



**THE DATASHEET OF  
DXT5551P5-13**





**DXT5551P5**

**160V NPN HIGH VOLTAGE TRANSISTOR  
PowerDI<sup>®</sup>5**

**Features and Benefits**

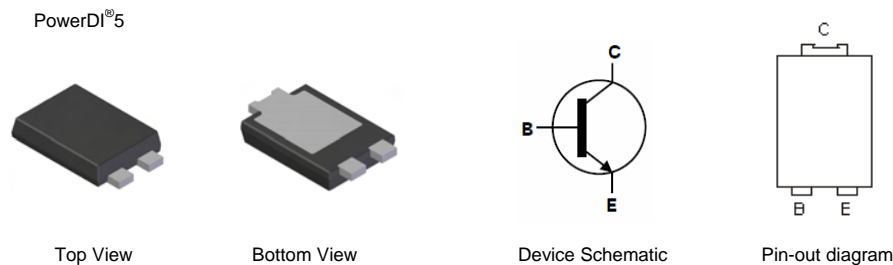
- 43% smaller than SOT223; 60% smaller than TO252
- Maximum height just 1.1mm
- Rated up to 2.25W
- $BV_{CEO} > 160V$
- $I_{C(cont)} = 0.6A$
- **Lead Free, RoHS Compliant (Note 1)**
- **Halogen and Antimony Free, "Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

**Mechanical Data**

- Case: PowerDI<sup>®</sup>5
- 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 ③
- Weight: 0.093 grams (approximate)

**Applications**

- Telecom line driver

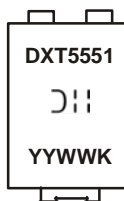


**Ordering Information** (Note 3)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
DXT5551P5-13	DXT5551	13	16	5,000

- Notes:
1. No purposefully added lead.
  2. Halogen and Antimony Free. Diodes Inc's "Green" Policy can be found on our website at <http://www.diodes.com>
  3. For packaging details, go to our website at <http://www.diodes.com>

**Marking Information**



DXT5551 = Product Type Marking Code  
 D||| = Manufacturers' Code Marking  
 K = Factory Designator  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 09 for 2009)  
 WW = Week code (01 - 53)

**Maximum Ratings** @ $T_A = 25^\circ\text{C}$  unless otherwise specified

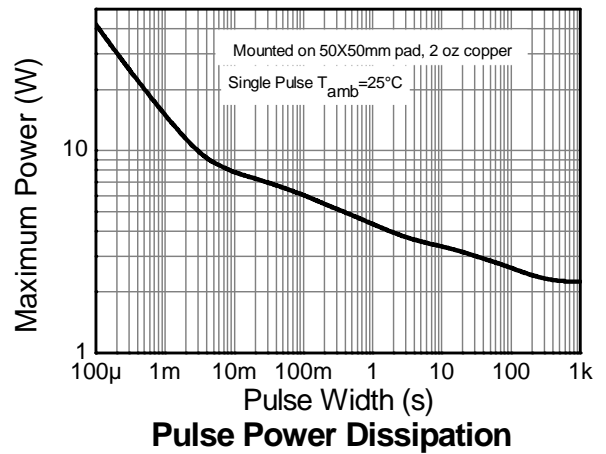
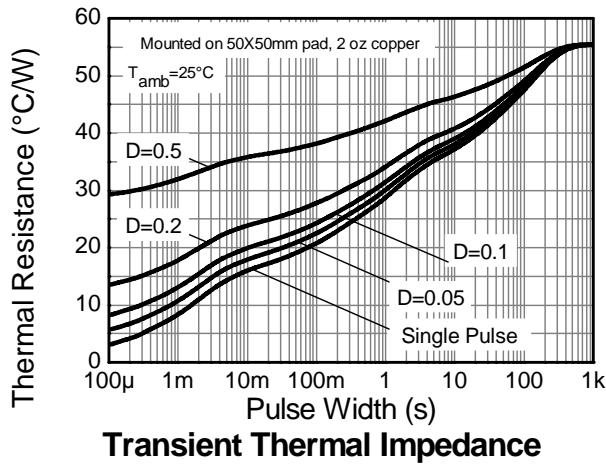
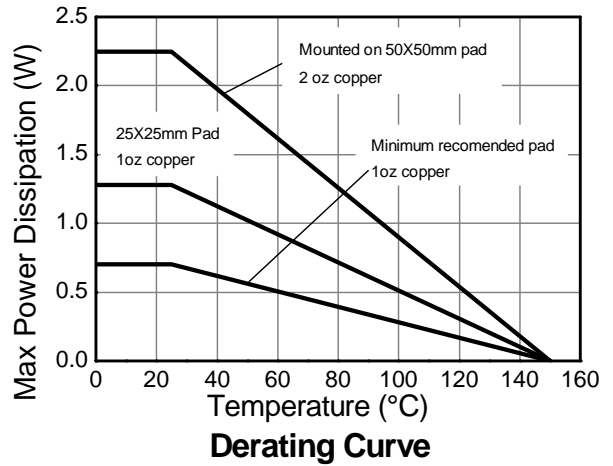
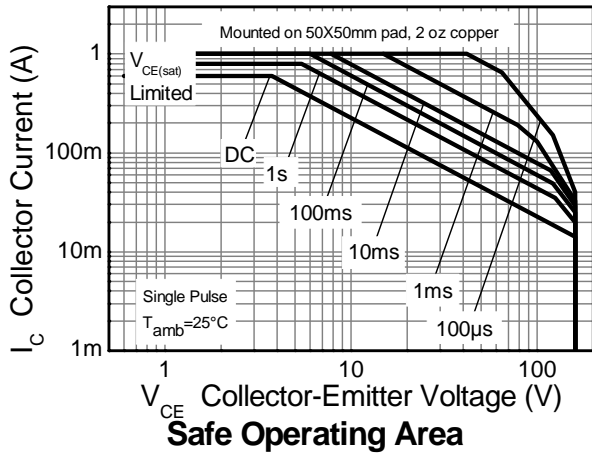
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	$V_{CB0}$	180	V
Collector-Emitter Voltage	$V_{CEO}$	160	V
Emitter-Base Voltage	$V_{EBO}$	6	V
Continuous Collector Current	$I_C$	600	mA

**Thermal Characteristics** @ $T_A = 25^\circ\text{C}$  unless otherwise specified

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 4)	$P_D$	2.25	W
Thermal Resistance, Junction to Ambient Air (Note 4)	$R_{\theta JA}$	55.5	$^\circ\text{C/W}$
Power Dissipation (Note 5)	$P_D$	1.28	W
Thermal Resistance, Junction to Ambient Air (Note 5)	$R_{\theta JA}$	97.4	$^\circ\text{C/W}$
Power Dissipation (Note 6)	$P_D$	0.7	W
Thermal Resistance, Junction to Ambient Air (Note 6)	$R_{\theta JA}$	179	$^\circ\text{C/W}$
Thermal Resistance, Junction to Collector Terminal	$R_{\theta JT}$	30	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

- Notes:
4. Device mounted on 1.6mm FR-4 PCB, single sided 2 oz. copper, collector pad dimensions 50mm x 50mm.
  5. Device mounted on 1.6mm FR-4 PCB, single sided 1 oz. copper, collector pad dimensions 25mm x 25mm.
  6. Device mounted on 1.6mm FR-4 PCB, single sided 1 oz. copper, minimum recommended pad layout.

**Thermal Characteristics**

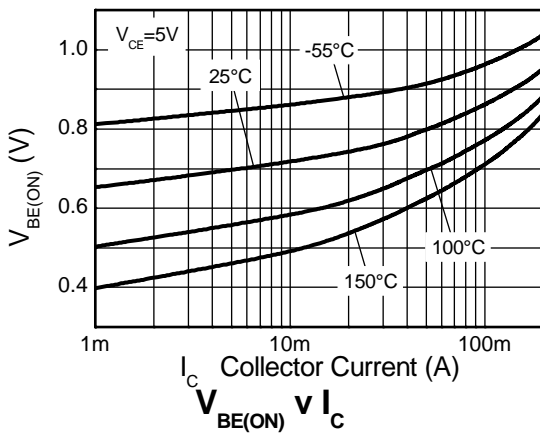
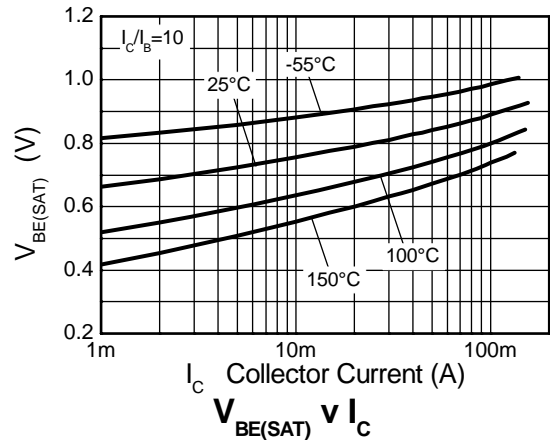
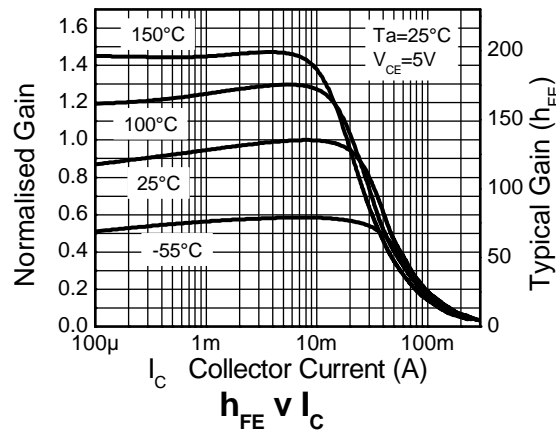
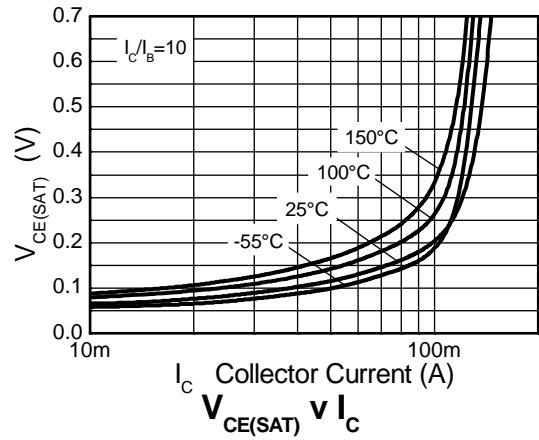
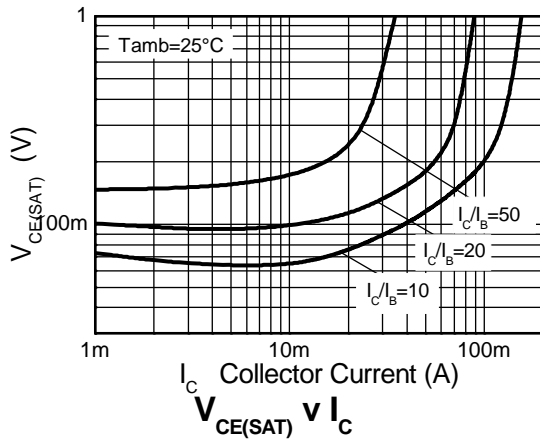


**Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

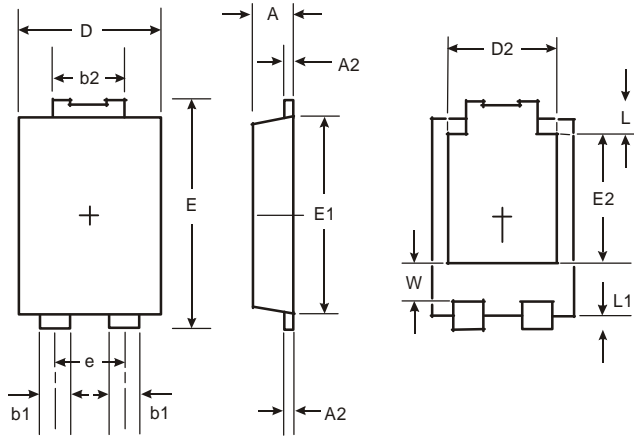
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	180	270	–	V	I <sub>C</sub> = 100μA
Collector-Emitter Breakdown Voltage (Note 7)	BV <sub>CEO</sub>	160	200	–	V	I <sub>C</sub> = 1mA
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	6.0	7.85	–	V	I <sub>E</sub> = 10μA
Collector Cutoff Current	I <sub>CBO</sub>	–	<1	50	nA	V <sub>CB</sub> = 120V
		–	–	50	μA	V <sub>CB</sub> = 120V, T <sub>A</sub> = 100°C
Collector-Emitter Saturation Voltage (Note 7)	V <sub>CE(sat)</sub>	–	65	150	mV	I <sub>C</sub> = 10mA, I <sub>B</sub> = 1mA
		–	115	200	mV	I <sub>C</sub> = 50mA, I <sub>B</sub> = 5mA
Base-Emitter Saturation Voltage (Note 7)	V <sub>BE(sat)</sub>	–	760	1000	mV	I <sub>C</sub> = 10mA, I <sub>B</sub> = 1mA
		–	840	1200	mV	I <sub>C</sub> = 50mA, I <sub>B</sub> = 5mA
DC Current Gain (Note 7)	h <sub>FE</sub>	80	130	–	–	V <sub>CE</sub> = 5V, I <sub>C</sub> = 1mA
		80	145	250	–	V <sub>CE</sub> = 5V, I <sub>C</sub> = 10mA
		30	65	–	–	V <sub>CE</sub> = 5V, I <sub>C</sub> = 50mA
Transition Frequency	f <sub>T</sub>	–	130	–	MHz	V <sub>CE</sub> = 10V, I <sub>C</sub> = 10mA, f = 100MHz
Output Capacitance (Note 7)	C <sub>obo</sub>	–	–	6	pF	V <sub>CB</sub> = 10V, f = 1MHz
Delay Time	t <sub>(d)</sub>	–	95	–	ns	V <sub>CC</sub> = 510V, I <sub>C</sub> = 10mA, I <sub>B1</sub> = I <sub>B2</sub> = 1mA
Rise Time	t <sub>(r)</sub>	–	64	–	ns	
Storage Time	t <sub>(s)</sub>	–	1256	–	ns	
Delay Time	t <sub>(f)</sub>	–	140	–	ns	

Notes: 7. Pulse Test: Pulse width ≤300μs. Duty cycle ≤2.0%.

**Typical Characteristics**

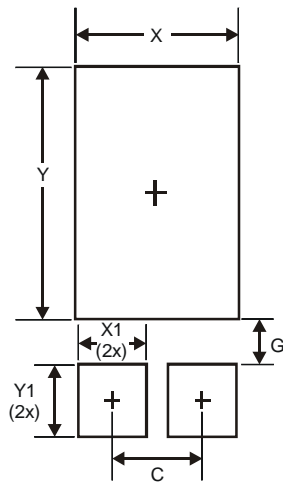


**Package Outline Dimensions**



PowerDI <sup>®</sup> 5		
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
All Dimensions in mm		

**Suggested Pad Layout**



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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