



YOUSHANG SEMICONDUCTOR

**设计研发新型功率器件**

**各类小信号开关**

**中低压及高压大电流等场效应管**

0755-83047638

ysbdt@szyoushang.cn

www.szyoushang.cn



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企业QQ二维码

## Summary

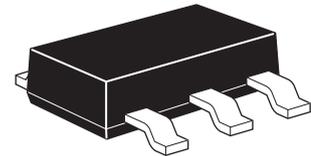
$BV_{CEO} > -150V$

$BV_{EBO} > -5V$

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

$P_D = 2W$

Complementary part number NK-ZXTN5551G

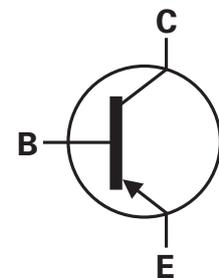


## Description

A high voltage PNP transistor in a surface mount package

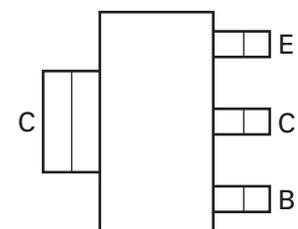
## Features

- 150V rating
- SOT223 package



## Applications

- High voltage amplification



Pinout - top view

### Absolute maximum ratings

Parameter	Symbol	Limit	Unit
Collector-base voltage	$V_{CBO}$	-160	V
Collector-emitter voltage	$V_{CEO}$	-150	V
Emitter-base voltage	$V_{EBO}$	-5	V
Continuous collector current <sup>(a)</sup>	$I_C$	-600	mA
Peak collector current	$I_C$	-2	A
Power dissipation at $T_A = 25^\circ\text{C}^{(a)}$	$P_D$	2	W
Linear derating factor		16	mW/°C
Operating and storage temperature range	$T_j, T_{stg}$	-55 to 150	°C

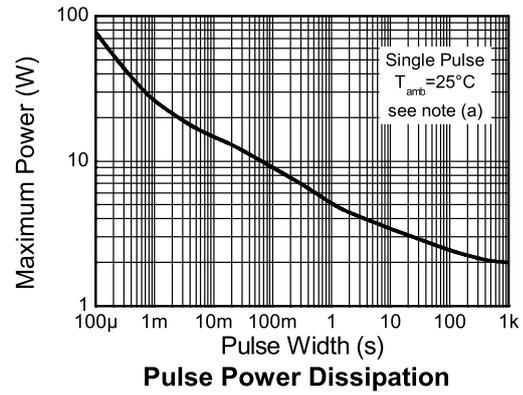
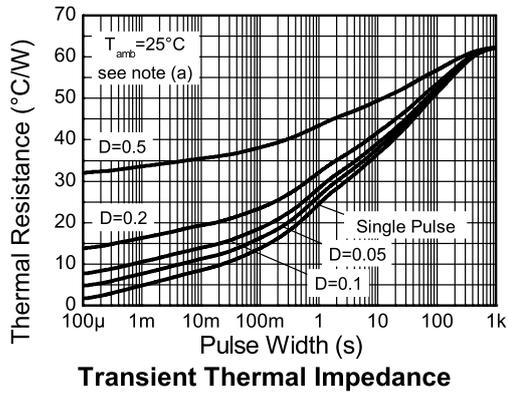
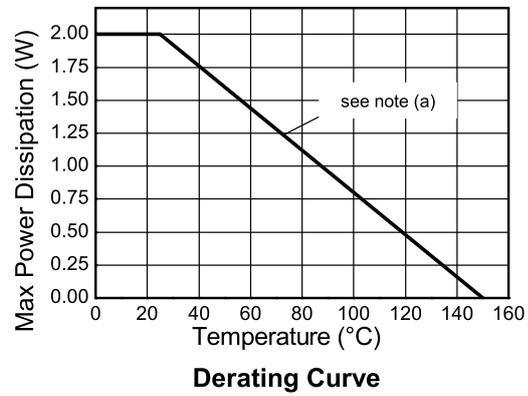
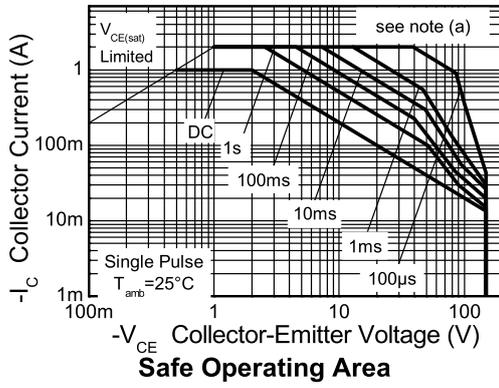
### Thermal resistance

Parameter	Symbol	Limit	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 weight copper, in still air conditions.

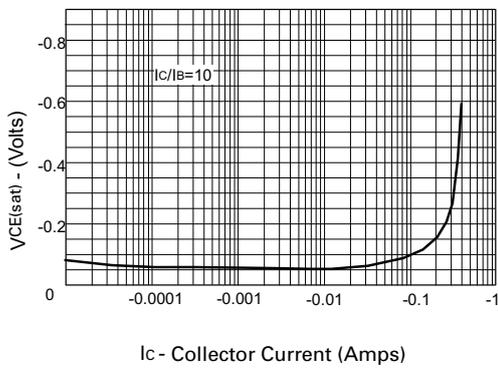
## Typical characteristics



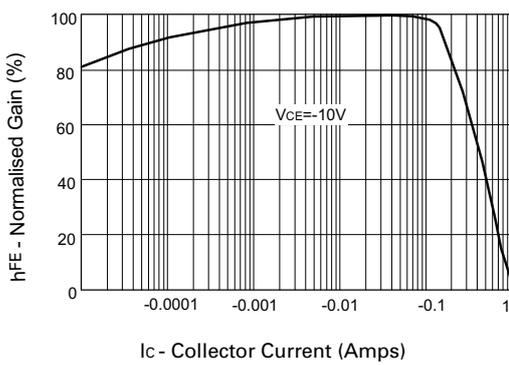
**Electrical characteristics (at  $T_{amb} = 25^{\circ}\text{C}$  unless otherwise stated)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	-160	-270		V	$I_C = -100\mu\text{A}$ ,
Collector-emitter breakdown voltage (base open)	$BV_{CEO}$	-150	-240		V	$I_C = -1\text{mA}^*$
Emitter-base breakdown voltage	$BV_{EBO}$	-5	-8.1		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	$V_{CE(sat)}$		-50 -70	-200 -500	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	$V_{BE(sat)}$		-700 -750	-1000 -1000	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	$h_{FE}$	50 60 50	135 135 130	240		$I_C = -1\text{mA}, V_{CE} = -5\text{V}^*$ $I_C = -10\text{mA}, V_{CE} = -5\text{V}^*$ $I_C = -50\text{mA}, V_{CE} = -5\text{V}^*$
Transition frequency	$f_T$		100		MHz	$I_C = -10\text{mA}, V_{CE} = -10\text{V}$ $f = 100\text{MHz}$
Output capacitance	$C_{OBO}$			6	pF	$V_{CB} = -10\text{V}, f = 1\text{MHz}^*$
Delay time	$t_{(d)}$		386		ns	$V_{CC} = -50\text{V}, I_C = -100\text{mA}, I_{B1} = I_{B2} = -10\text{mA}.$
Rise time	$t_{(r)}$		202		ns	
Storage time	$t_{(s)}$		1720		ns	
Fall time	$t_{(f)}$		275		ns	

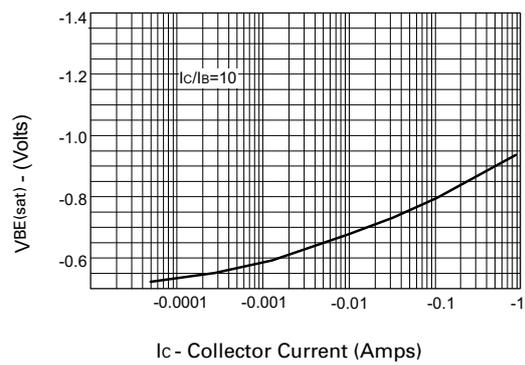
## Characteristics



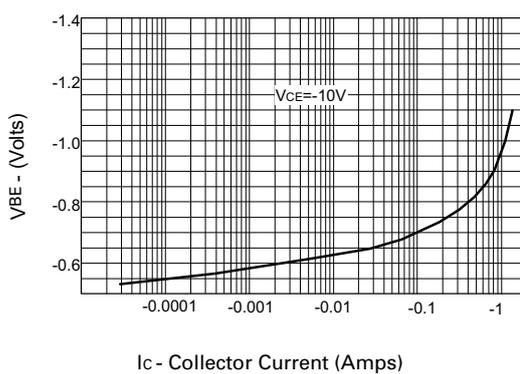
**VCE(sat) v IC**



**hFE v IC**

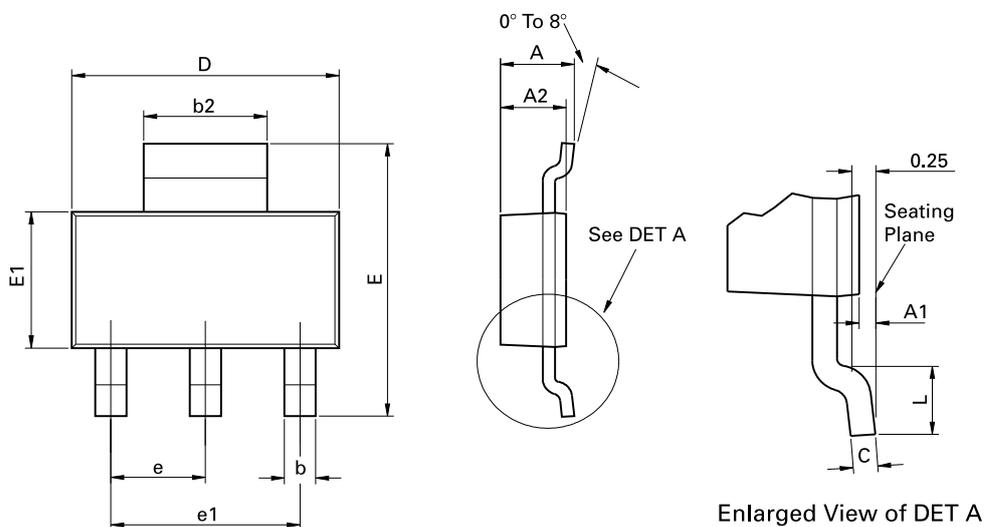


**VBE(sat) v IC**



**VBE(on) v IC**

**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