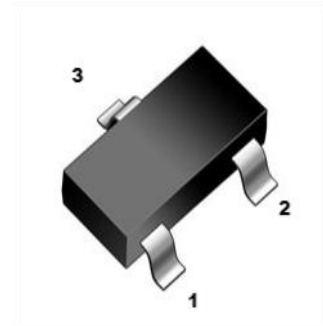




1. Features

- Complementary To MMBT5401
- Collector Current.($I_C = 0.6A$)
- For linear amplification and switching
- Collector Dissipation: $P_C=0.3W$ ($T_a=25^{\circ}C$)

SOT-23



1 base
2 emitter
3 collector

2. Mechanical Data

- Case:Molded Plastic,SOT-23.
- Epoxy:UL 94V-0 rate flame retardant.
- Terminals:Plated Leads Solderable per MIL-STD-750,Method-2026.
- Mounting Position : Any.
- Marking:G1

3. Maximum Ratings

Electrical Characteristics Rating at $25^{\circ}C$ ambient temperature unless otherwise specified.

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	180	V
Collector-Emitter Voltage	V_{CEO}	160	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	0.6	A
Collector Power Dissipation	P_C	300	mW
Junction Temperature	T_j	$-55 \sim +150$	$^{\circ}C$
Storage Temperature	T_{stg}	$-55 \sim +150$	$^{\circ}C$



4. Electrical Characteristics ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Characteristics	Symbol	Condition	Min	TYP	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}, I_E=0$	180	-	-	V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, I_B=0$	160	-	-	V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}, I_C=0$	6	-	-	V
Collector cut-off current	I_{CBO}	$V_{CB}=120\text{V}, I_E=0$	-	-	50	nA
Emitter cut-off current	I_{EBO}	$V_{EB}=4\text{V}, I_C=0$	-	-	50	nA
DC current gain	h_{FE1}	$V_{CE}=5\text{V}, I_C=1\text{mA}$	80	-	-	-
	h_{FE2}	$V_{CE}=5\text{V}, I_C=10\text{mA}$	100	-	300	-
	h_{FE3}	$V_{CE}=5\text{V}, I_C=50\text{mA}$	50	-	-	-
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=50\text{mA}, I_B=5\text{mA}$	-	-	0.2	V
Base-emitter voltage	$V_{BE(sat)}$	$I_C=50\text{mA}, I_B=5\text{mA}$	-	-	1	V
Transition frequency	f_T	$V_{CE}=10\text{V}, I_C=50\text{mA}, f=100\text{MHz}$	100	-	300	MHz
Collector output capacitance	C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$	-	-	6	pF



5. Rating And Characteristic Curves

Fig.1 Max Power Dissipation vs Ambient Temperature

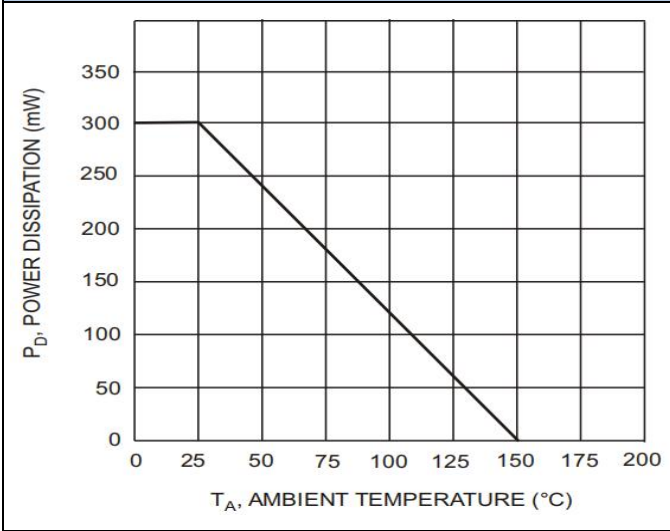


Fig.2 Collector Emitter Saturation Voltage vs. Collector Current

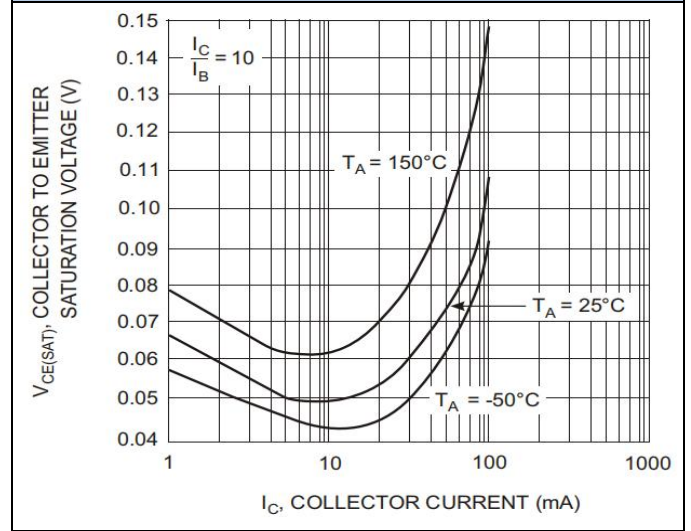


Fig.3 DC Current Gain vs. Collector Current

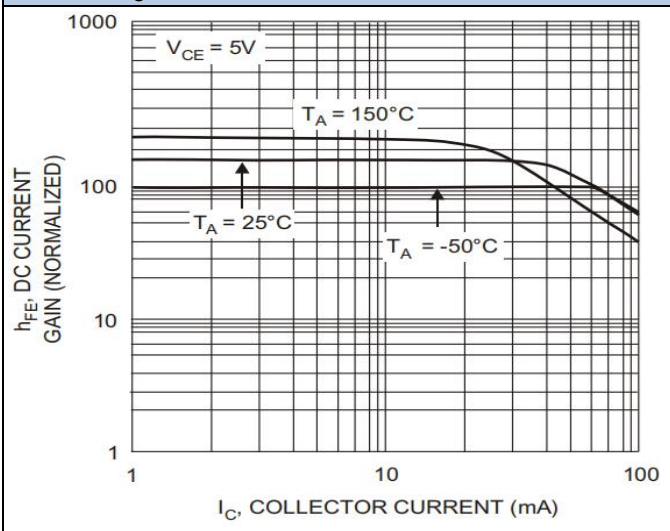


Fig.4 Base-Emitter Voltage vs. Collector Current

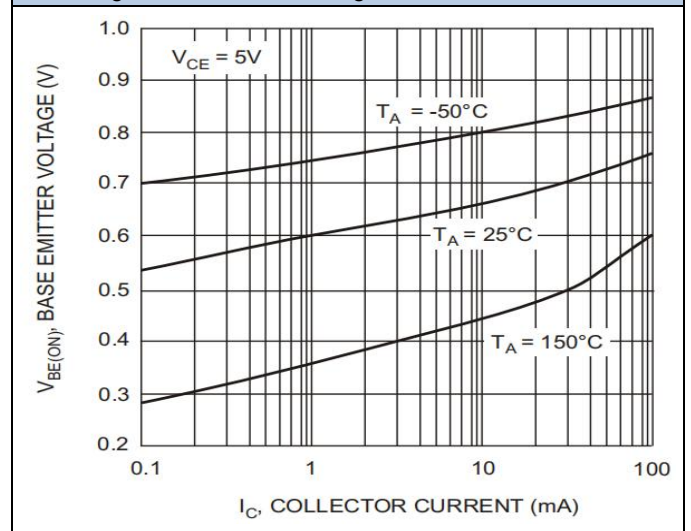
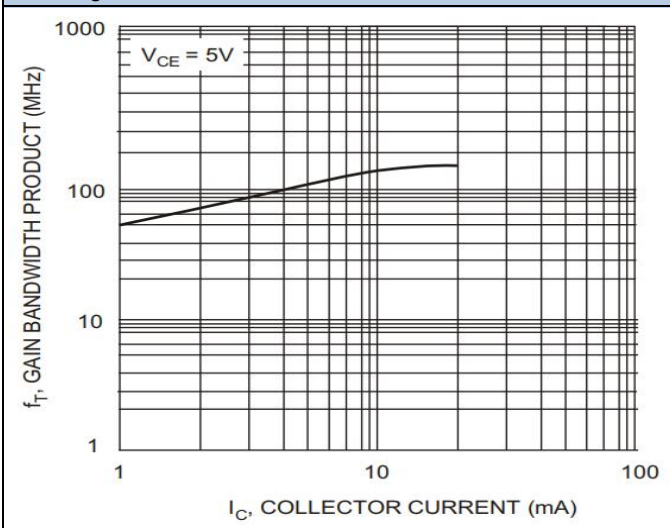
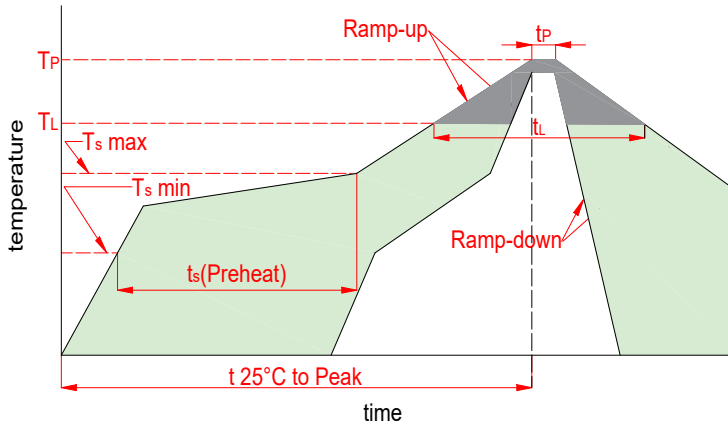


Fig.5 Gain Bandwidth Product vs. Collector Current



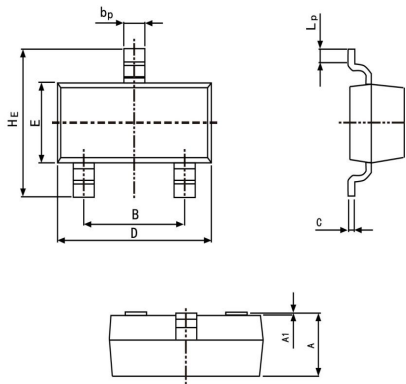


5. Soldering Parameters



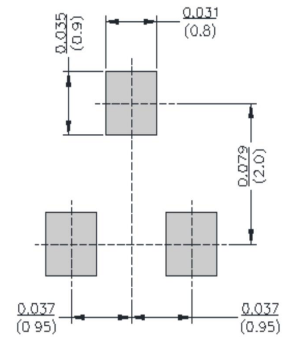
Reflow Condition		Lead-free
Pre Heat	Temp. min(T_s (min))	150℃
	Temp. max(T_s (min))	200℃
	Time(min to max)(t_s)	60~120s
Aver. ramp up rate(Liquidus Temp.)(T_L)to peak		3℃/s max
T_s (max) to T_L -Ramp-up Rate		3℃/s max
Reflow	Temp.(T_L)(Liquidus)	217℃
	Temp.(t_L)(Liquidus)	60~150s
Peak Temp.(T_P)		260 ^{+0/-5} ℃
Time within actual peak Temp.(t_p)		30s max
Ramp-down Rate		6℃/s max
Time 25℃ to peak Tempe.(T_P)		8 minutes max
Do not exceed		260℃

6. Dimensions

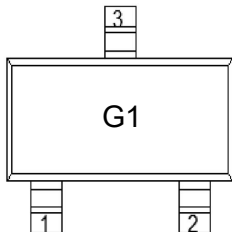


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.035	0.045	0.90	1.15
B	0.070	0.081	1.78	2.05
bp	0.012	0.020	0.30	0.51
C	0.003	0.007	0.08	0.18
D	0.110	0.118	2.80	3.00
E	0.047	0.055	1.20	1.40
HE	0.087	0.110	2.20	2.80
A1	0.000	0.004	0.00	0.10
LP	0.008	0.020	0.20	0.50

Mounting PAD Layout



7. Part Marking System



8. Package Information

Package	Part Number	Tape Width(mm)	Quantity(pcs)
SOT-23	MMBT5551	8	3000



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