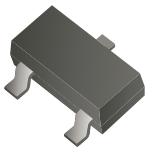


MMBT5551-P2-HF (NPN)

RoHS Device

Halogen Free



Features

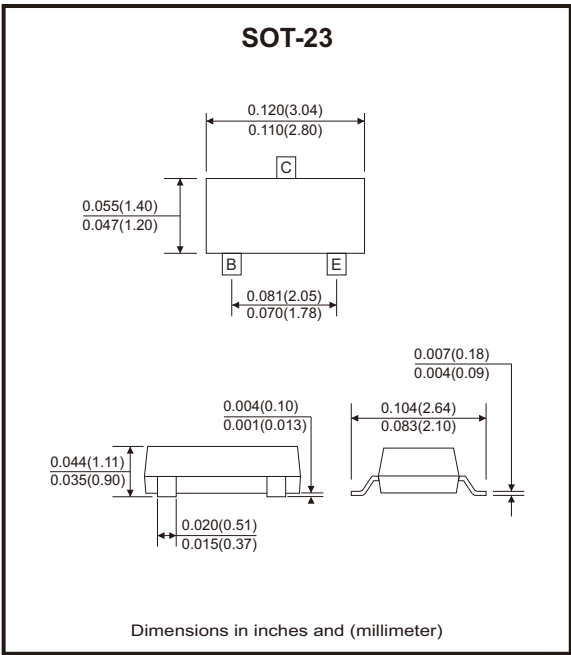
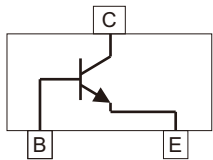
- Capable of 300mW of power dissipation.
- Surface mount SOT-23 package.

Mechanical data

- Case: SOT-23, molded plastic.
- Terminals: Solderable per MIL-STD-750, method 2026.
- Mounting position: Any.

Circuit Diagram

B: Base
E: Emitter
C: Collector



Maximum Ratings (at $T_A=25^{\circ}\text{C}$ 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_D	300	mW
Thermal resistance from junction to ambient	$R_{\theta JA}$	416	$^{\circ}\text{C/W}$
Junction temperature	T_J	150	$^{\circ}\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^{\circ}\text{C}$

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter breakdown voltage	V_{CEO}	$I_C = 1\text{mA}$, $I_B = 0$	160			V
Collector-base breakdown voltage	V_{CBO}	$I_C = 100\mu\text{A}$, $I_E = 0$	180			V
Emitter-base breakdown voltage	V_{EBO}	$I_E = 100\mu\text{A}$, $I_C = 0$	6			V
Collector-base cut-off current	I_{CBO}	$V_{CB} = 120\text{V}$, $I_E = 0$			50	nA
Emitter cut-off current	I_{EBO}	$V_{EB} = 4\text{V}$, $I_C = 0\text{V}$			50	nA
DC current gain	$h_{FE(1)}$	$I_C = 1\text{mA}$, $V_{CE} = 5\text{V}$	80			
	$h_{FE(2)}$	$I_C = 10\text{mA}$, $V_{CE} = 5\text{V}$	100		300	
	$h_{FE(3)}$	$I_C = 50\text{mA}$, $V_{CE} = 5\text{V}$	50			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 10\text{mA}$, $I_B = 1\text{mA}$			0.15	V
		$I_C = 50\text{mA}$, $I_B = 5\text{mA}$			0.2	
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 10\text{mA}$, $I_B = 1\text{mA}$			1	V
		$I_C = 50\text{mA}$, $I_B = 5\text{mA}$			1	
Transition frequency	f_r	$I_C = 10\text{mA}$, $V_{CE} = 10\text{V}$, $f = 100\text{MHz}$	100		300	MHz
Collector output capacitance	C_{ob}	$V_{CB} = 10\text{V}$, $I_E = 0$, $f = 1\text{MHz}$			6	pF

Typical Rating and Characteristic Curves (MMBT5551-P2-HF)

Fig.1 - Static Characteristic

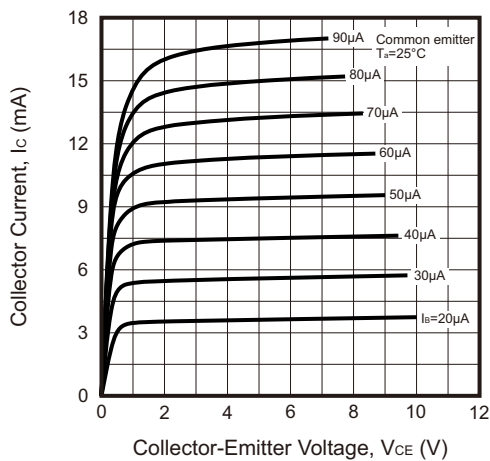
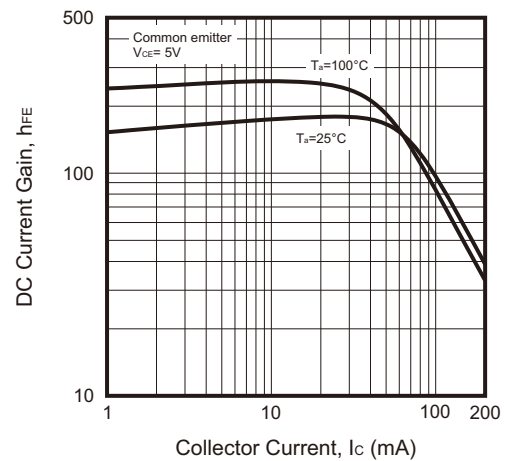


Fig.2 - $h_{FE} - I_C$



Typical Rating and Characteristic Curves (MMBT5551-P2-HF)

Fig.3 - V_{BEsat} — I_c

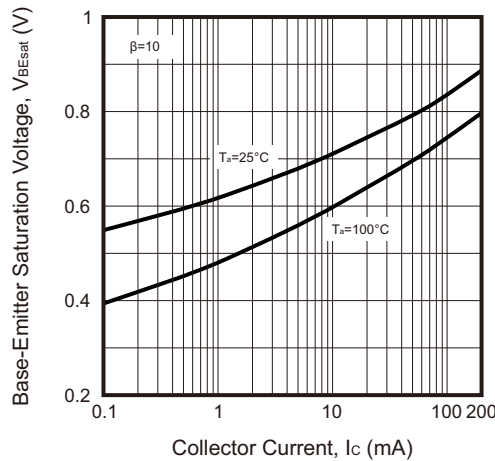


Fig.4 - V_{CEsat} — I_c

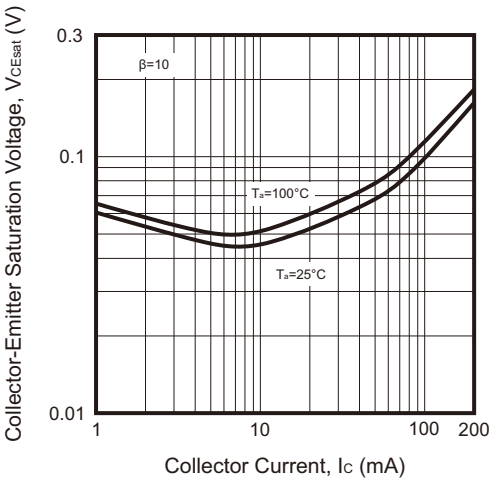


Fig.5 - V_{BE} — I_c

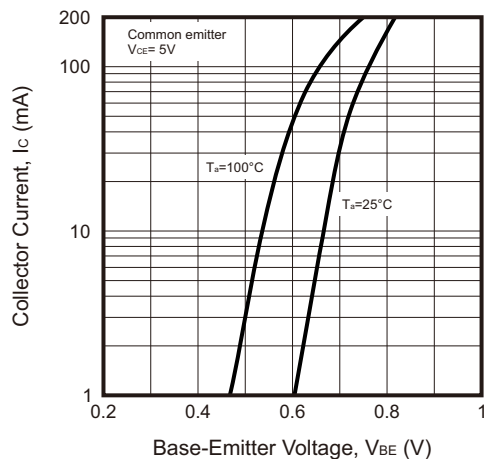


Fig.6 - C_{ob}/C_{ib} — V_{CB}/V_{EB}

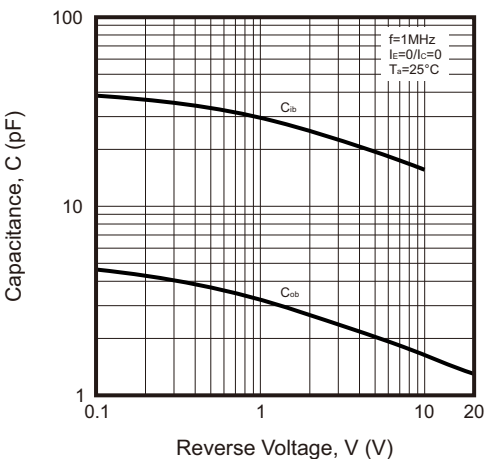


Fig.7 - f_T — I_c

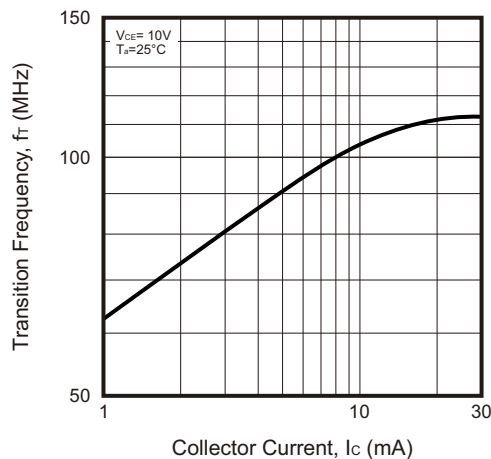
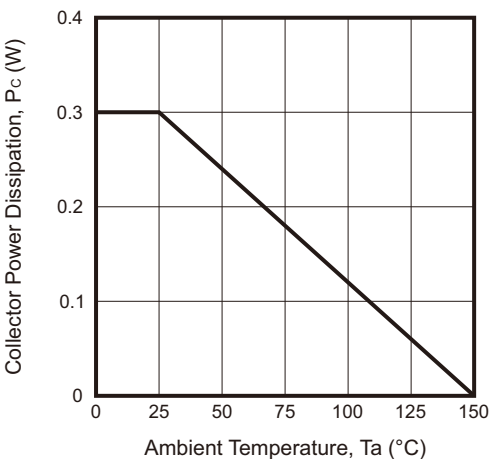
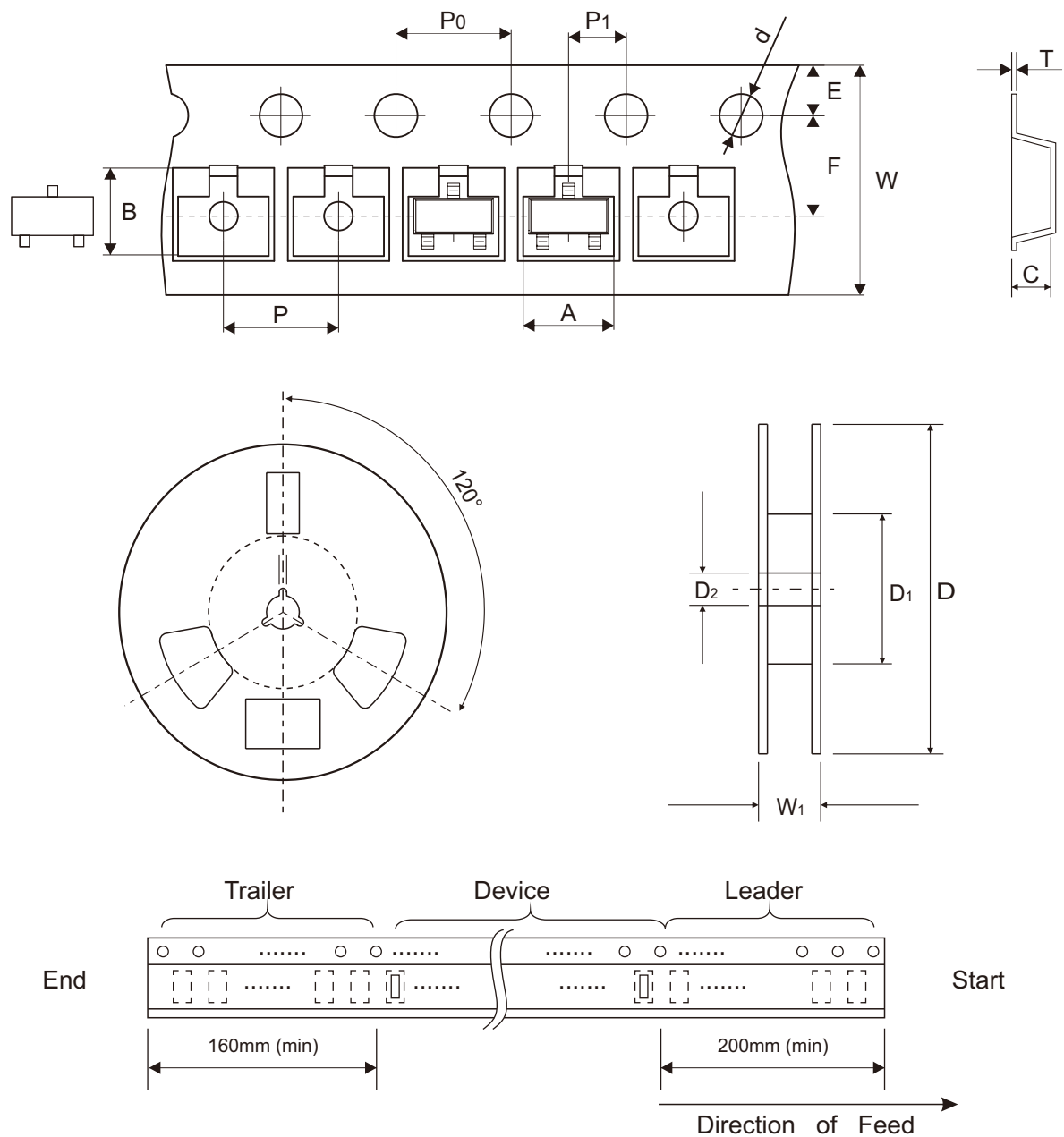


Fig.8 - P_c — T_a



Reel Taping Specification

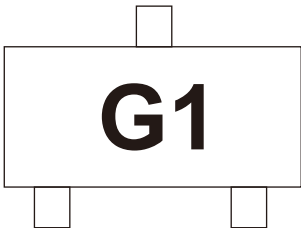


SOT-23	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.15 ± 0.10	2.77 ± 0.10	1.22 + 0.08 - 0.10	1.50 + 0.10 - 0.00	178.00 ± 2.00	50.00 ± 0.50	13.00 ± 0.25
	(inch)	0.124 ± 0.004	0.109 ± 0.004	0.048 + 0.003 - 0.004	0.059 + 0.004 - 0.000	7.008 ± 0.079	1.969 ± 0.020	0.512 ± 0.010

SOT-23	SYMBOL	E	F	P	P0	P1	T	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.20 ± 0.02	8.00 + 0.30 - 0.10	9.50 ± 0.50
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.008 ± 0.001	0.315 + 0.012 - 0.004	0.374 ± 0.020

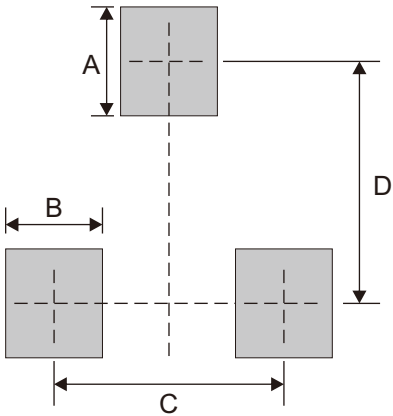
Marking Code

Part Number	Marking Code
MMBT5551-P2-HF	G1



Suggested P.C.B. PAD Layout

SIZE	SOT-23	
	(mm)	(inch)
A	0.90	0.035
B	0.80	0.031
C	1.90	0.075
D	2.00	0.079



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-23	3,000	7