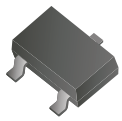
General Purpose Transistor

MMBT5551-G (NPN)

RoHS Device

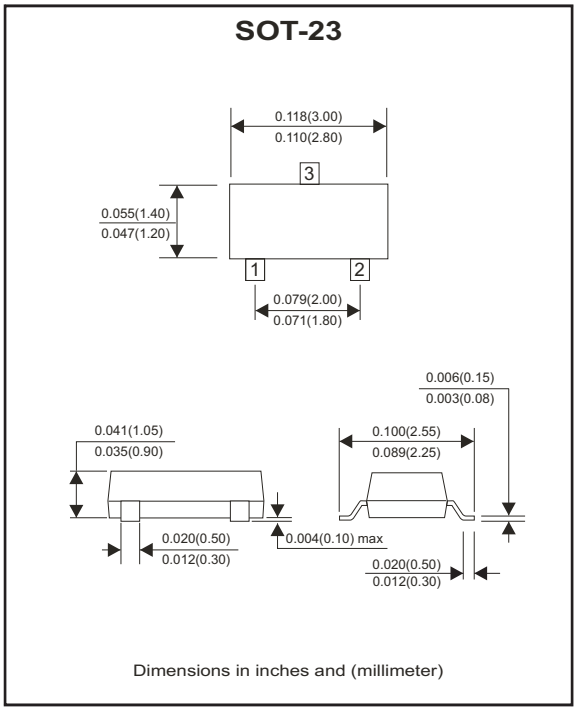


Features

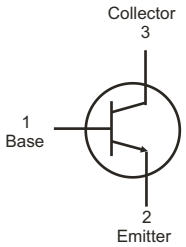
- Epitaxial planar die construction.
- Complementary PNP type available (MMBT5401-G).
- Ideal for medium power amplification and switching.

Mechanical data

- Case: SOT-23, molded plastic.
- Terminals: Solderable per MIL-STD-750, method 2026.
- Approx. weight: 0.008 grams(approx.).



Circuit Diagram:



Maximum Ratings (at T_A=25°C unless otherwise noted)

Parameter	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	600	mA
Collector power dissipation	P_C	300	mW
Thermal resistance from junction to ambient	$R_{\theta JA}$	416	°C/W
Junction temperature range	T_J	150	°C
Storage temperature range	T_{STG}	-55 ~ +150	°C

Electrical Characteristics (at T_A=25°C unless otherwise noted)

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Collector-base breakdown voltage	I_C=100μA, I_E=0	$V_{(BR)CBO}$	180			V
Collector-emitter breakdown voltage	I_C=1mA, I_B=0	$V_{(BR)CEO}$*	160			V
Emitter-base breakdown voltage	I_E=10μA, I_C=0	$V_{(BR)EBO}$	6			V
Collector cut-off current	V_{CB}=120V, I_E=0	I_{CBO}			50	nA
Emitter cut-off current	V_{EB}=4V, I_C=0	I_{EBO}			50	nA
DC current gain	V_{CE}=5V, I_C=1mA	$h_{FE(1)}$*	80			
	V_{CE}=5V, I_C=10mA	$h_{FE(2)}$*	100		200	
	V_{CE}=5V, I_C=50mA	$h_{FE(3)}$*	50			
Collector-emitter saturation voltage	I_C=10mA, I_B=1mA	$V_{CE(sat)1}$*			0.15	V
	I_C=50mA, I_B=5mA	$V_{CE(sat)2}$*			0.20	V
Base-emitter saturation voltage	I_C=10mA, I_B=1mA	$V_{BE(sat)1}$*			1	V
	I_C=50mA, I_B=5mA	$V_{BE(sat)2}$*			1	V
Transition frequency	V_{CE}=10V, I_C=10mA, f=100MHz	f_T	100		300	MHz
Collector output capacitance	V_{CB}=10V, I_E=0, f=1MHz	Cob			6	pF

*Pulse test: pulse width ≤300μs, duty cycle≤2.0%

RATING AND CHARACTERISTIC CURVES (MMBT5551-G)

Fig.1 - Static Characteristic

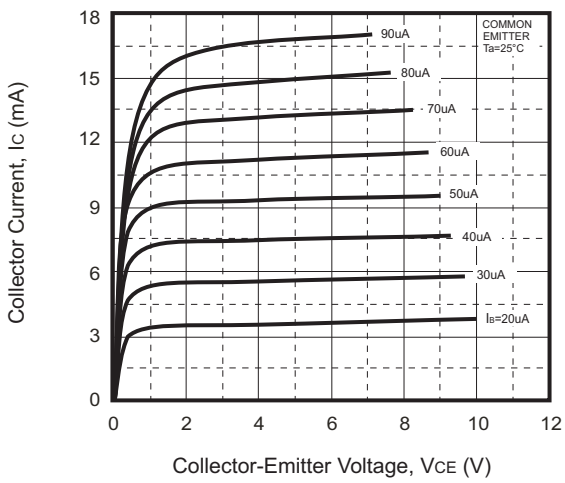
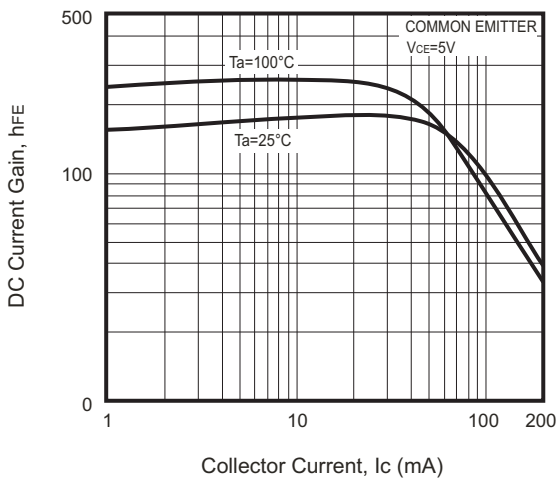


Fig.2 - h_{FE} — I_C



RATING AND CHARACTERISTIC CURVES (MMBT5551-G)

Fig.3 - V_{BEsat} — I_C

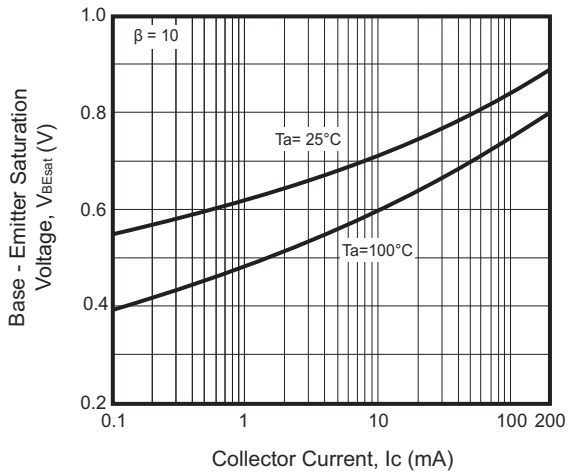


Fig.4 - V_{CEsat}—I_C

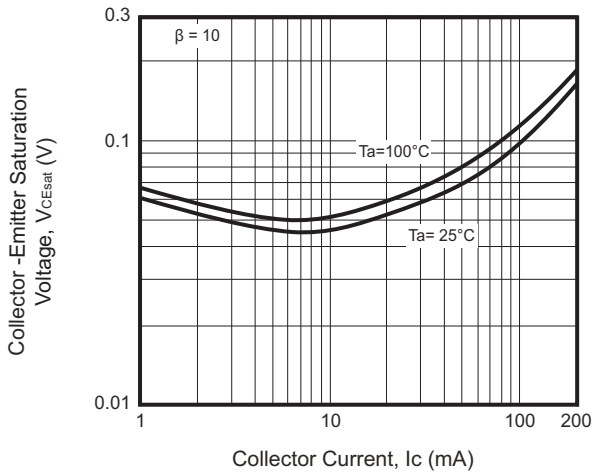


Fig.5 - I_C — V_{BE}

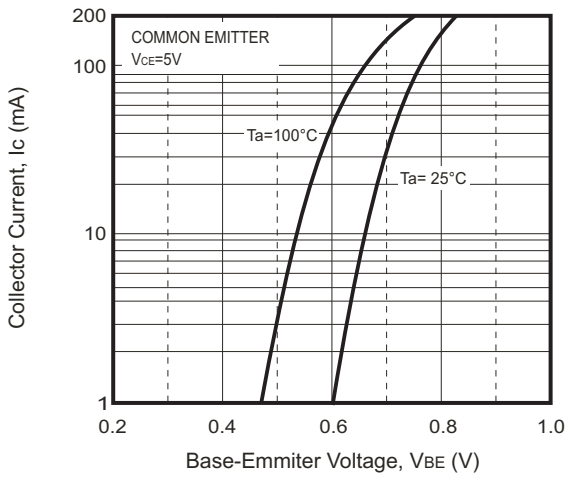


Fig.7 - C_{ob}/C_{ib} — V_{CB}/V_{EB}

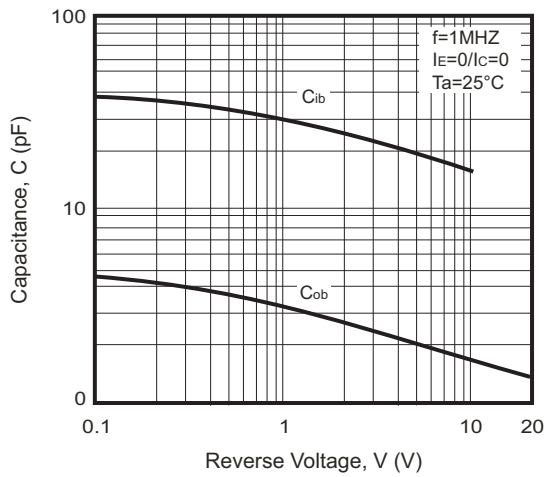


Fig.7 - F_T — I_C

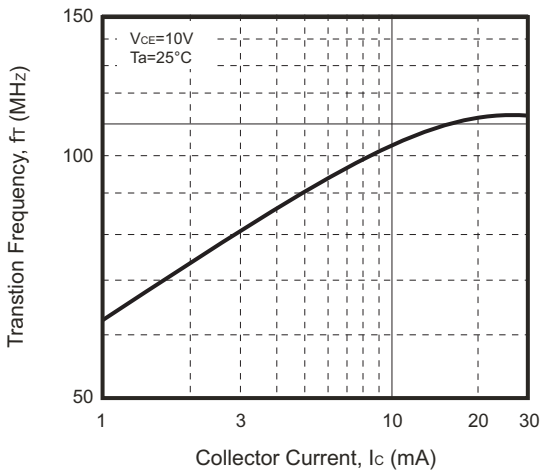
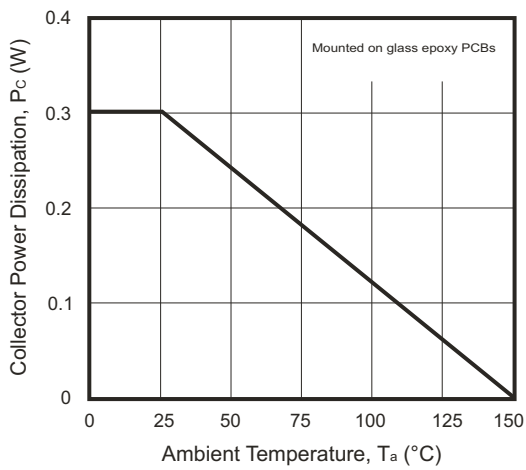
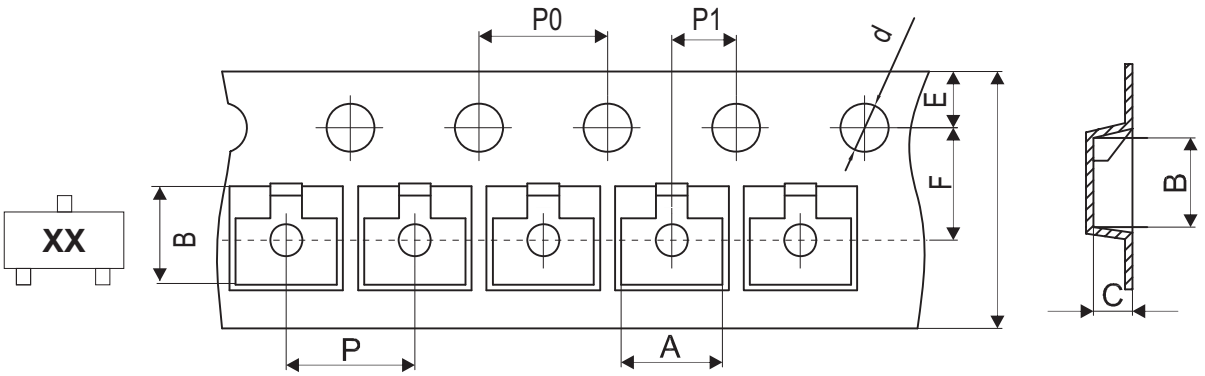
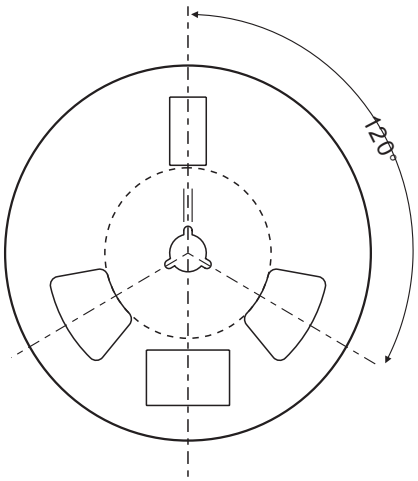


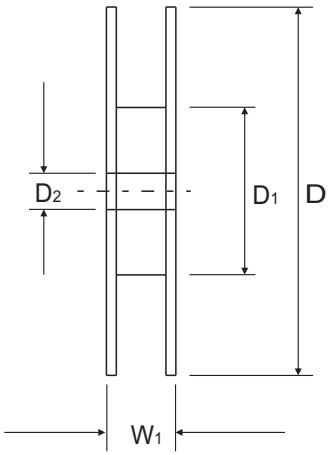
Fig.8 - P_C — Ta

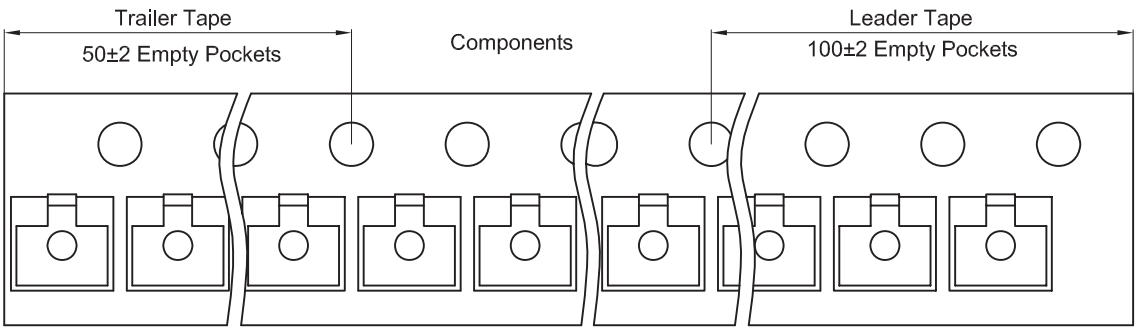


Reel Taping Specification







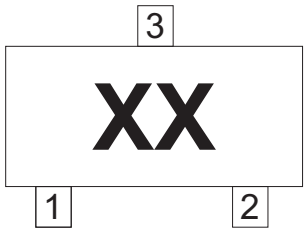


	SYMBOL	A	B	C	d	D	D_1	D_2
SOT-23	(mm)	3.15 ± 0.10	2.77 ± 0.10	1.22 ± 0.10	1.50 ± 0.10	178.00 ± 2.00	54.40 ± 1.00	13.00 ± 1.00
	(inch)	0.124 ± 0.004	0.109 ± 0.004	0.048 ± 0.004	0.059 ± 0.004	7.008 ± 0.079	2.142 ± 0.039	0.512 ± 0.039

	SYMBOL	E	F	P	P_0	P_1	W	W_1
SOT-23	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	8.00 + 0.30 / - 0.10	12.30 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.004	0.315 + 0.012 / - 0.004	0.484 ± 0.039

Marking Code

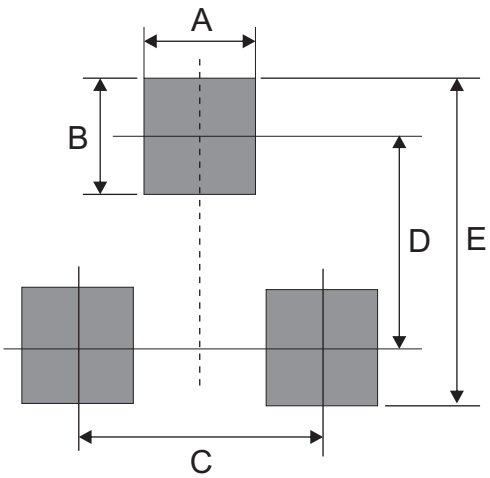
Part Number	Marking Code
MMBT5551-G	G1



xx = Product type marking code

Suggested PAD Layout

SIZE	SOT-23	
	(mm)	(inch)
A	0.60	0.024
B	0.80	0.031
C	1.90	0.075
D	2.02	0.080
E	2.82	0.111



Standard Packaging

Case Type	Qty Per Reel	Reel Size
	(Pcs)	(inch)
SOT-23	3,000	7