MMBT5551

DATASHEET

Specification Revision History：

Version	Date	Description
V1.0	2021/04	New
V1.1	2022/03	Modify Ordering Information
V1.2	2024/02	Modify Ordering Information
V1.3	2025/05	Add application precautions and overall typesetting.

Features

※NPN Transistors

※High Voltage Transistors

※Pb-Free Packages are Available

Simplified outline
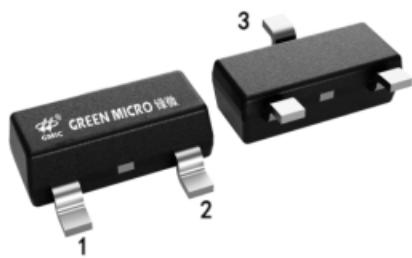
1.Base

2.Emitter

3.Collector

SOT-23

Ordering Information

Product Model	Package Type	Marking	Packing	Packing Qty
MMBT5551-GM	SOT-23	G1	REEL	3000PCS/REEL

Absolute Maximum Ratings Ta＝25 ℃

Parameter	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	180	V
Collector-emitter voltage	V_{CEO}	160	V
Emitter-base voltage	V_{EBO}	6	V
Collector current-continuous	I_C	0.6	
Collector Power Dissipation	P_C	350	mW
Junction and storage temperature	T_J, T_{stg}	-55 to +150	℃

Electrical Characteristics Ta = 25 ℃

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V_{CBO}	$I_C = 100uA$, $I_E = 0$	180			V
Collector-emitter breakdown voltage *	V_{CEO}	$I_C = 1.0\ mA$, $I_B = 0$	160			V
Emitter-base breakdown voltage	V_{EBO}	$I_E = 10uA$, $I_C = 0$	6			V
Collector cutoff current	I_{CBO}	$V_{CB} = 120V$, $I_E = 0$			50	nA
Emitter cutoff current	I_{EBO}	$V_{EB} = 4.0\ V$, $I_C = 0$			50	nA
DC current gain *	h_{FE}	$I_C = 1.0\ mA$, $V_{CE} = 5\ V$	80			
		$I_C = 10\ mA$, $V_{CE} = 5\ V$	100		300	
		$I_C = 50\ mA$, $V_{CE} = 5\ V$	50			
Collector-emitter saturation voltage *	$V_{CE(sat)}$	$I_C = 50\ mA$, $I_B = 5.0\ mA$			0.5	V
Base-emitter saturation voltage *	$V_{BE(sat)}$	$I_C = 50\ mA$, $I_B = 5.0\ mA$			1.0	V
Transiston frequency	f_T	$V_{CE} = 10V$, $I_C = 10mA$, $f = 100MHz$	100			MHz

* Pulse Test: Pulse Width = 300 μs, Duty Cycle=2.0%.

Classification of hfe(2)

Type	MMBT5551
Range	100-300

Typical Characteristics

Static Characteristic

h_{FE} — I_C

V_{BEsat} — I_C

V_{CEsat} — I_C

V_{BE} — I_C

C_{ob} / C_{ib} — V_{CB} / V_{EB}

f_T — I_C

P_C — T_a
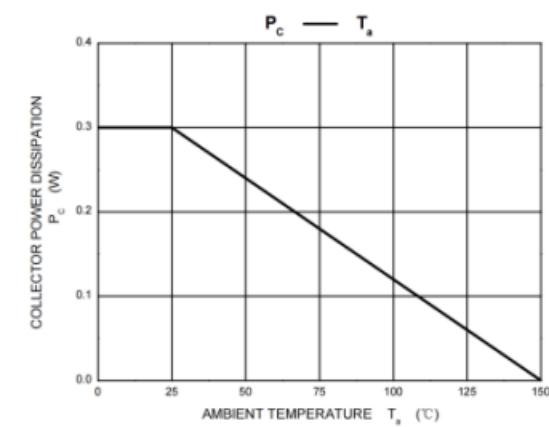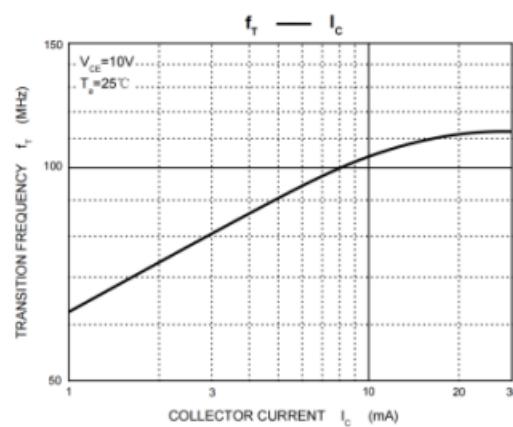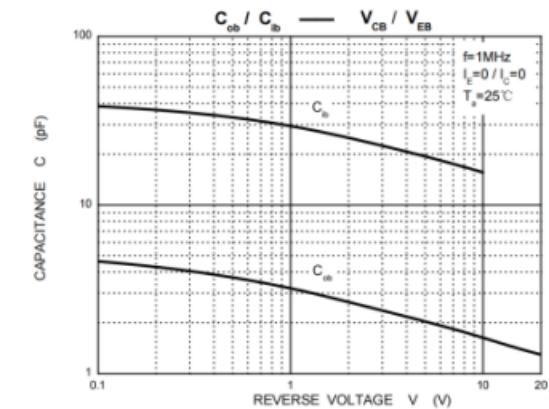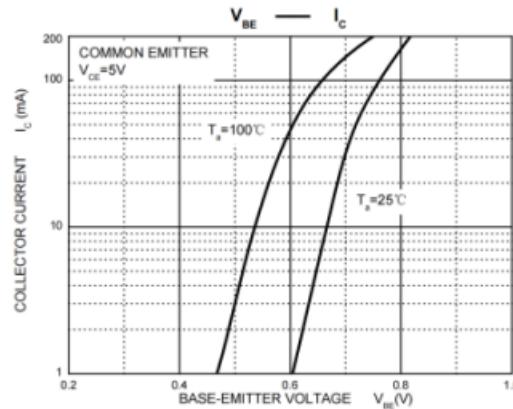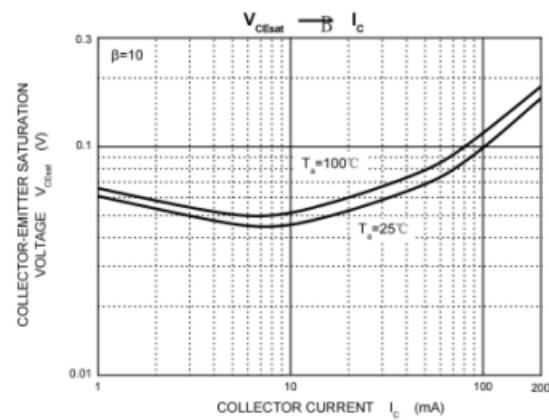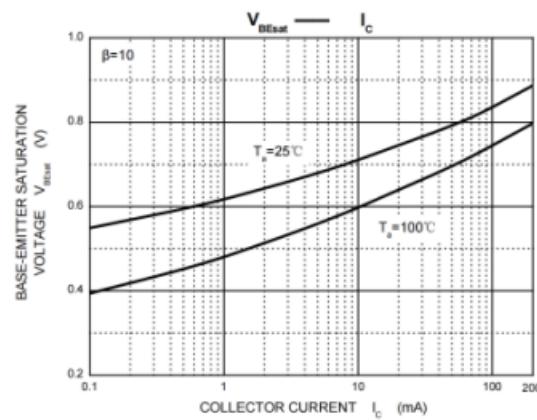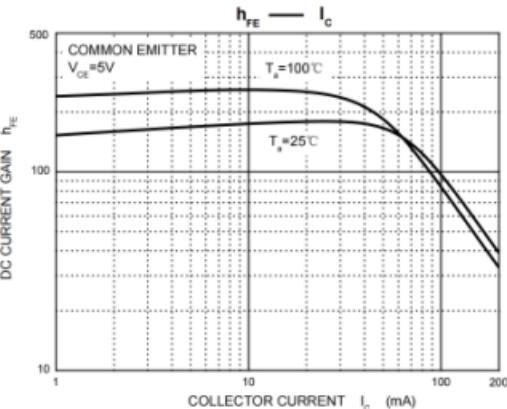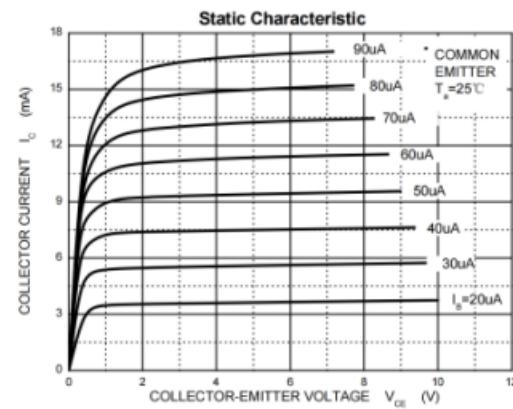
Outline Dimensions

SOT-23   **Unit : mm**
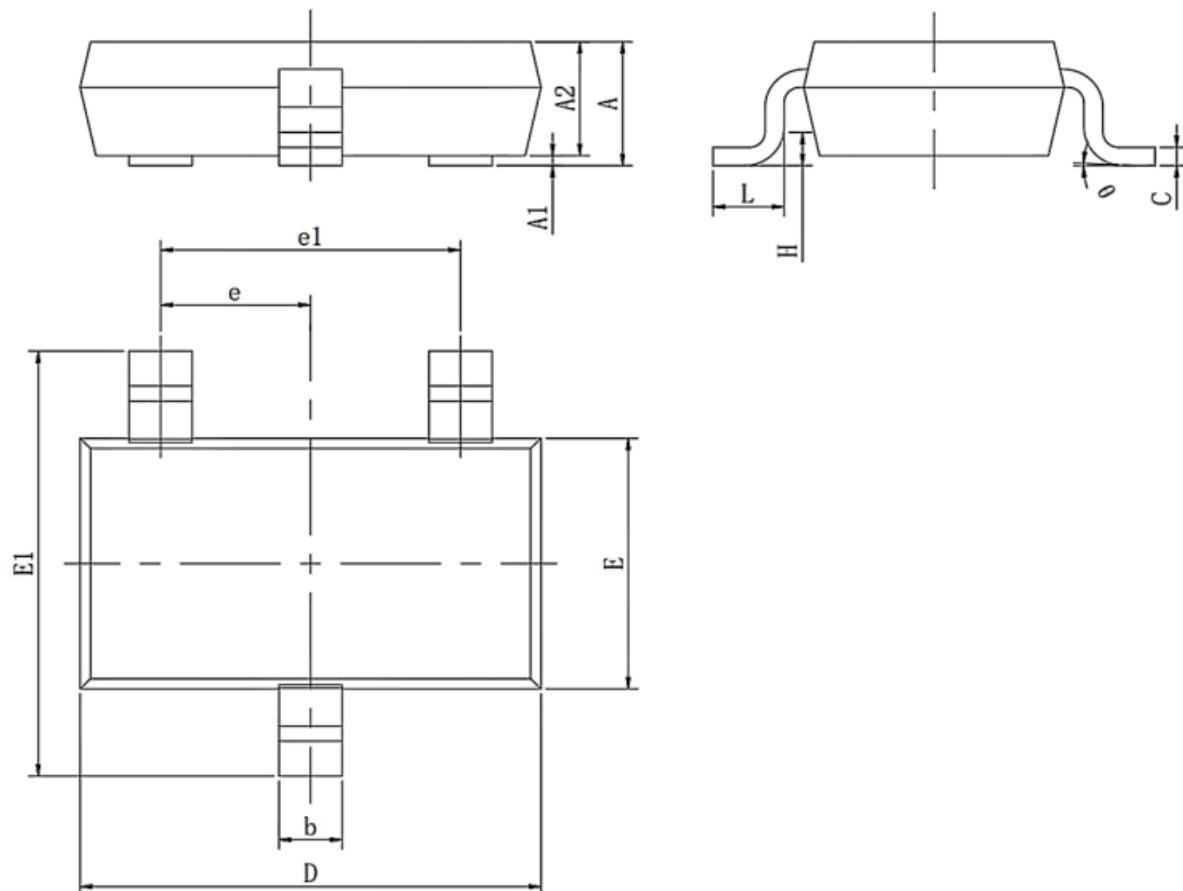
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
C	0.080	0.200	0.003	0.008
D	2.800	3.020	0.110	0.119
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.95 (BSC)		0.037(BSC)	
e1	1.90 (BSC)		0.075(BSC)	
L	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

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