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ZXTN5551FL

160V, SOT23, NPN High voltage transistor

Summary

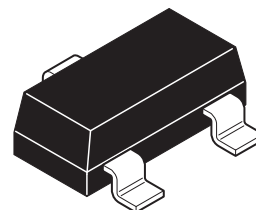
$BV_{CEO} > 160V$

$BV_{EBO} > 6V$

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

$P_D = 330mW$

Complementary part number ZXTP5401FL

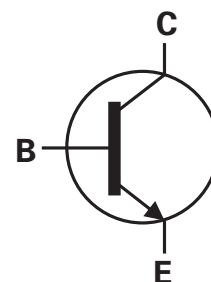


Description

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

Features

- 160V rating
- SOT23 package

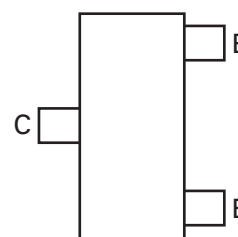


Applications

- 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

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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 ^(a)	I_C	600	mA
Power dissipation at $T_{amb} = 25^\circ\text{C}^{(a)}$	P_D	330	mW
Linear derating factor		2.64	mW/°C
Operating and storage temperature range	T_j, T_{stg}	-55 to 150	°C

Thermal resistance

Parameter	Symbol	Limit	Unit
Junction to ambient ^(a)	$R_{\theta JA}$	379	°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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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 μA	$V_{CB} = 120\text{V}$ $V_{CB} = 120\text{V}, T_{amb} = 100^{\circ}\text{C}$
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	

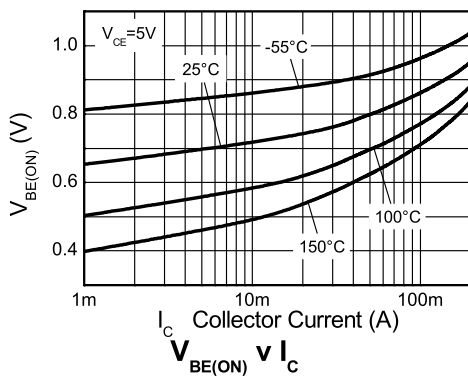
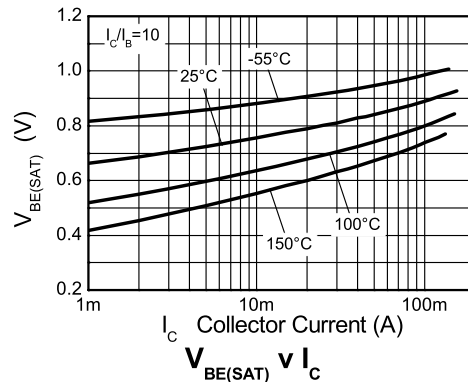
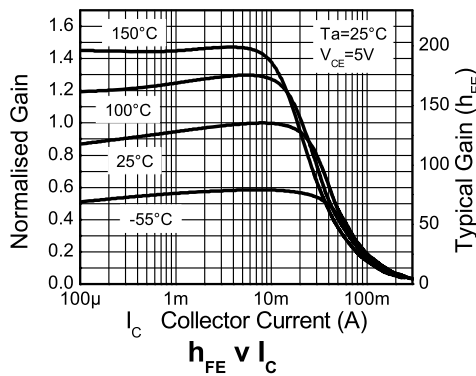
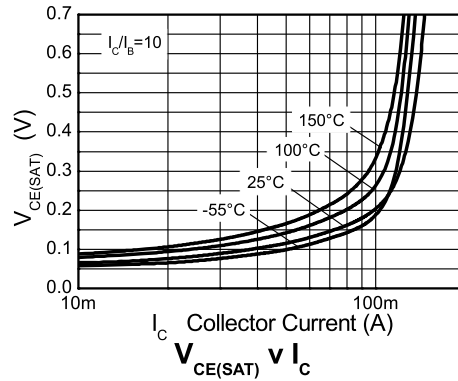
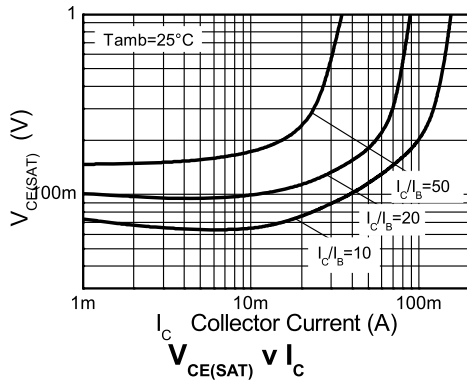
NOTES:

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

(†) Periodic sample test only

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Typical characteristics



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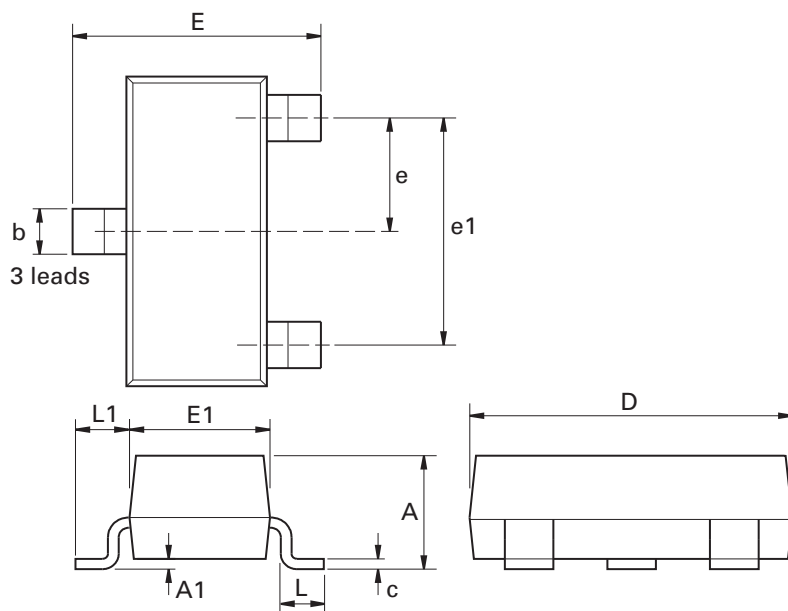
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Package outline - SOT23



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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