

160V NPN HIGH VOLTAGE TRANSISTOR
PowerDI®5

Features

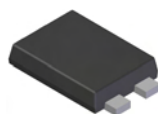
- 43% smaller than SOT223; 60% smaller than TO252
- Maximum height just 1.1mm
- Rated up to 2.25W
- $V_{CEO} = 160V$
- $I_C = 0.6A$
- **Lead, Halogen and Antimony Free, RoHS Compliant (Note 1)**
- **“Green” Device (Note 2)**

Applications

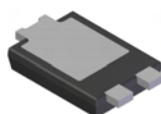
- Telecom line driver

Mechanical Data

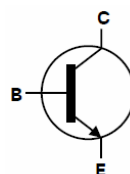
- Case: PowerDI®5
- Case Material: Molded Plastic, “Green” Molding Compound.
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin annealed over Copper leadframe.
Solderable per MIL-STD-202, Method 208 Ⓔ3
- Weight: 0.093 grams (approximate)



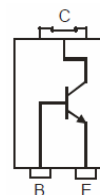
Top View



Bottom View



Device Schematic



Pin-out diagram

Ordering Information (Note 3)

Part Number	Case	Packaging
DXT5551P5-13	PowerDI®5	5000/Tape & Reel

- Notes:
1. No purposefully added lead. Halogen and Antimony Free.
 2. 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/datasheets/ap02007.pdf>.

Marking Information



DXT5551 = Product Type Marking Code
 011 = 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°C unless otherwise specified

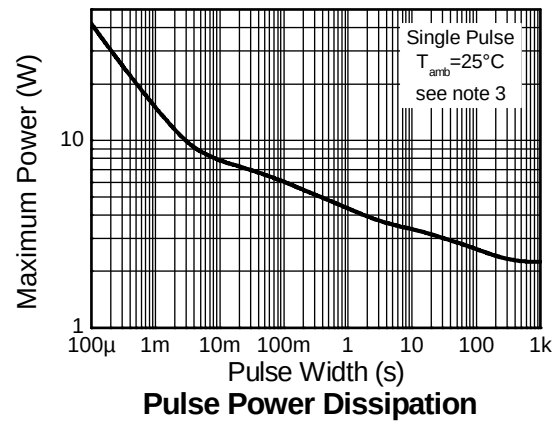
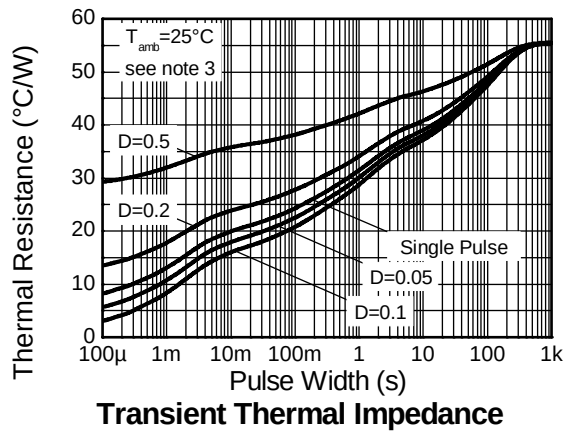
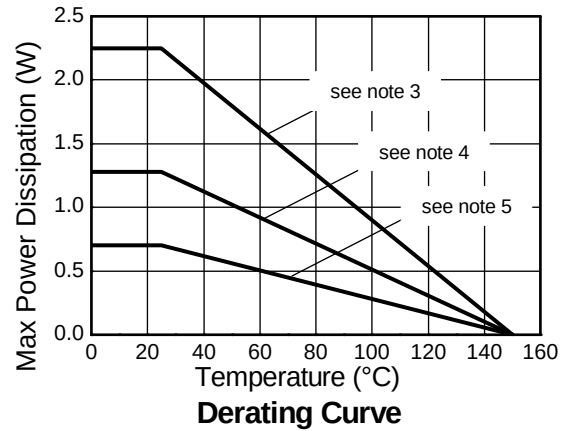
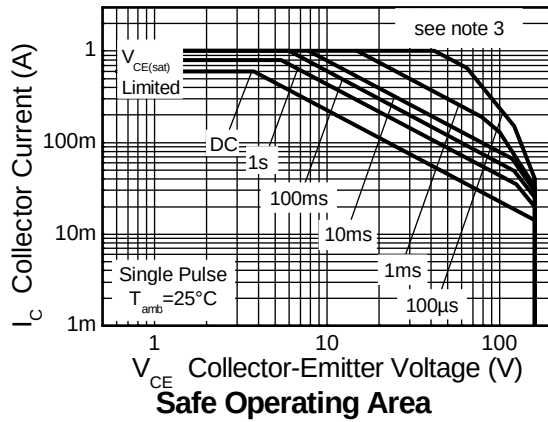
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	180	V
Collector-Emitter Voltage	V _{CEO}	160	V
Emitter-Base Voltage	V _{EBO}	6	V
Continuous Collector Current	I _C	600	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation @ T _A = 25°C (Note 4)	P _D	2.25	W
Thermal Resistance, Junction to Ambient Air (Note 4) @T _A = 25°C	R _{θJA}	55.5	°C/W
Power Dissipation @ T _A = 25°C (Note 5)	P _D	1.28	W
Thermal Resistance, Junction to Ambient Air (Note 5) @T _A = 25°C	R _{θJA}	97.4	°C/W
Power Dissipation @ T _A = 25°C (Note 6)	P _D	0.7	W
Thermal Resistance, Junction to Ambient Air (Note 6) @T _A = 25°C	R _{θJA}	179	°C/W
Thermal Resistance, Junction to Collector Terminal	R _{θJT}	30	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°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.

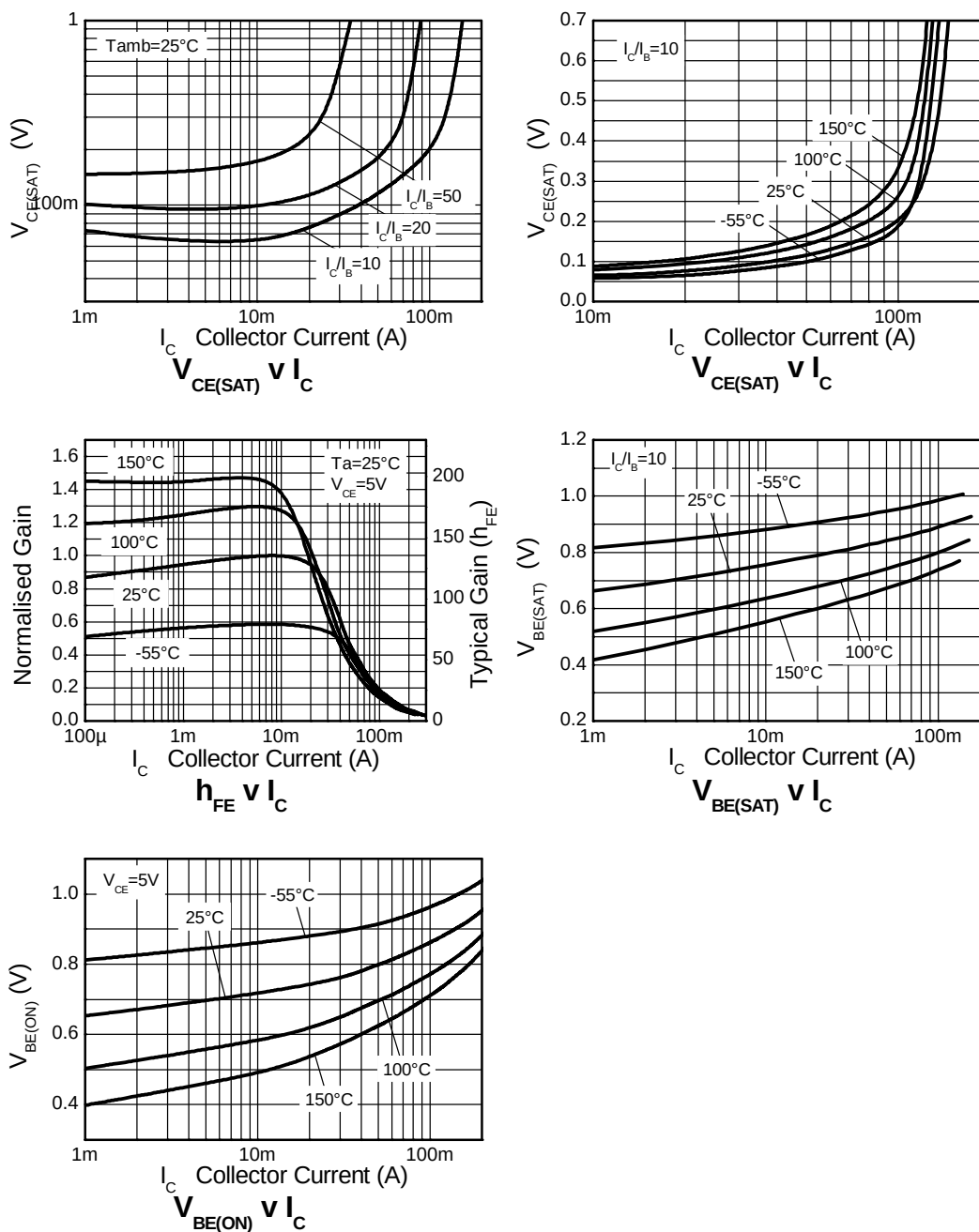


Electrical Characteristics @T_A = 25°C unless otherwise specified

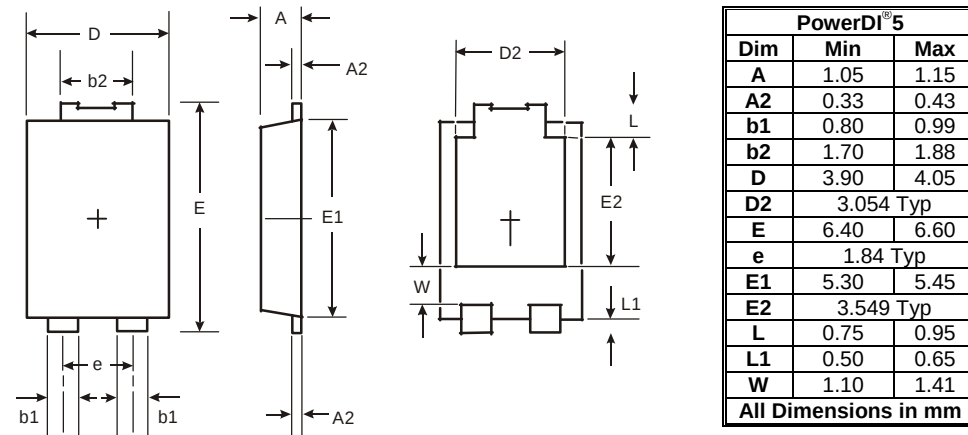
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	V _{(BR)CBO}	180	270	–	V	I _C = 100μA
Collector-Emitter Breakdown Voltage (Note 7)	V _{(BR)CEO}	160	200	–	V	I _C = 1mA
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	6.0	7.85	–	V	I _E = 10μA
Collector Cutoff Current	I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

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

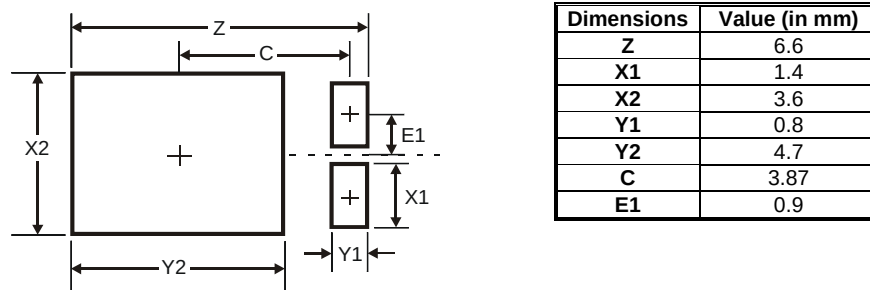
Typical Characteristic



Package Outline Dimensions



Suggested Pad Layout



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