

# ZXTN5551FL

## 160V, SOT23, NPN High voltage transistor

### Summary

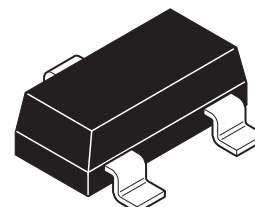
$BV_{CEO} > 160V$

$BV_{EBO} > 6V$

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

$P_D = 330mW$

Complementary part number ZXTP5401FL

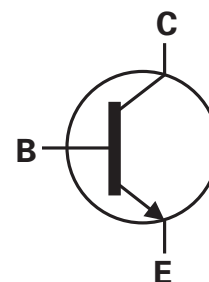


### Description

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

### Features

- 160V rating
- SOT23 package

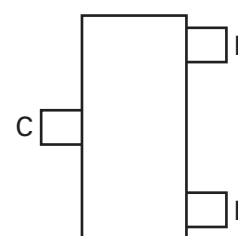


### Applications

- High voltage amplification

### Ordering information

Device	Reel size (inches)	Tape width (mm)	Quantity per reel
ZXTN5551FLTA	7	8	3000



Pinout - top view

### Device marking

N51

# ZXTN5551FL

## 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 $T_{amb} = 25^{\circ}\text{C}^{(a)}$	$P_D$	330	mW
Linear derating factor		2.64	mW/ $^{\circ}\text{C}$
Operating and storage temperature range	$T_j, T_{stg}$	-55 to 150	$^{\circ}\text{C}$

## Thermal resistance

Parameter	Symbol	Limit	Unit
Junction to ambient <sup>(a)</sup>	$R_{\theta JA}$	379	$^{\circ}\text{C}/\text{W}$

### 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.

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

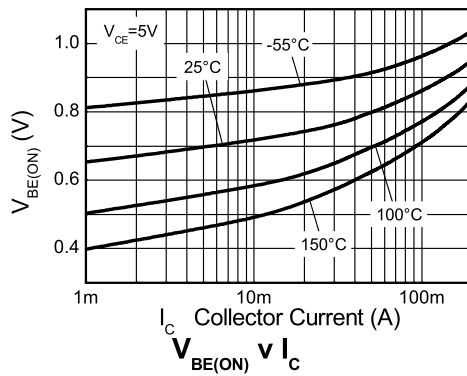
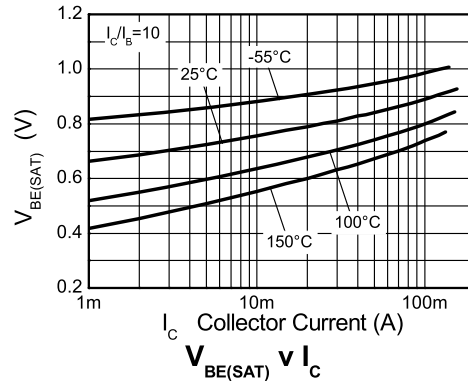
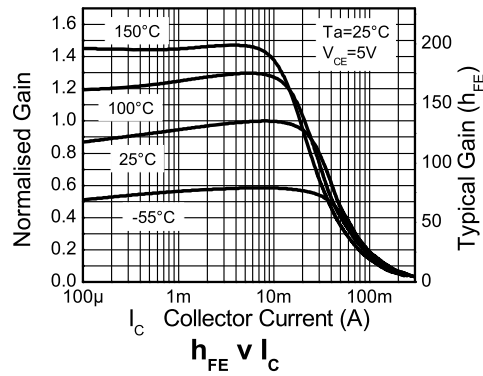
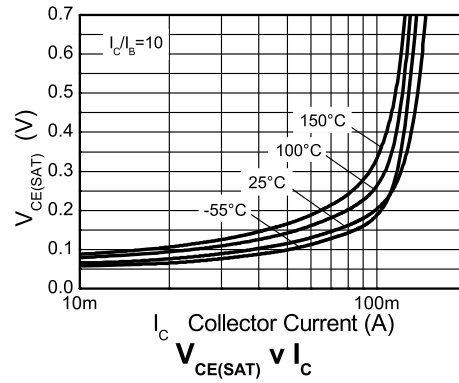
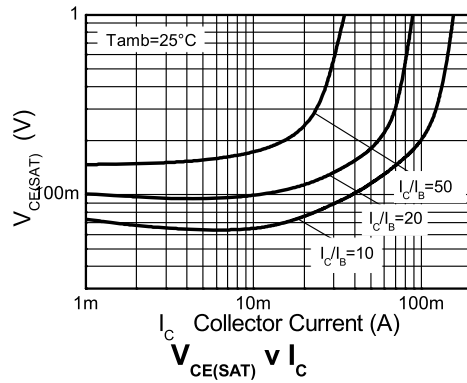
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	180	270		V	$I_C = 100\mu\text{A}$
Collector-emitter breakdown voltage (base open)	$BV_{CEO}$	160	200		V	$I_C = 1\text{mA}^{(*)}$
Emitter-base breakdown voltage	$BV_{EBO}$	6	7.85		V	$I_E = 10\mu\text{A}$
Collector 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	V V	$I_C = 10\text{mA}, I_B = 1\text{mA}^{(*)}$ $I_C = 50\text{mA}, I_B = 5\text{mA}^{(*)}$
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	135 145 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		$I_C = 10\text{mA}, V_{CE} = 10\text{V}, f = 1\text{kHz}^{(†)}$
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



# ZXTN5551FL

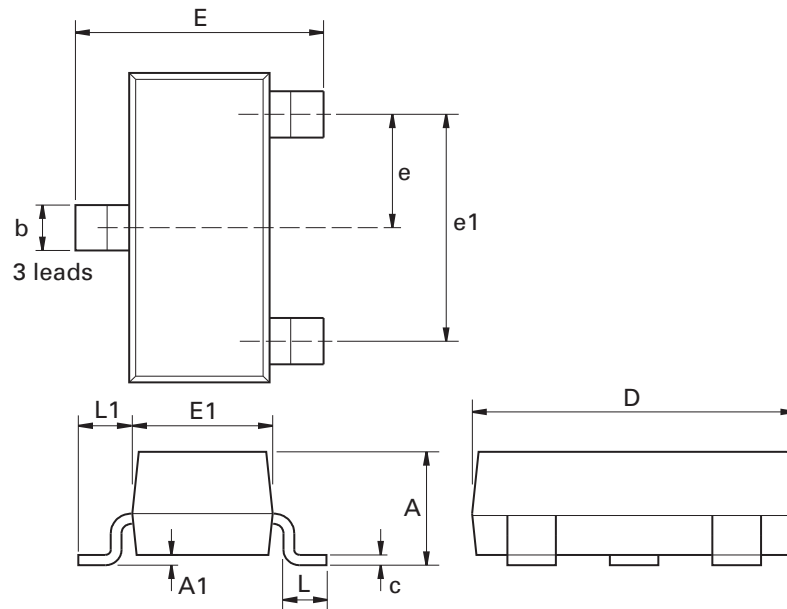
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## Package outline - SOT23



Dim.	Millimeters		Inches		Dim.	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	-	1.12	-	0.044	e1	1.90 NOM		0.075 NOM	
A1	0.01	0.10	0.0004	0.004	E	2.10	2.64	0.083	0.104
b	0.30	0.50	0.012	0.020	E1	1.20	1.40	0.047	0.055
c	0.085	0.20	0.003	0.008	L	0.25	0.60	0.0098	0.0236
D	2.80	3.04	0.110	0.120	L1	0.45	0.62	0.018	0.024
e	0.95 NOM		0.037 NOM		-	-	-	-	-

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

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