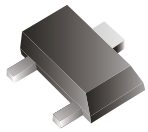
General Purpose Transistor

MMBT3906M-HF (PNP)

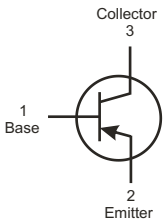
RoHS Device



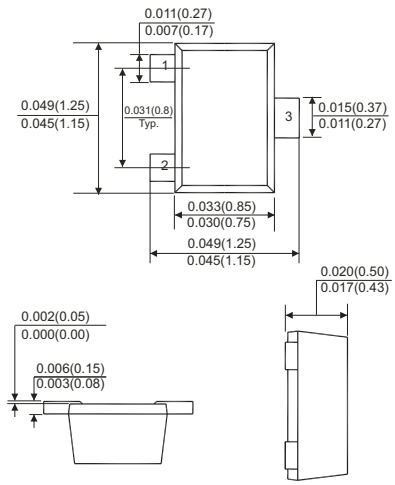
Features

-Small package.

Circuit Diagram



SOT-723



Dimensions in inches and (millimeter)

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

Parameter	Symbol	Value	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
Power dissipation	P_C	100	mW
Thermal resistance from junction to ambient	$R_{\theta JA}$	1250	°C/W
Junction temperature	T_J	150	°C
Storage temperature	Tstg	-55~+150	°C

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

Parameter	Symbol	Conditions	Min	Max	Unit
Collector-Base breakdown voltage	$V_{(BR)CBO}$	I_C=-10μA, I_E=0	-40	-	V
Collector-Emitter breakdown voltage	$V_{(BR)CEO}$	I_C=-1mA, I_B=0	-40	-	V
Emitter-Base breakdown voltage	$V_{(BR)EBO}$	I_E=-10μA, I_C=0	-5	-	V
Collector cut-off current	I_{CBO}	V_{CB}=-40V, I_E=0	-	-100	nA
Collector cut-off current	I_{CEX}	V_{CE}=-30V, $V_{EB(off)}$=-3V	-	-50	nA
Emitter cut-off current	I_{EBO}	V_{EB}=-5V, I_C=0	-	-100	nA
DC current gain	$h_{FE(1)}$	V_{CE}=-1V, I_C=-10mA	100	300	
	$h_{FE(2)}$	V_{CE}=-1V, I_C=-50mA	60	-	
	$h_{FE(3)}$	V_{CE}=-1V, I_C=-100mA	30	-	
Collector-Emitter saturation voltage	$V_{CE(sat)}$	I_C=-50mA, I_B=-5mA	-	-0.3	V
Base-Emitter saturation voltage	$V_{BE(sat)}$	I_C=-50mA, I_B=-5mA	-	-0.95	V
Transition frequency	f_T	V_{CE}=-20V, I_C=-10mA f=100MHz	300	-	MHz
Delay time	t_d	V_{CC}=-3V, $V_{BE(off)}$=-0.5V I_C=-10mA, I_{B1}=I_{B2}=-1mA	-	35	nS
Rise time	t_r		-	35	nS
Storage time	t_s	V_{CC}=-3V, I_C=-10mA I_{B1}=I_{B2}=-1mA	-	225	nS
Fall time	t_f		-	75	nS

Company reserves the right to improve product design , functions and reliability without notice.

REV: A

RATING AND CHARACTERISTIC CURVES (MMBT3906M-HF)

Fig.1 - Static Characteristic

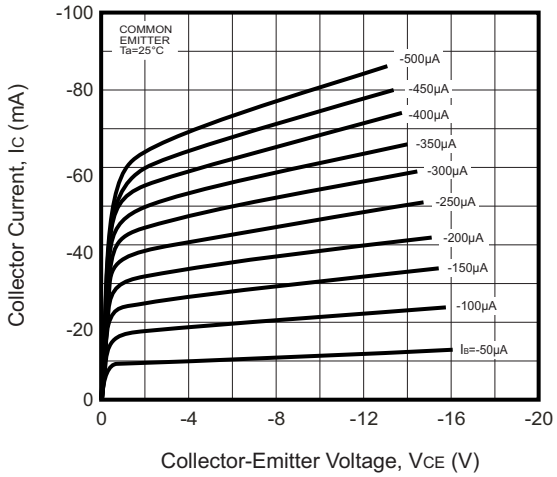


Fig.2 - h_{FE} — I_C

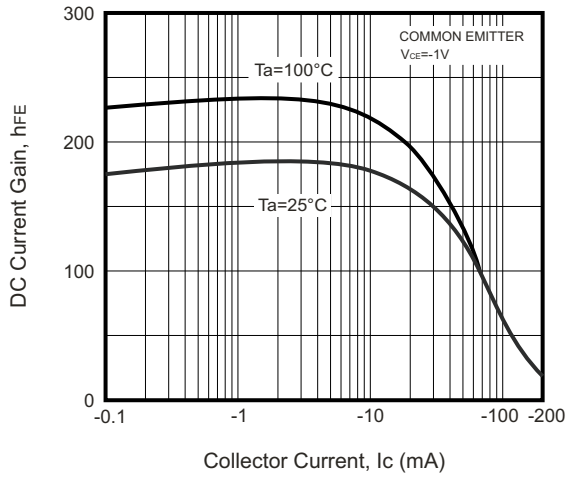


Fig.3 - V_{CEsat} — I_C

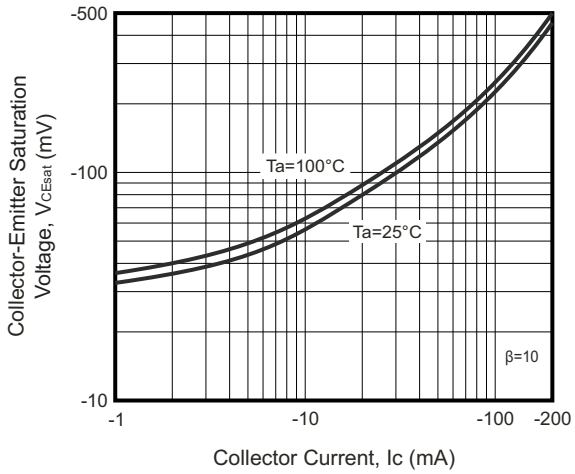


Fig.4 - V_{BEsat} — I_C

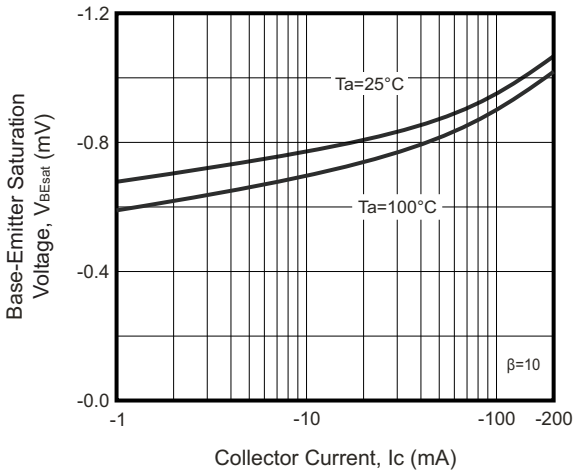


Fig.5 - V_{BE} — I_C

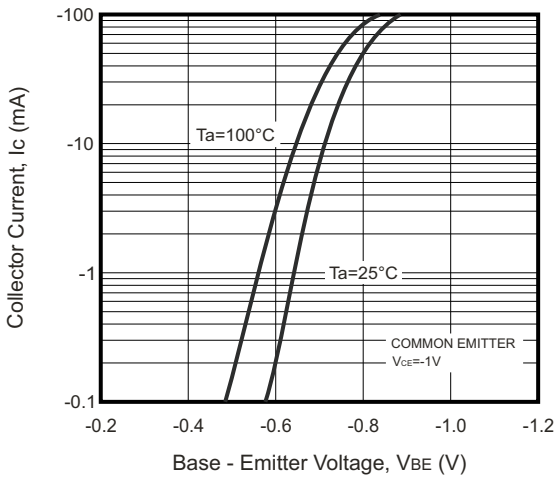
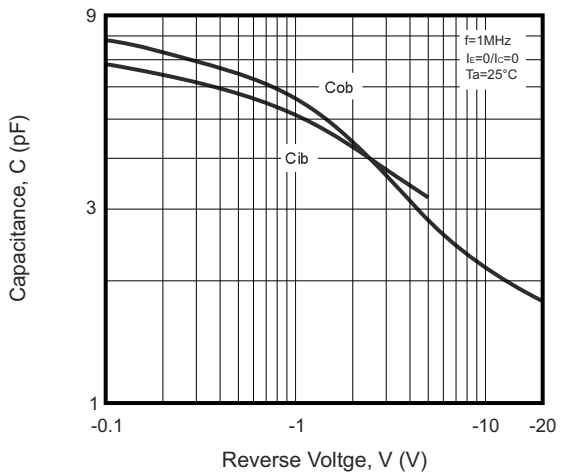


Fig.6 - C_{ob}/C_{ib} — V_{CB}/V_{EB}



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RATING AND CHARACTERISTIC CURVES (MMBT3906M-HF)

Fig.7 - F_T — I_C

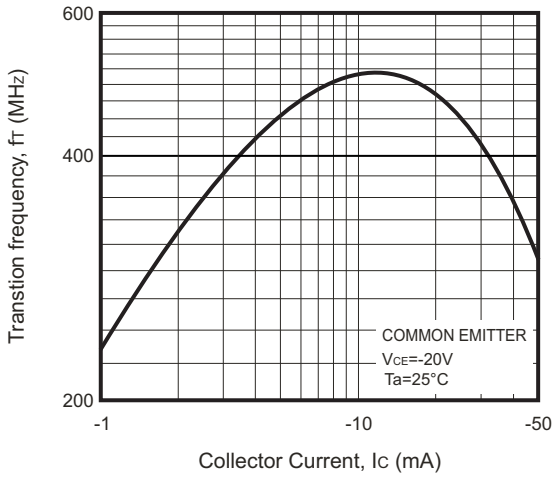
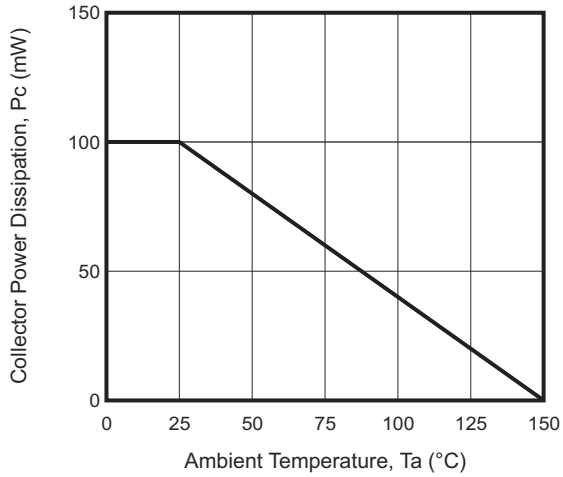
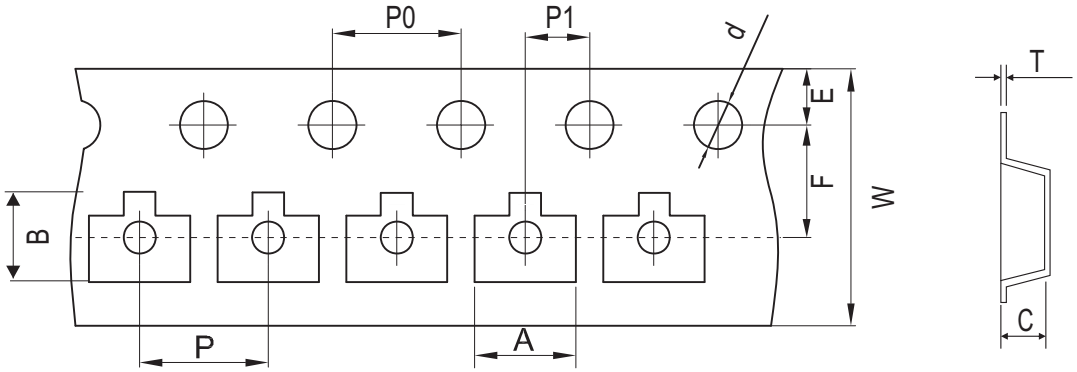
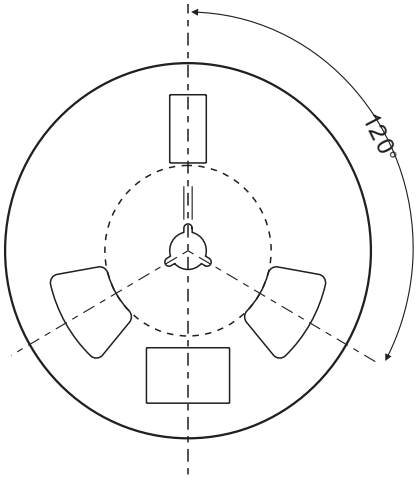


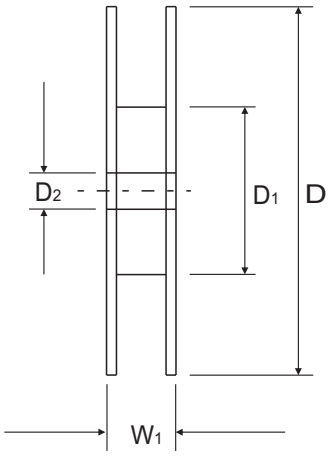
Fig.8 - P_C – Ta

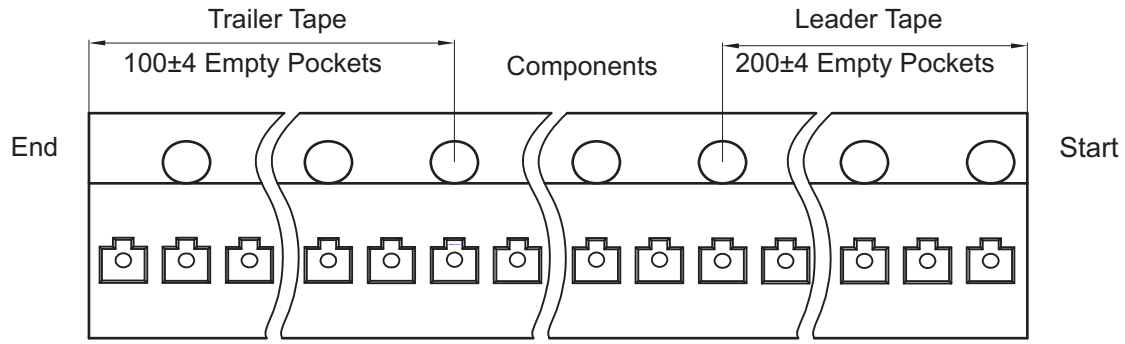


Reel Taping Specification







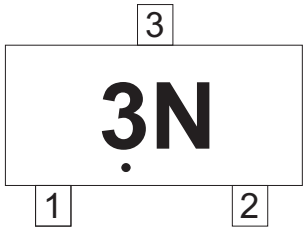


	SYMBOL	A	B	C	d	D	D1	D2
SOT-723	(mm)	1.33 ± 0.05	1.45 ± 0.05	0.61 ± 0.05	1.50 ± 0.10	178 ± 2.00	54.40 ± 1.00	13.00 ± 1.00
	(inch)	0.052 ± 0.002	0.057 ± 0.002	0.024 ± 0.002	0.059 + 0.004	7.008 ± 0.078	2.142 ± 0.039	0.512 ± 0.039

	SYMBOL	E	F	P	P0	P1	W	W1
SOT-723	(mm)	1.75 ± 0.10	3.50 ± 0.05	2.00 ± 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 ± 0.002	0.079 ± 0.004	0.158 ± 0.004	0.079 ± 0.004	0.315 + 0.012 / - 0.004	0.484 ± 0.039

Marking Code

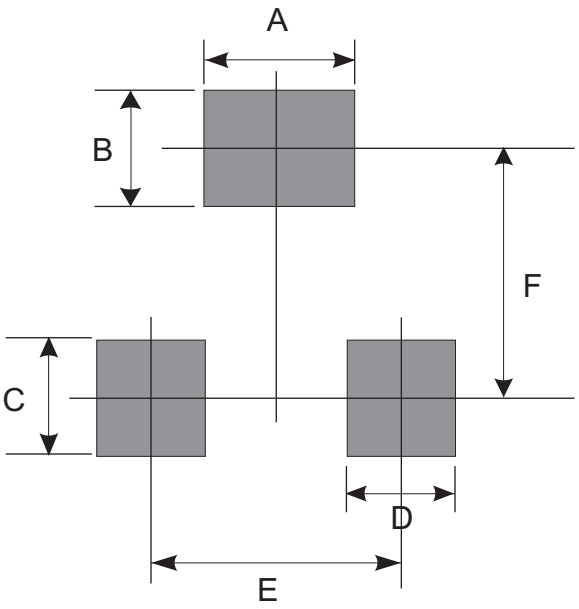
Part Number	Marking Code
MMBT3906M-HF	3N



Solid dot " • " = Halogen Free

Suggested PAD Layout

SIZE	SOT-723	
	(mm)	(inch)
A	0.42	0.017
B	0.30	0.012
C	0.30	0.012
D	0.32	0.013
E	0.80	0.031
F	1.00	0.039



Note:
1.General tolerance: ±0.05mm.
2.The pad layout is for reference purposes only.

Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-723	8,000	7