

# ZXTN5551G

## 160V, SOT223, NPN high voltage transistor

### Summary

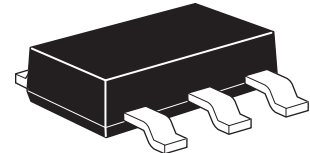
$BV_{CEO} > 160V$

$BV_{EBO} > 6V$

$I_{C(cont)} = 600mA$

$P_D = 2W$

Complementary part number ZXTP5401G

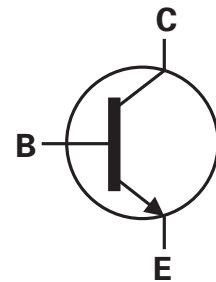


### Description

A high voltage NPN transistor in a high power dissipation surface mount package

### Features

- 160V rating
- SOT223 package

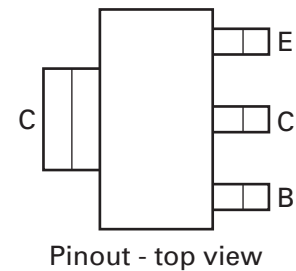


### Applications

- High voltage amplification

### Ordering information

Device	Reel size (inches)	Tape width (mm)	Quantity per reel
ZXTN5551GTA	7	12	1000
ZXTN5551GTC	13	12	4000



### Device marking

ZXTN  
5551

# ZXTN5551G

## Absolute maximum ratings

Parameter	Symbol	Limit	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 <sup>(a)</sup>	$I_C$	600	mA
Power dissipation at $T_A = 25^\circ\text{C}$ <sup>(a)</sup>	$P_D$	2	W
Linear derating factor		16	mW/°C
Operating and storage temperature range	$T_j, T_{stg}$	-55 to 150	°C

## Thermal resistance

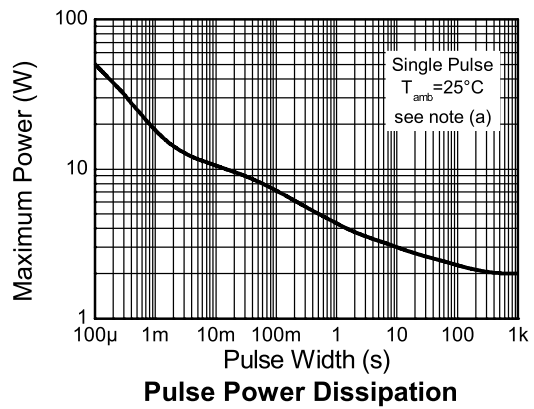
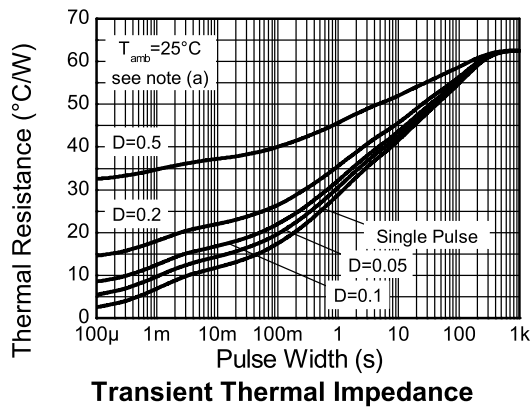
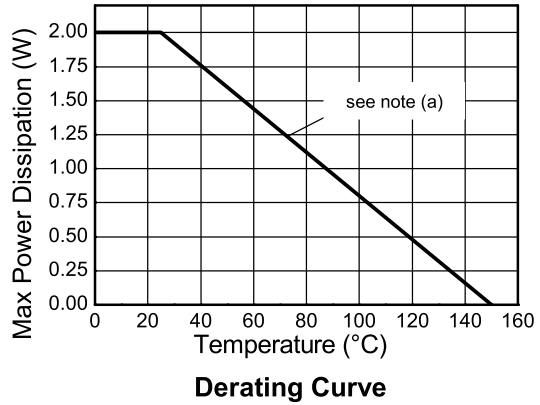
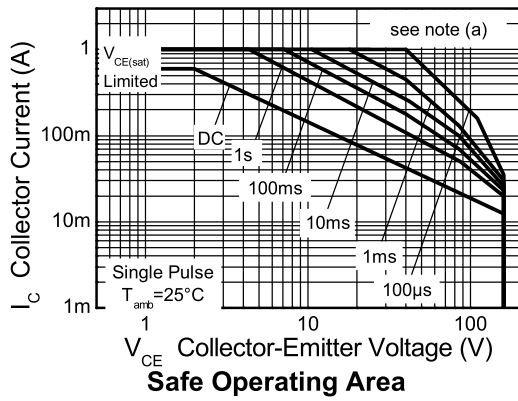
Parameter	Symbol	Value	Unit
Junction to ambient <sup>(a)</sup>	$R_{\theta JA}$	62.5	°C/W

### NOTES:

(a) For a device surface mounted on 50mm x 50mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.

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## Characteristics



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**Electrical characteristics (at  $T_{amb} = 25^{\circ}\text{C}$  unless otherwise stated).**

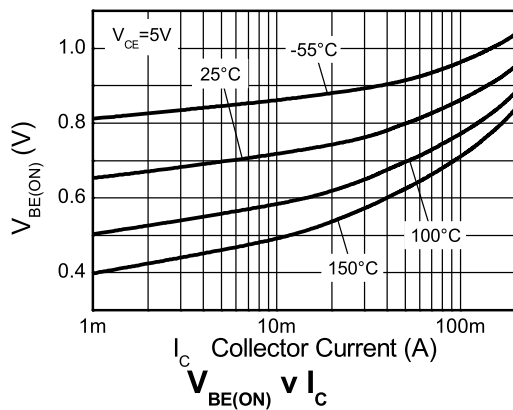
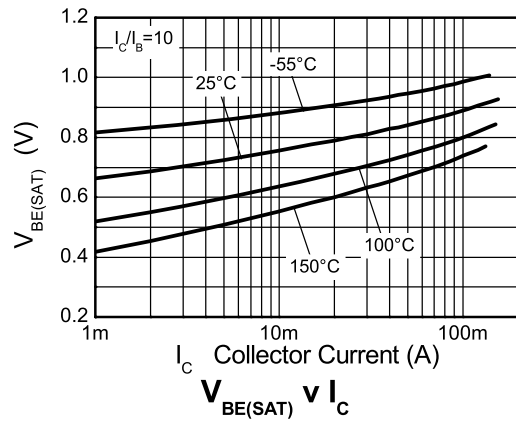
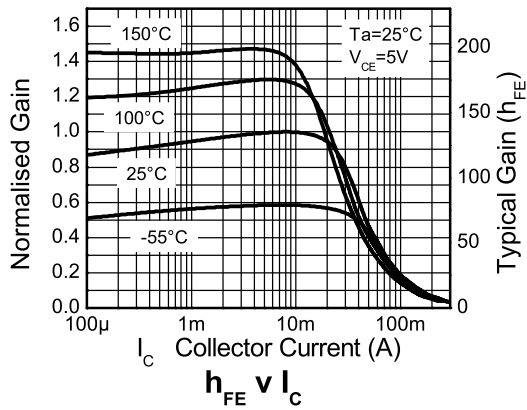
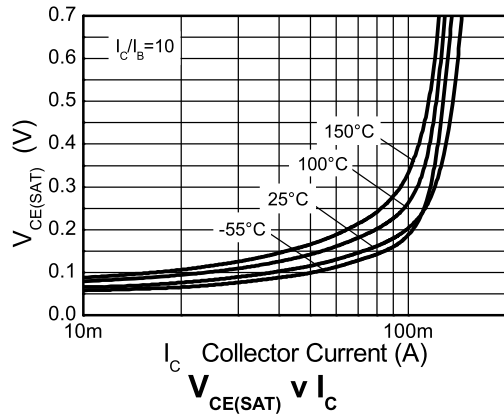
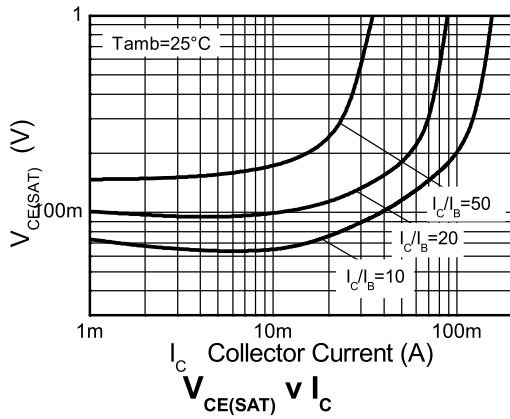
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	180	270		V	$I_C = 100\mu\text{A}$
Collector-emitter breakdown voltage (base open)	$BV_{CEO}$	160	200		V	$I_C = 1\text{mA}^{(*)}$
Emitter-base breakdown voltage	$BV_{EBO}$	6	7.85		V	$I_E = 10\mu\text{A}$
Collector cut-off current	$I_{CBO}$		<1	50 50	nA $\mu\text{A}$	$V_{CB} = 120\text{V}$ $V_{CB} = 120\text{V}, T_{amb} = 100^{\circ}\text{C}$
Collector-emitter saturation voltage	$V_{CE(Sat)}$		65 115	150 200	mV mV	$I_C = 10\text{mA}, I_B = 1\text{mA}^{(*)}$ $I_C = 50\text{mA}, I_B = 5\text{mA}^{(*)}$
Base-emitter saturation voltage	$V_{BE(Sat)}$		760 840	1000 1200	mV mV	$I_C = 10\text{mA}, I_B = 1\text{mA}^{(*)}$ $I_C = 50\text{mA}, I_B = 5\text{mA}^{(*)}$
Static forward current transfer ratio	$h_{FE}$	80 80 30	135 140 65	250		$I_C = 1\text{mA}, V_{CE} = 5\text{V}^{(*)}$ $I_C = 10\text{mA}, V_{CE} = 5\text{V}^{(*)}$ $I_C = 50\text{mA}, V_{CE} = 5\text{V}^{(*)}$
Transition frequency	$f_T$		130		MHz	$I_C = 10\text{mA}, V_{CE} = 10\text{V}$ $f = 100\text{MHz}$
Output capacitance	$C_{OBO}$			6	pF	$V_{CB} = 10\text{V}, f = 1\text{MHz}^{(*)}$
Small signal	$h_{FE}$	50		260		$I_C = 10\text{mA}, V_{CE} = 10\text{V},$ $f = 1\text{kHz}^{(\dagger)}$
Delay time	$t_{(d)}$		95		ns	$V_{CC} = 10\text{V}, I_C = 10\text{mA},$ $I_{B1} = I_{B2} = 1\text{mA}$
Rise time	$t_{(r)}$		64		ns	
Storage time	$t_{(s)}$		1256		ns	
Fall time	$t_{(f)}$		140		ns	

**NOTES:**

(\*) Measured under pulsed conditions. Pulse width  $\leq 300\mu\text{s}$ ; duty cycle  $\leq 2\%$ .

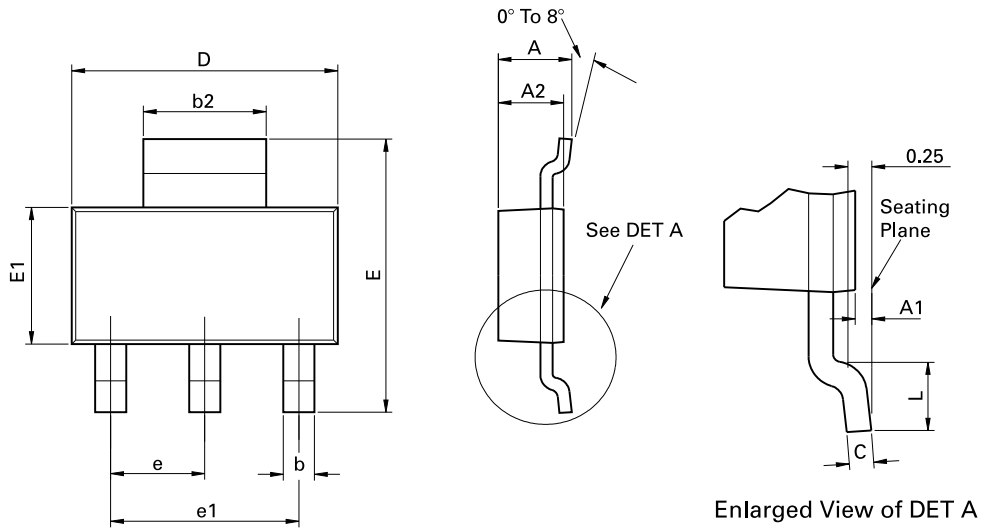
(†) Periodic sample test only.

## Typical Characteristics



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### Package outline - SOT223



Conforms to JEDEC TO-261 AA Issue B

Dim.	Millimeters		Inches		Dim.	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	-	1.80	-	0.071	D	6.30	6.70	0.248	0.264
A1	0.02	0.10	0.0008	0.004	e	2.30 BSC		0.0905 BSC	
A2	1.55	1.65	0.0610	0.0649	e1	4.60 BSC		0.181 BSC	
b	0.66	0.84	0.026	0.033	E	6.70	7.30	0.264	0.287
b2	2.90	3.10	0.114	0.122	E1	3.30	3.70	0.130	0.146
C	0.23	0.33	0.009	0.013	L	0.90	-	0.355	-

**Note:** Controlling dimensions are in millimeters. Approximate dimensions are provided in inches

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Europe	Americas	Asia Pacific	Corporate Headquarters
Zetex GmbH Kustermann-park Balanstraße 59 D-81541 München Germany Telephone: (49) 89 45 49 49 0 Fax: (49) 89 45 49 49 49 europe.sales@zetex.com	Zetex Inc 700 Veterans Memorial Highway Hauppauge, NY 11788 USA Telephone: (1) 631 360 2222 Fax: (1) 631 360 8222 usa.sales@zetex.com	Zetex (Asia Ltd) 3701-04 Metroplaza Tower 1 Hing Fong Road, Kwai Fong Hong Kong Telephone: (852) 26100 611 Fax: (852) 24250 494 asia.sales@zetex.com	Zetex Semiconductors plc Zetex Technology Park, Chadderton Oldham, OL9 9LL United Kingdom Telephone: (44) 161 622 4444 Fax: (44) 161 622 4446 hq@zetex.com

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