

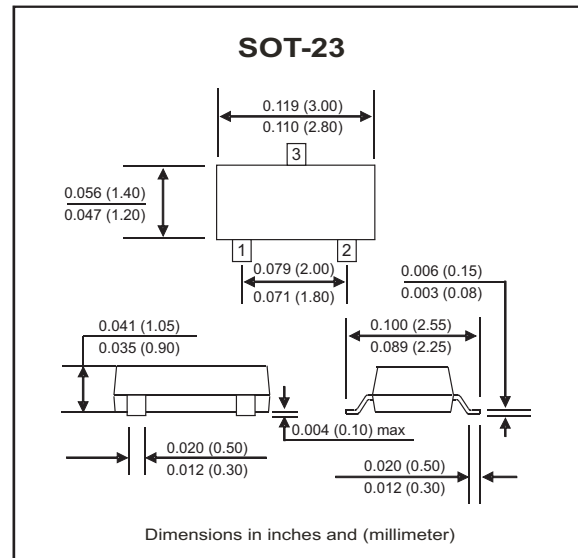
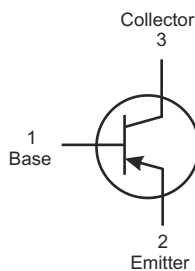
MMBT3906-HF (PNP)

RoHS Device
Halogen Free



Features

- Epitaxial planar die construction
- As complementary type, the NPN transistor MMBT3906-HF is recommended



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

Parameter	Symbol	Min	Typ	Max	Unit
Collector-Base voltage	V_{CBO}			-40	V
Collector-Emitter voltage	V_{CEO}			-40	V
Emitter-Base voltage	V_{EBO}			-5	V
Collector current-Continuous	I_C			-0.2	A
Collector dissipation	P_C			0.3	W
Storage temperature and junction temperature	T_{STG}, T_J	-55		+150	°C

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

Parameter	Conditions	Symbol	Min	Max	Unit
Collector-Base breakdown voltage	$I_C = -100\mu A, I_E = 0$	$V_{(BR)CBO}$	-40		V
Collector-Emitter breakdown voltage	$I_C = -1mA, I_B = 0$	$V_{(BR)CEO}$	-40		V
Emitter-Base breakdown voltage	$I_E = -100\mu A, I_C = 0$	$V_{(BR)EBO}$	-5		V
Collector cut-off current	$V_{CB} = -40V, I_E = 0$	I_{CBO}		-0.1	μA
Collector cut-off current	$V_{CE} = -40V, I_B = 0$	I_{CEO}		-0.1	μA
Emitter cut-off current	$V_{EB} = -5V, I_C = 0$	I_{EBO}		-0.1	μA
DC current gain	$V_{CE} = -1V, I_C = -10mA$	$h_{FE(1)}$	100	300	
	$V_{CE} = -1V, I_C = -50mA$	$h_{FE(2)}$	60		
Collector-Emitter saturation voltage	$I_C = -50mA, I_B = -5mA$	$V_{CE(sat)}$		-0.3	V
Base-Emitter saturation voltage	$I_C = -50mA, I_B = -5mA$	$V_{BE(sat)}$		-0.95	V
Transition frequency	$V_{CE} = -20V, I_C = -10mA$ $f = 100MHz$	f_T	250		Mhz
Delay time	$V_{CC} = -3.0V, V_{BE} = -0.5V$	t_d		35	nS
Rise time	$I_C = -10mA, I_{B1} = -1.0mA$	t_r		35	nS
Storage time	$V_{CC} = -3.0V_{dc}, I_C = -10mA$	t_s		225	nS
Fall time	$I_{B1} = I_{B2} = -1.0mA$	t_f		75	nS

RATING AND CHARACTERISTIC CURVES (MMBT3906-HF)

Fig.1- Static Characteristic

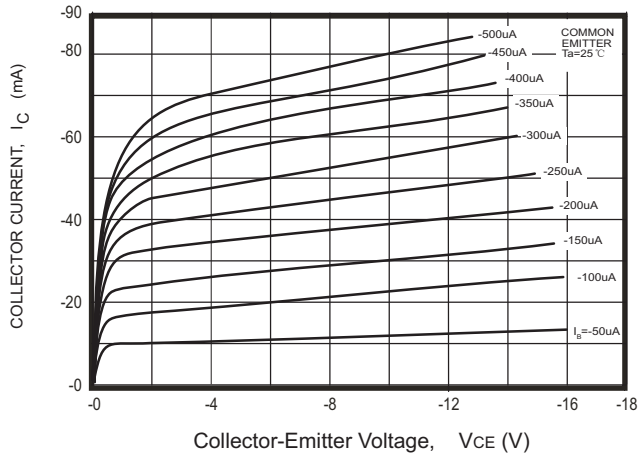


Fig.2- $h_{FE} - I_C$

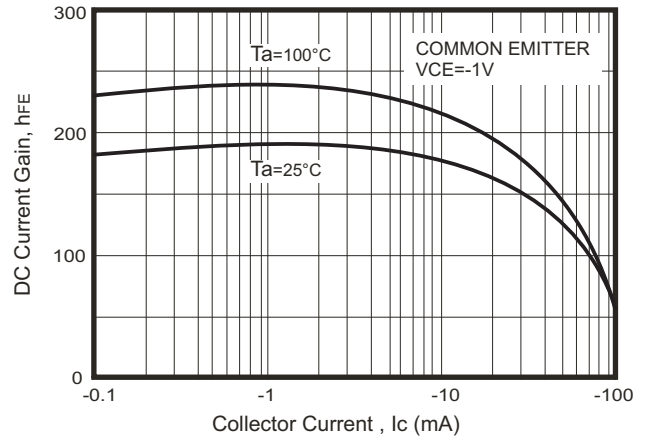


Fig. 3- $V_{CEsat} - I_C$

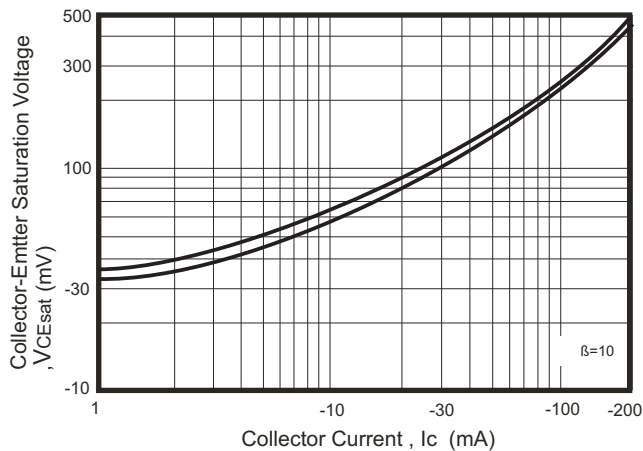


Fig. 4- $V_{BEsat} - I_C$

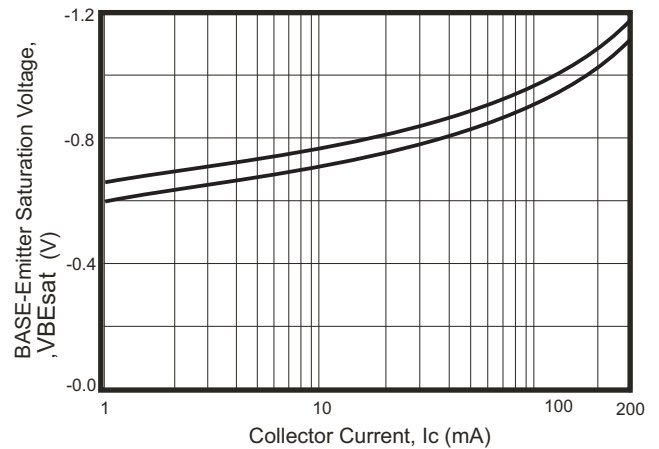


Fig. 5- $I_C - V_{BE}$

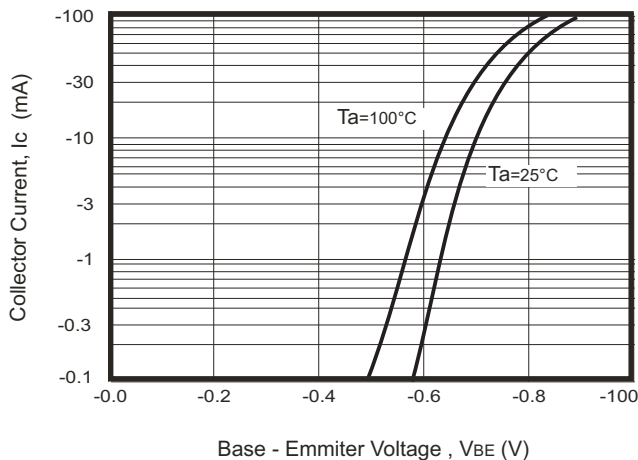
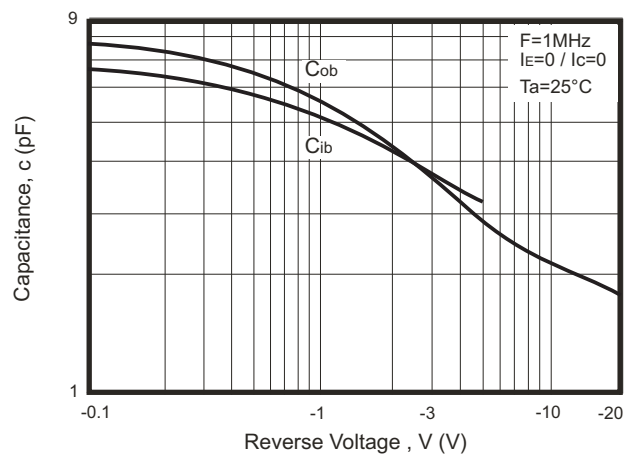


Fig. 6- $C_{ob}/C_{ib} - V_{CB}/V_{EB}$



RATING AND CHARACTERISTIC CURVES (MMBT3906-HF)

Fig. 7- f_T — I_C

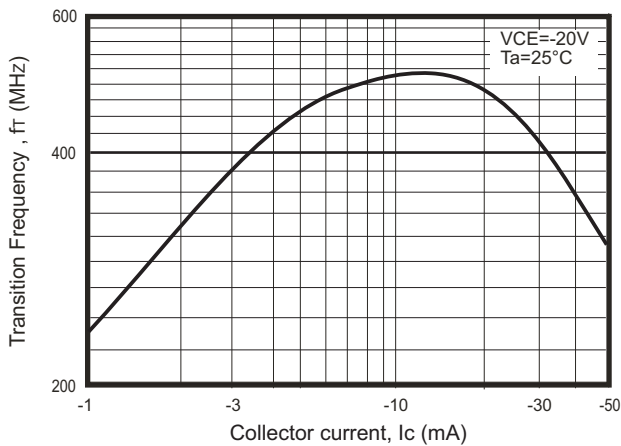
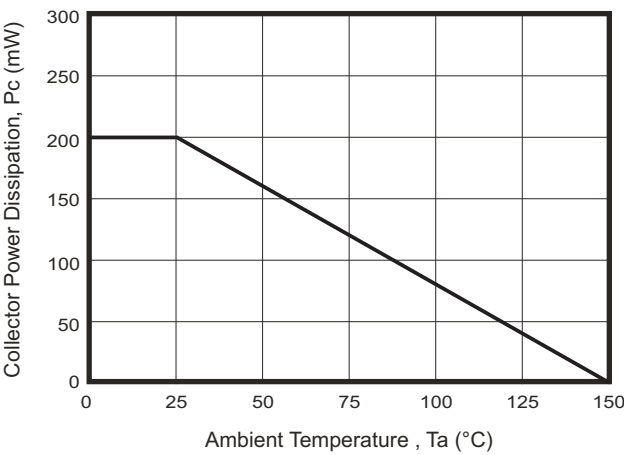
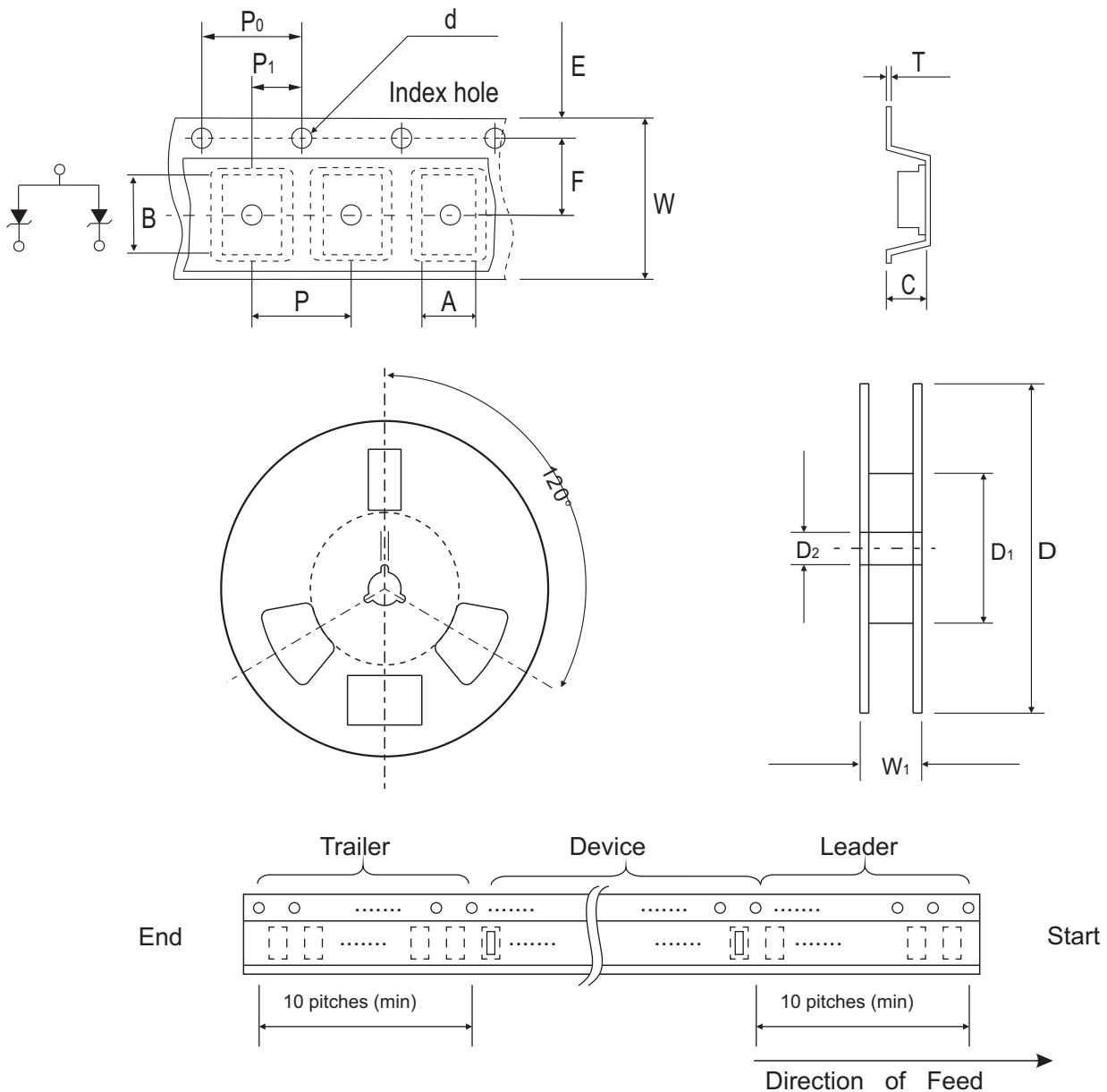


Fig. 8- P_C — T_a



Reel Taping Specification



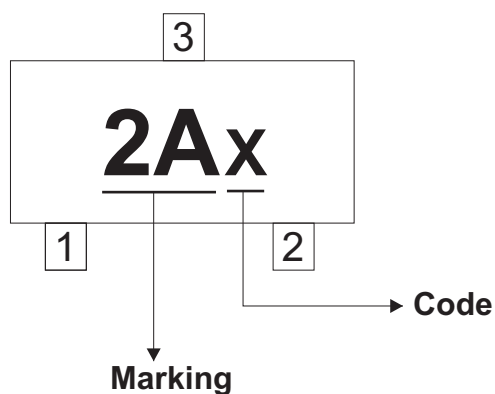
SOT-23	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.15 ± 0.10	2.77 ± 0.10	1.22 ± 0.10	1.50 ± 0.10	178 ± 1.00	54.40 ± 0.40	13.00 ± 0.20
	(inch)	0.124 ± 0.004	0.109 ± 0.004	0.048 ± 0.004	0.059 ± 0.004	7.008 ± 0.039	2.142 ± 0.016	0.512 ± 0.008

SOT-23	SYMBOL	E	F	P	P_0	P_1	W	W_1
	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	$8.00 + 0.30 / - 0.10$	9.50 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.004	$0.315 + 0.012 / - 0.004$	0.374 ± 0.039

Marking Code

Code: Per A. D.

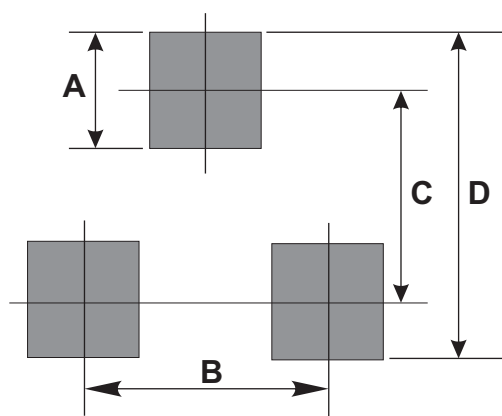
Part Number	Marking Code
MMBT3906-HF	2A



Year(Even)-Month	Code	Year(Even)-Month	Code
XXX1-01	J	XXX2-01	W
XXX1-02	O	XXX2-02	N
XXX1-03	L	XXX2-03	Y
XXX1-04	C	XXX2-04	T
XXX1-05	K	XXX2-05	R
XXX1-06	B	XXX2-06	H
XXX1-07	P	XXX2-07	A
XXX1-08	D	XXX2-08	I
XXX1-09	M	XXX2-09	U
XXX1-010	E	XXX2-010	X
XXX1-011	G	XXX2-011	Z
XXX1-012	F	XXX2-012	S

Suggested PAD Layout

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



Standard Packaging

Case Type	Qty per Reel	Reel Size
	(Pcs)	(inch)
SOT-23	3000	7