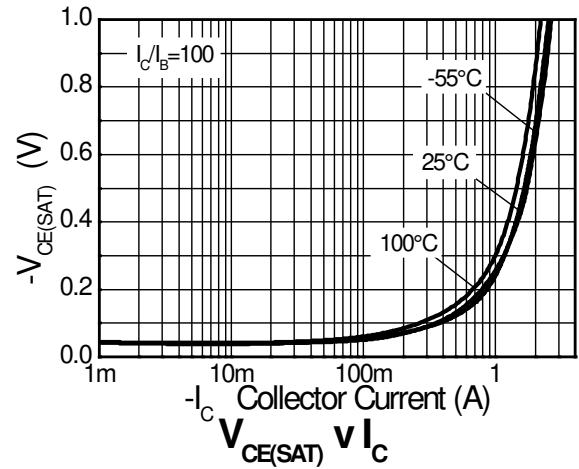
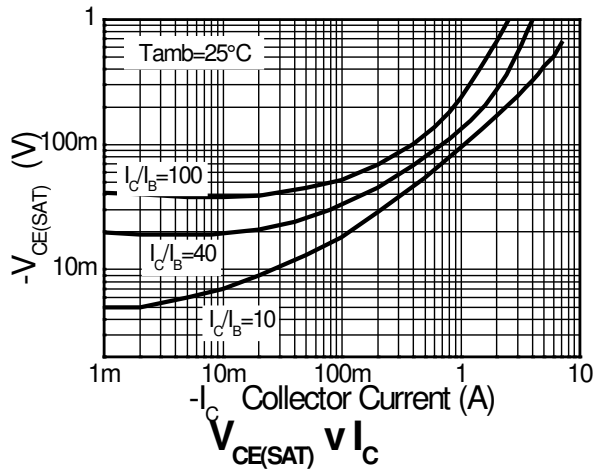


**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS</b>						
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	-50	—	—	V	I <sub>C</sub> = -100μA, I <sub>E</sub> = 0
Collector-Emitter Breakdown Voltage (Note 8)	BV <sub>CEO</sub>	-40	—	—	V	I <sub>C</sub> = -10mA, I <sub>B</sub> = 0
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	-6	—	—	V	I <sub>E</sub> = -100μA, I <sub>C</sub> = 0
Collector Cutoff Current	I <sub>CBO</sub>	—	—	-20	nA	V <sub>CB</sub> = -30V, I <sub>E</sub> = 0
Collector Cutoff Current	I <sub>CES</sub>	—	—	-20	nA	V <sub>CB</sub> = -30V, V <sub>BE</sub> = 0
Emitter Cutoff Current	I <sub>EBO</sub>	—	—	-20	nA	V <sub>EB</sub> = -4V, I <sub>C</sub> = 0
<b>ON CHARACTERISTICS (Note 8)</b>						
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	—	—	-170	mV	I <sub>C</sub> = -0.5A, I <sub>B</sub> = -5mA
		—	—	-350		I <sub>C</sub> = -1A, I <sub>B</sub> = -10mA
		—	—	-450		I <sub>C</sub> = -2A, I <sub>B</sub> = -50mA
		—	—	-450		I <sub>C</sub> = -3A, I <sub>B</sub> = -300mA
Base-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	—	—	-1.15	V	I <sub>C</sub> = -3A, I <sub>B</sub> = -300mA
Base-Emitter Turn-On Voltage	V <sub>BE(on)</sub>	—	—	-1.0	V	I <sub>C</sub> = -3A, V <sub>CE</sub> = -2V
DC Current Gain	h <sub>FE</sub>	300	—	800	—	I <sub>C</sub> = -10mA, V <sub>CE</sub> = -2V
		250	—	—		I <sub>C</sub> = -500mA, V <sub>CE</sub> = -2V
		200	—	—		I <sub>C</sub> = -1A, V <sub>CE</sub> = -2V
		150	—	—		I <sub>C</sub> = -2A, V <sub>CE</sub> = -2V
		80	—	—		I <sub>C</sub> = -3A, V <sub>CE</sub> = -2V
<b>AC CHARACTERISTICS</b>						
Transition Frequency	f <sub>T</sub>	100	—	—	MHz	I <sub>C</sub> = -50mA, V <sub>CE</sub> = -5V, f = 50MHz
Output Capacitance	C <sub>obo</sub>	—	24	—	pF	V <sub>CB</sub> = -10V, f = 1MHz
Switching Times	t <sub>on</sub>	—	35	—	ns	I <sub>C</sub> = -500mA, V <sub>CC</sub> = -10V, I <sub>B1</sub> = -I <sub>B2</sub> = -50mA
	t <sub>off</sub>	—	600	—	ns	

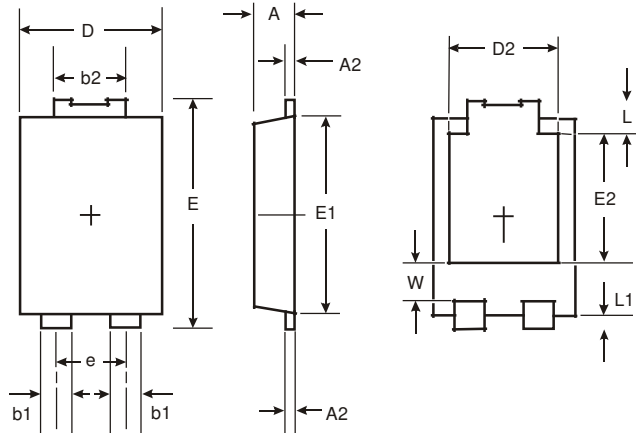
Notes: 8. Measured under pulsed conditions. Pulse width • 300μs. Duty cycle • 2%.

**Typical Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)



**Package Outline Dimensions**

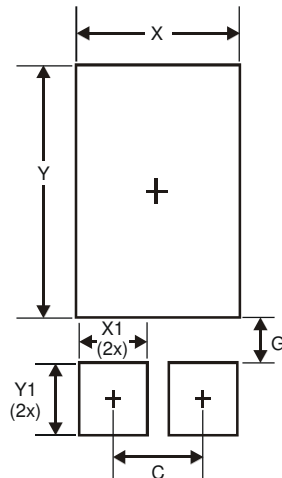
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



POWERD15		
Dim	Min	Max
A	1.05	1.15
A2	0.33	0.43
b1	0.80	0.99
b2	1.70	1.88
D	3.90	4.05
D2	3.054 Typ	
E	6.40	6.60
e	1.84 Typ	
E1	5.30	5.45
E2	3.549 Typ	
L	0.75	0.95
L1	0.50	0.65
W	1.10	1.41
<b>All Dimensions in mm</b>		

**Suggested Pad Layout**

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
C	1.840
G	0.852
X	3.360
X1	1.390
Y	4.860
Y1	1.400

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