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# ZXTN5551Z

## 160V, SOT89, NPN high voltage transistor

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### Summary

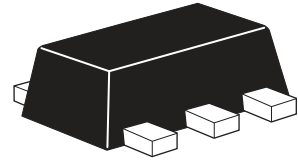
$BV_{CEO} > 160V$

$BV_{EBO} > 6V$

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

$P_D = 1.2W$

Complementary part number ZXTP5401Z

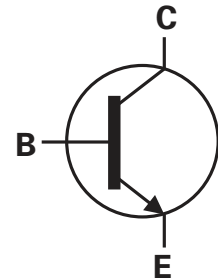


### Description

A high voltage NPN transistor in a small outline surface mount package

### Features

- 160V rating
- SOT89 package

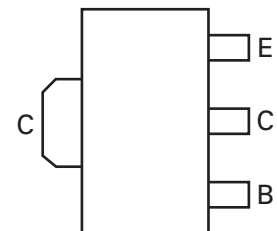


### Applications

- High voltage amplification

### Ordering information

Device	Reel size (inches)	Tape width (mm)	Quantity per reel
ZXTN5551ZTA	7	12	1000



Pinout - top view

### Device marking

N51

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## **ZXTN5551Z**

### **Absolute maximum ratings**

<b>Parameter</b>	<b>Symbol</b>	<b>Limit</b>	<b>Unit</b>
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 $T_A = 25^\circ\text{C}^{(a)}$	$P_D$	1.2	W
Linear derating factor		9.6	mW/°C
Operating and storage temperature range	$T_j, T_{stg}$	-55 to 150	°C

### **Thermal resistance**

<b>Parameter</b>	<b>Symbol</b>	<b>Value</b>	<b>Unit</b>
Junction to ambient <sup>(a)</sup>	$R_{\theta JA}$	104	°C/W

**NOTES:**

(a) For a device surface mounted on 25mm x 25mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.

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## ZXTN5551Z

**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	130 145 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	$V_{CC} = 10\text{V}, I_C = 1\text{mA},$ $I_{B1} = I_{B2} = 1\text{mA}.$
Rise time	$t_{(r)}$		64		ns	
Storage time	$t_{(s)}$		1256		ns	
Fall time	$t_{(f)}$		140		ns	

**NOTES:**

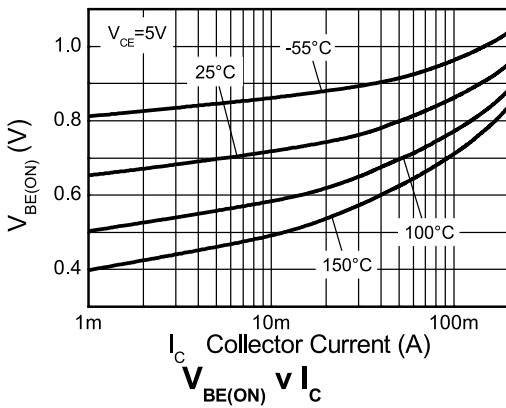
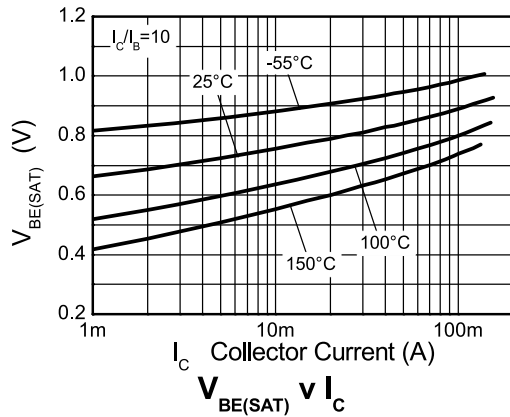
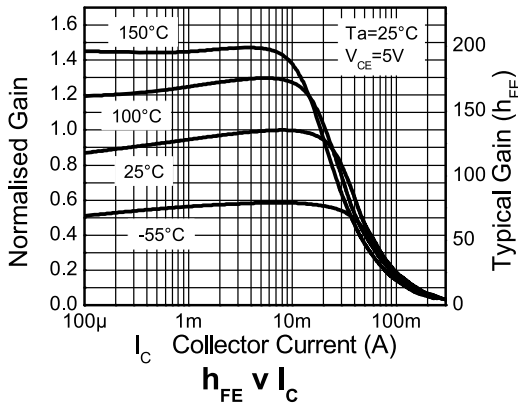
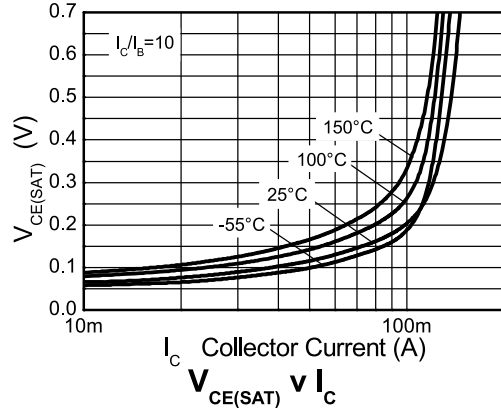
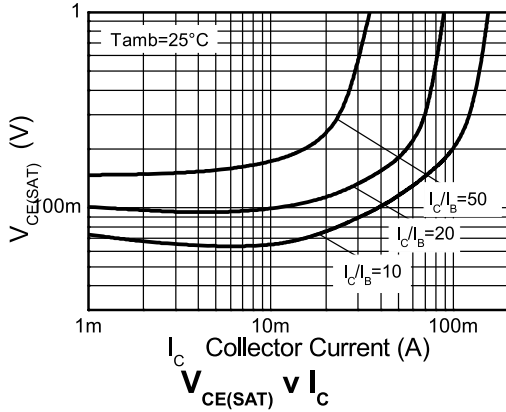
(\*) Measured under pulsed conditions. Pulse width  $\leq 300\mu\text{s}$ ; duty cycle  $\leq 2\%$ .

(†) Periodic sample test only

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Typical characteristics



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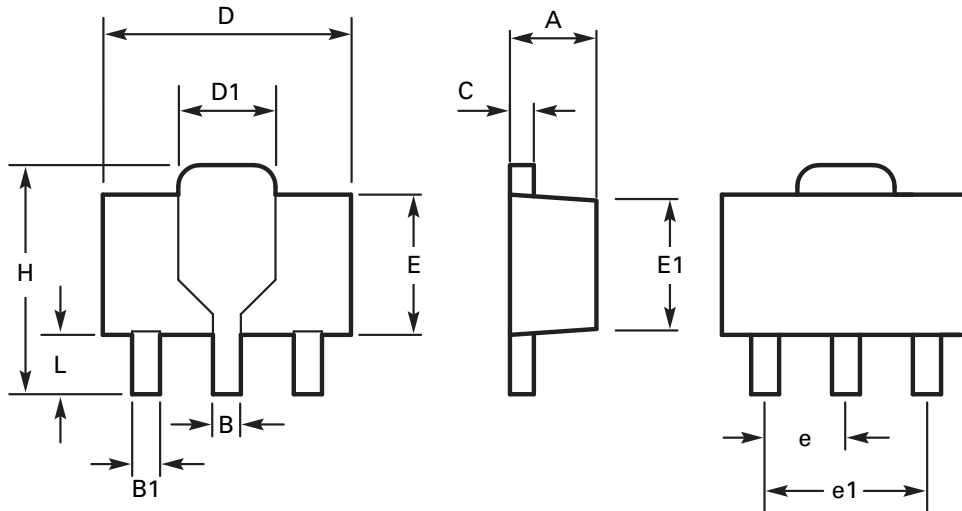
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**ZXTN5551Z**

**Package outline - SOT89**



DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min	Max	Min	Max		Min	Max	Min	Max
A	1.40	1.60	0.550	0.630	E	2.29	2.60	0.090	0.102
B	0.44	0.56	0.017	0.022	E1	2.13	2.29	0.084	0.090
B1	0.36	0.48	0.014	0.019	e	1.50 BSC		0.059 BSC	
C	0.35	0.44	0.014	0.017	e1	3.00 BSC		0.118 BSC	
D	4.40	4.60	0.173	0.181	H	3.94	4.25	0.155	0.167
D1	1.52	1.83	0.064	0.072	L	0.89	1.20	0.035	0.047

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

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