



**ZXTN5551G**

**160V NPN VOLTAGE TRANSISTOR**

### Features

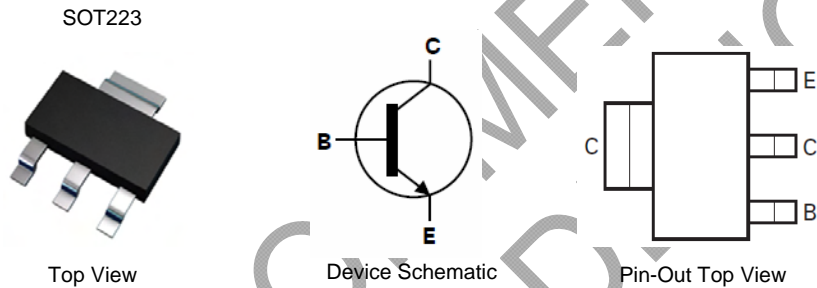
- $BV_{CEO} > 160V$
- $BV_{EBO} > 6V$
- $I_C = 600mA$  Continuous Collector Current
- Low Saturation Voltage (150mV max @10mA)
- $h_{FE}$  specified up to 50mA for a high gain hold up
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

### Mechanical Data

- Case: SOT223
- Case material: Molded Plastic. "Green" Molding Compound. UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Leads, Solderable per MIL-STD-202 Method 208
- Weight: 0.112 grams (Approximate)

### Applications

- High Voltage Amplification

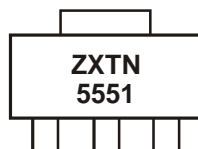


### Ordering Information (Note 4)

Part Number	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
ZXTN5551GTA	ZXTN5551	7	12	1,000
ZXTN5551GTC	ZXTN5551	13	12	4,000

- 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> 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>

### Marking Information



ZXTN5551 = Product type Marking Code

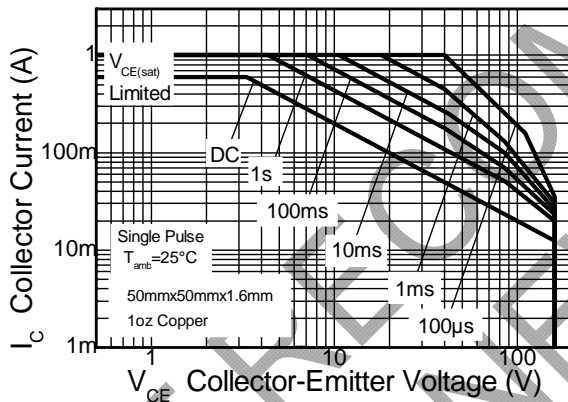
**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CB0</sub>	180	V
Collector-Emitter Voltage	V <sub>CEO</sub>	160	V
Emitter-Base Voltage	V <sub>EBO</sub>	6	V
Continuous Collector Current	I <sub>C</sub>	600	mA

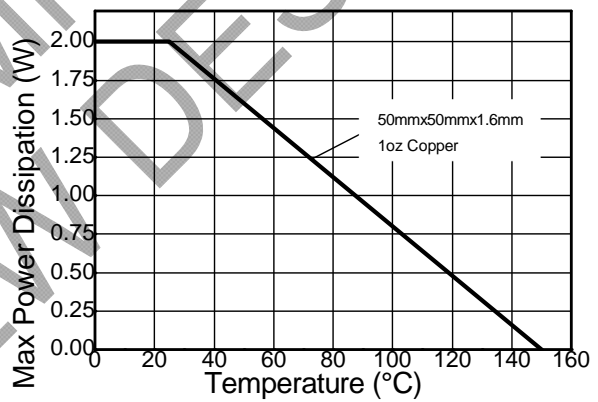
**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P <sub>D</sub>	2	W
Thermal Resistance, Junction to Ambient (Note 5)	R <sub>θJA</sub>	62.5	°C/W
Thermal Resistance, Junction to Leads (Note 6)	R <sub>θJL</sub>	34.05	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

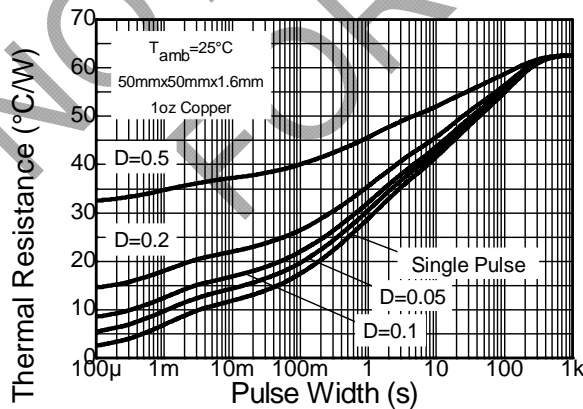
Notes: 5. Device mounted on 50mm X 50mm X 1.6mm FR-4 PCB with high coverage of single sided 1 oz. copper, in still air condition  
6. Thermal resistance from junction to solder-point (at the end of the collector lead).



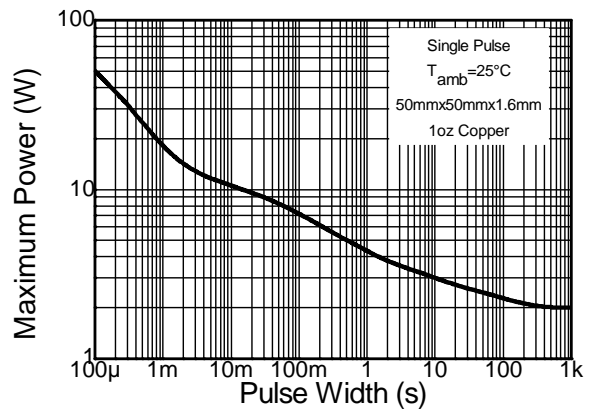
**Safe Operating Area**



**Derating Curve**



**Transient Thermal Impedance**



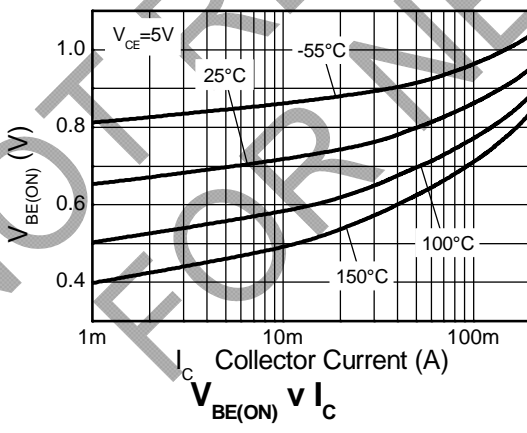
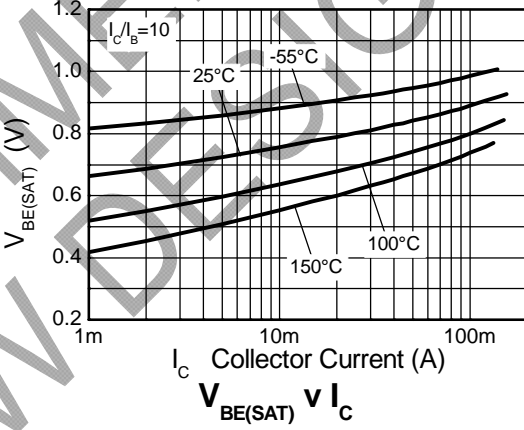
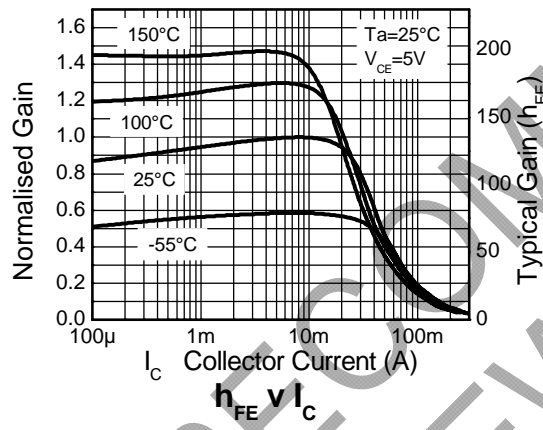
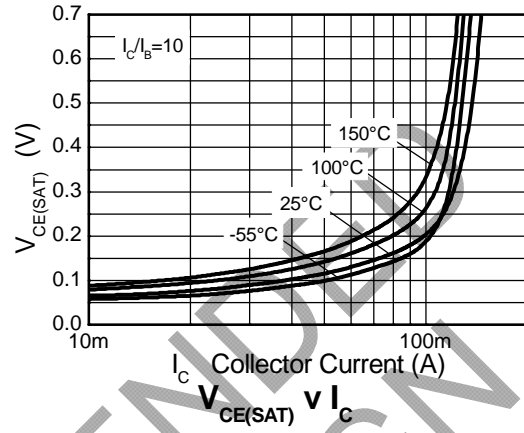
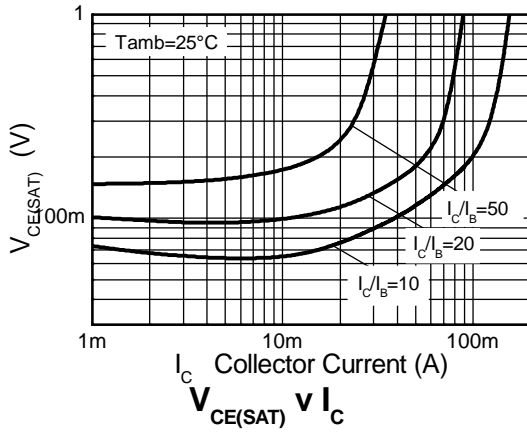
**Pulse Power Dissipation**

**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>CB0</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> = 100μA
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
Small Signal	h <sub>FE</sub>	50	—	260	—	V <sub>CE</sub> = 10V, I <sub>C</sub> = 10mA, f = 1kHz
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	
Rise Time	t <sub>(r)</sub>	—	64	—	ns	
Storage Time	t <sub>(s)</sub>	—	1256	—	ns	V <sub>CC</sub> = 10V, I <sub>C</sub> = 10mA, I <sub>B1</sub> = I <sub>B2</sub> = 1mA
Delay Time	t <sub>(f)</sub>	—	140	—	ns	

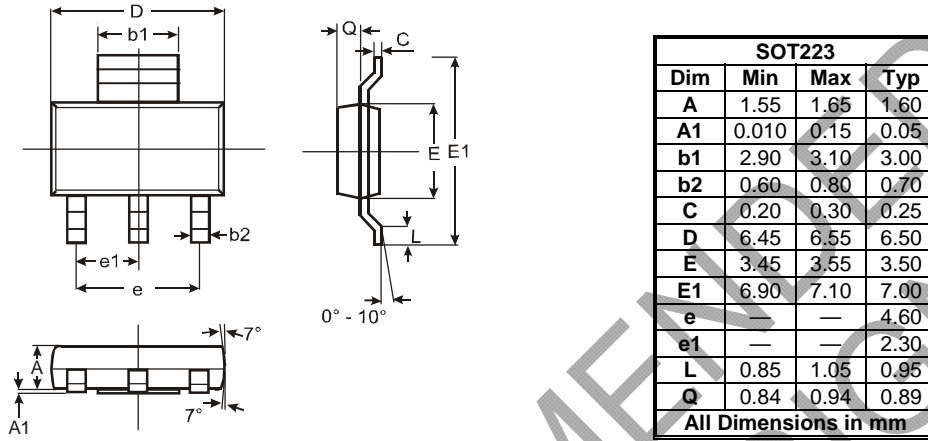
Notes: 7. Pulse Test: Pulse width ≤ 300μs. Duty cycle ≤ 2.0%.

NOT RECOMMENDED FOR NEW DESIGN



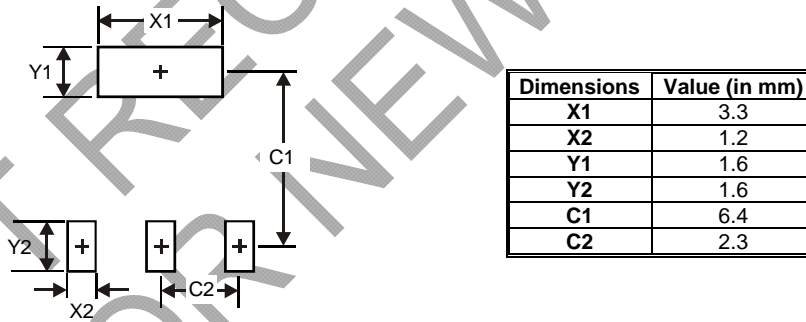
**Package Outline Dimensions**

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



**Suggested Pad Layout**

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



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