



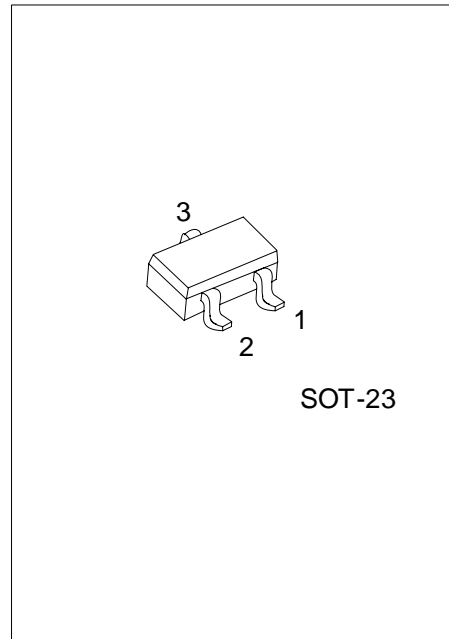
## MMBT5551

NPN EPITAXIAL SILICON TRANSISTOR

### HIGH VOLTAGE SWITCHING TRANSISTOR

#### ■ FEATURES

- \* High Collector-Emitter Voltage:  
V<sub>CEO</sub>=160V
- \* High current gain



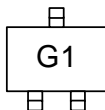
\*Pb-free plating product number:MMBT5551L

#### ■ ORDERING INFORMATION

Order Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
MMBT5551-x-AE3-6-R	MMBT5551L-x-AE3-6-R	SOT-23	E	B	C	Tape Reel

<p>MMBT5551L-x-AE3-6-R</p> <ul style="list-style-type: none"> <li>(1)Packing Type</li> <li>(2)Pin Assignment</li> <li>(3)Package Type</li> <li>(4)Rank</li> <li>(5)Lead Plating</li> </ul>	<ul style="list-style-type: none"> <li>(1) R: Tape Reel</li> <li>(2) refer to Pin Assignment</li> <li>(3) AE3: SOT-23</li> <li>(4) x: refer to Classification of h<sub>FE</sub></li> <li>(5) L: Lead Free Plating, Blank: Pb/Sn</li> </ul>
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#### ■ MARKING



# MMBT5551

## NPN EPITAXIAL SILICON TRANSISTOR

### ■ ABSOLUTE MAXIMUM RATINGS (Ta = 25 °C)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector -Base Voltage	V <sub>CBO</sub>	180	V
Collector -Emitter Voltage	V <sub>CEO</sub>	160	V
Emitter -Base Voltage	V <sub>EBO</sub>	6	V
DC Collector Current	I <sub>C</sub>	600	mA
Power Dissipation	P <sub>D</sub>	350	mW
Operating and Storage Junction Temperature	T <sub>J</sub> , T <sub>STG</sub>	-55 ~ +150	

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.

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	V <sub>CBO</sub>	I <sub>C</sub> =100μA, I <sub>E</sub> =0	180			V
Collector-Emitter Breakdown Voltage	V <sub>CEO</sub>	I <sub>C</sub> =1mA, I <sub>B</sub> =0	160			V
Emitter-Base Breakdown Voltage	V <sub>EBO</sub>	I <sub>E</sub> =10μA, I <sub>C</sub> =0	6			V
Collector Cut-off Current	I <sub>CBO</sub>	V <sub>CB</sub> =120V, I <sub>E</sub> =0			50	nA
Emitter Cut-off Current	I <sub>EBO</sub>	V <sub>BE</sub> =4V, I <sub>C</sub> =0			50	nA
DC Current Gain(note)	h <sub>FE</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =1mA	80	160	400	
		V <sub>CE</sub> =5V, I <sub>C</sub> =10mA	80			
		V <sub>CE</sub> =5V, I <sub>C</sub> =50mA	80			
Collector-Emitter Saturation Voltage	V <sub>CE(SAT)</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =1mA I <sub>C</sub> =50mA, I <sub>B</sub> =5mA			0.15 0.2	V
Base-Emitter Saturation Voltage	V <sub>BE(SAT)</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =1mA I <sub>C</sub> =50mA, I <sub>B</sub> =5mA			1 1	V
Current Gain Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =10mA, f=100MHz	100		300	MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10V, I <sub>E</sub> =0, f=1MHz			6.0	pF
Noise Figure	N <sub>F</sub>	I <sub>C</sub> =0.25mA, V <sub>CE</sub> =5V R <sub>S</sub> =1kΩ, f=10Hz ~ 15.7kHz			8	dB

Note: Pulse test: PW<300μs, Duty Cycle<2%

### ■ CLASSIFICATION OF h<sub>FE</sub>

RANK	A	B	C
RANGE	80-170	150-240	200-400



## TYPICAL CHARACTERISTICS

Fig.1 Collector Output Capacitance

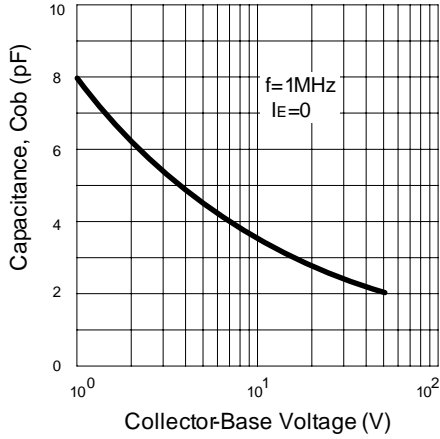


Fig.2 DC Current Gain

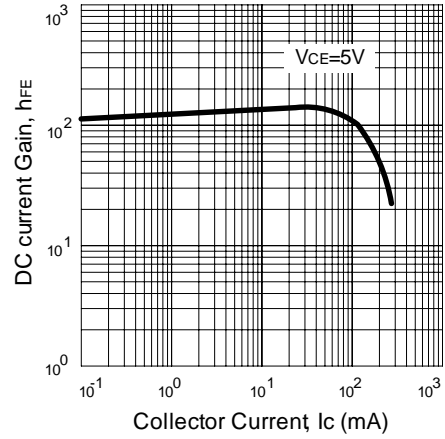


Fig.3 Base-Emitter on Voltage

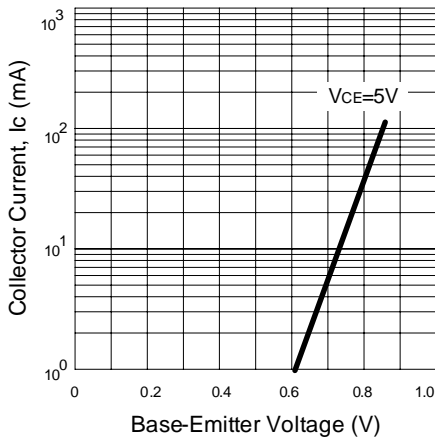


Fig.4 Saturation Voltage

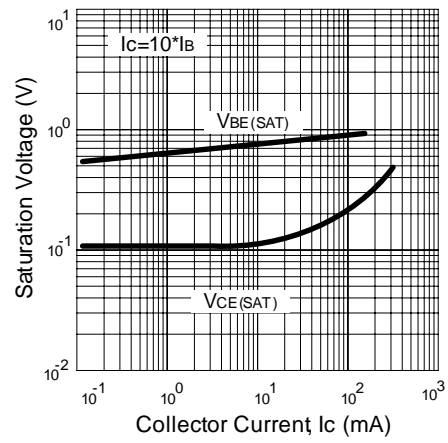
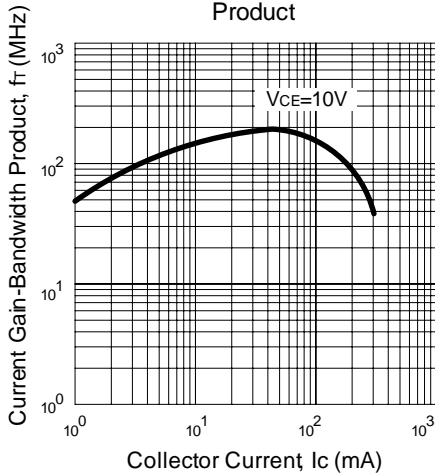


Fig.5 Current Gain-Bandwidth Product



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