



# MMBT5551

## NPN SILICON TRANSISTOR

### DESCRIPTION

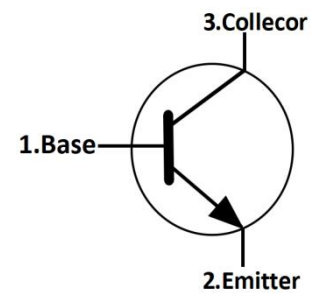
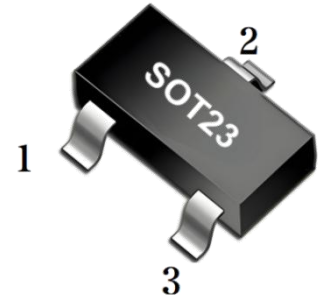
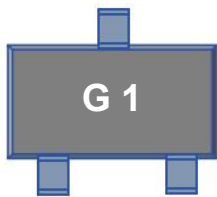
The MMBT5551 is a high voltage fast-switching NPN power transistor. It is characterized with high breakdown voltage, high current gain and high switching speed.

### FEATURES

- \* Complementary to MMBT5401
- \* Ideal for Medium Power Amplification and Switching

### MARKING

Type Code: Marking: G 1



### ABSOLUTE MAXIMUM RATINGS (Tc=25°C, unless otherwise specified)

SYMBOL	PARAMETER	VALUE	UNIT
V <sub>CB0</sub>	Collector-base voltage	180	V
V <sub>CEO</sub>	Collector-emitter voltage	160	V
V <sub>EB0</sub>	Emitter-base voltage	6	V
I <sub>C</sub>	Collector current	0.6	A
P <sub>C</sub>	Collector Power Dissipation	300	mW
T <sub>j</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55~150	°C
R <sub>θJA</sub>	Thermal Resistance From Junction To Ambient	416	°C/W

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.



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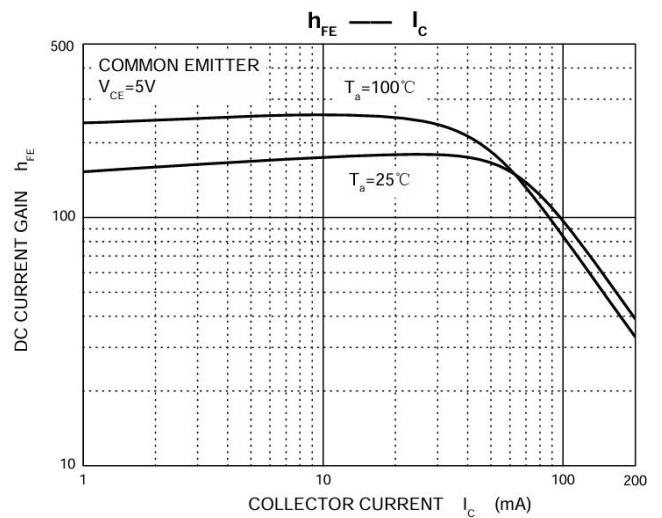
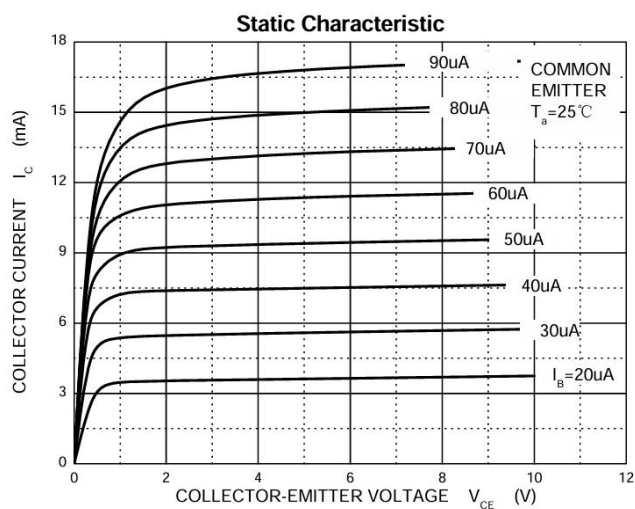
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## ELECTRICAL CHARACTERISTICS (Tc=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	MAX	UNIT	
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu A, I_E=0$	180		V	
Collector-emitter breakdown voltage	$V_{(BR)CEO}^*$	$I_C=1mA, I_B=0$	160		V	
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	6		V	
Collector cutoff current	$I_{CBO}$	$V_{CB}=120V, I_E=0$		50	nA	
Emitter cut-off current	$I_{EBO}$	$V_{EB}=4V, I_C=0$		50	nA	
DC Current Gain (CLASSIFICATION OF $h_{FE2}$ )	$h_{FE1}^*$	$V_{CE}=5V, I_C=1mA$	80			
	$h_{FE2}^*$	<b>A</b>	$V_{CE}=5V, I_C=10mA$	100	200	
		<b>B</b>	$V_{CE}=5V, I_C=10mA$	200	300	
		<b>C</b>	$V_{CE}=5V, I_C=10mA$	300	450	
$h_{FE3}^*$	$V_{CE}=5V, I_C=50mA$	50				
Collector-emitter saturation voltage	$V_{CE(sat)}^*$	$I_C=10mA, I_B=1mA$		0.15	V	
	$V_{CE(sat)}^*$	$I_C=50mA, I_B=5mA$		0.2	V	
Base-Emitter Saturation Voltage	$V_{BE(sat)}^*$	$I_C=10mA, I_B=1mA$		1	V	
	$V_{BE(sat)}^*$	$I_C=50mA, I_B=5mA$		1	V	
Transition frequency	$f_T$	$V_{CE}=10V, I_C=10mA, f=100MHz$	100	300	MHz	
Collector output capacitance	$C_{ob}$	$V_{CB}=10V, I_E=0, f=1MHz$		6	pF	

\* Pulse test: pulse width  $\leq 300\mu s$ , duty cycles  $\leq 2.0\%$ .

## TYPICAL CHARACTERISTICS

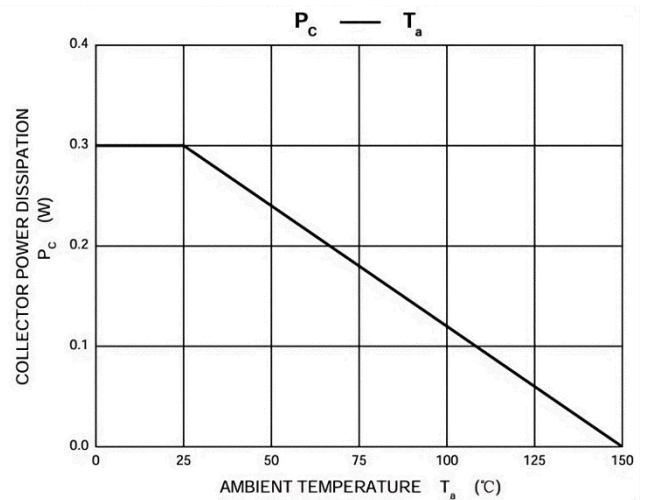
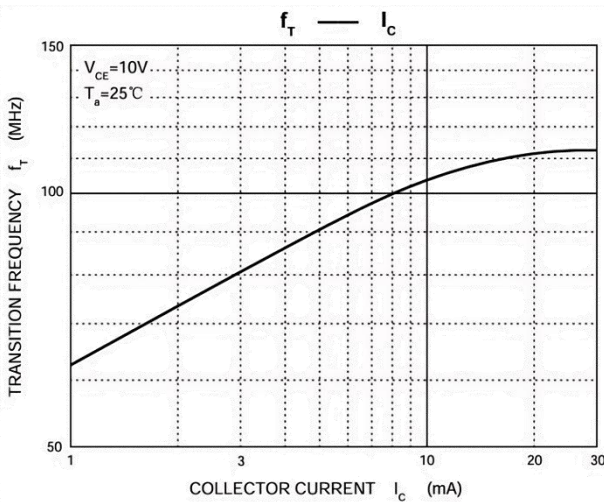
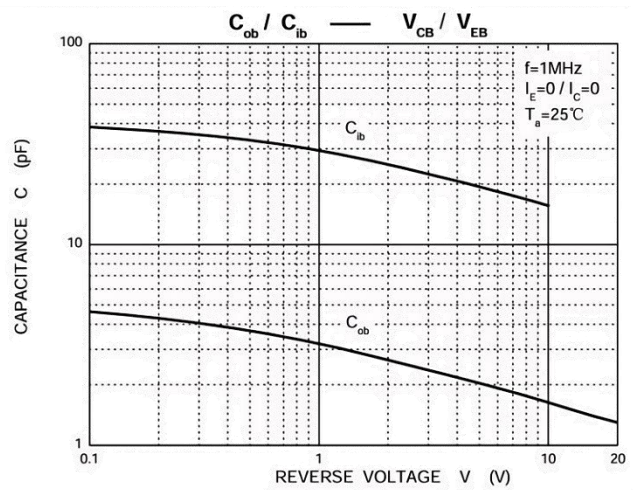
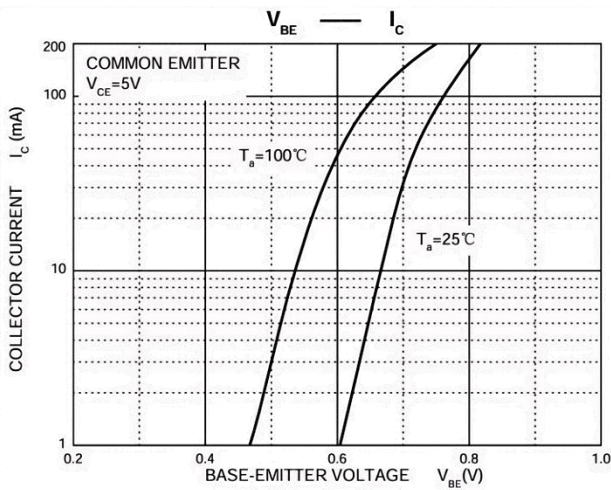
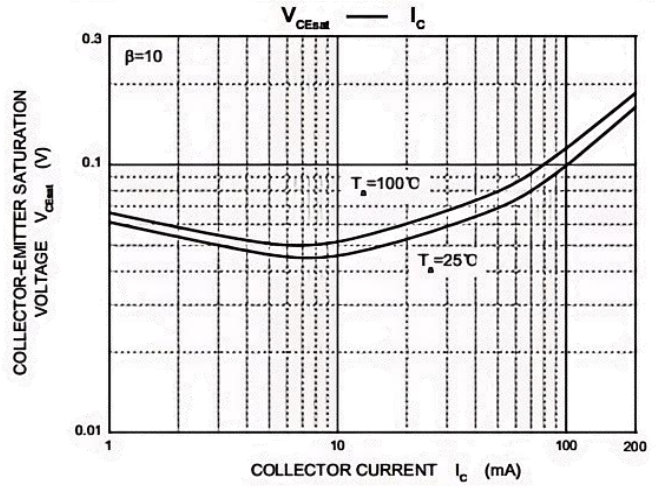
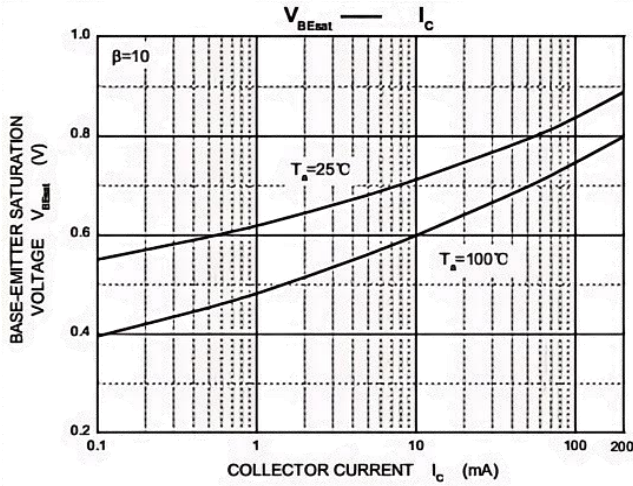




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## TYPICAL CHARACTERISTICS(Con.t)







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## SOT23 PACKAGE OUTLINE DIMENSIONS

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Note:  
1. Controlling dimension: in millimeters.  
2. General tolerance: ±0.05mm.  
3. The pad layout is for reference purposes only.

## REEL PACKING

Top cover tape thickness 0.10mm(0.004") max.thick

Embossed carrier tape

Trailer Tape 50±2 Empty Pockets

Components

Leader Tape 100±2 Empty Pockets

Dimensions are in millimeter										
PKG TYPE	A	B	C	d	E	F	Po	P	P1	W
SOT-23	3.15	2.77	1.22	Φ1.50	1.75	3.50	4.00	4.00	2.00	8.00
Reel Optiom	D	D1	D2	G	H	I	W1	W2	Q.TY PER REEL	
7" Dia	Φ178.0	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30	3000PCS	
13"Dia	φ330.0	/	13.00	/	/	R6.50	9.50	12.30	10000PCS	