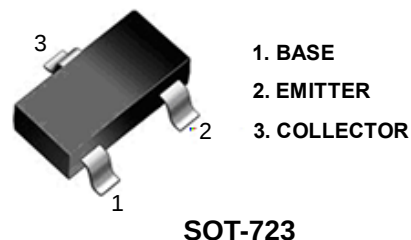


SOT-723 Plastic-Encapsulate Transistors

MMBT3906M TRANSISTOR (PNP)

• Features

- Complementary to MMBT3904M



• MAXIMUM RATINGS

($T_C=25^{\circ}\text{C}$)

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V_{CBO}	-40	V
Collector-Emitter Voltage	V_{CEO}	-40	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current	I_C	-0.2	A
Collector Power Dissipation	P_C	100	mW
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	1250	$^{\circ}\text{C/W}$
Operation Junction and Storage Temperature Range	T_J, T_{stg}	-55~+150	$^{\circ}\text{C}$

• ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$)

Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-10\mu\text{A}, I_E=0$	-40		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-1\text{mA}, I_B=0$	-40		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-10\mu\text{A}, I_C=0$	-5		V
Base cut-off current	I_{BL}	$V_{CE}=-30\text{V}, V_{EB(off)}=-3\text{V}$		-50	nA
Collector cut-off current	I_{CEX}	$V_{CE}=-30\text{V}, V_{BE(off)}=-3\text{V}$		-50	nA
DC current gain	h_{FE1}	$V_{CE}=-1\text{V}, I_C=-100\mu\text{A}$	60		
	h_{FE2}	$V_{CE}=-1\text{V}, I_C=-1\text{mA}$	80		
	h_{FE3}	$V_{CE}=-1\text{V}, I_C=-10\text{mA}$	100	300	
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C=-50\text{mA}, I_B=-5\text{mA}$		-0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=-50\text{mA}, I_B=-5\text{mA}$		-0.95	V
Transition frequency	f_T	$V_{CE}=-20\text{V}, I_C=-10\text{mA}, f=100\text{MHz}$	300		MHz
Collector output capacitance	C_{ob}	$V_{CB}=-5\text{V}, I_E=0, f=1\text{MHz}$		4.5	pF
Collector output capacitance	C_{ib}	$V_{EB}=-0.5\text{V}, I_E=0, f=1\text{MHz}$		10	pF
Delay Time	t_d	$V_{CC}=-3\text{V}, V_{BE}=-0.5\text{V}$		35	nS
Rise Time	t_r	$I_C=-10\text{mA}, I_{B1}=I_{B2}=-1\text{mA}$		35	nS
Storage Time	t_s	$V_{CC}=-3\text{V}, I_C=-10\text{mA}$		225	nS
Fall Time	t_f	$I_{B1}=I_{B2}=-1\text{mA}$		75	nS

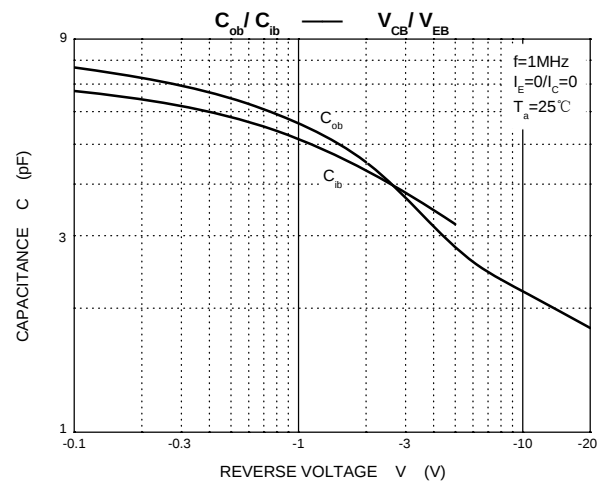
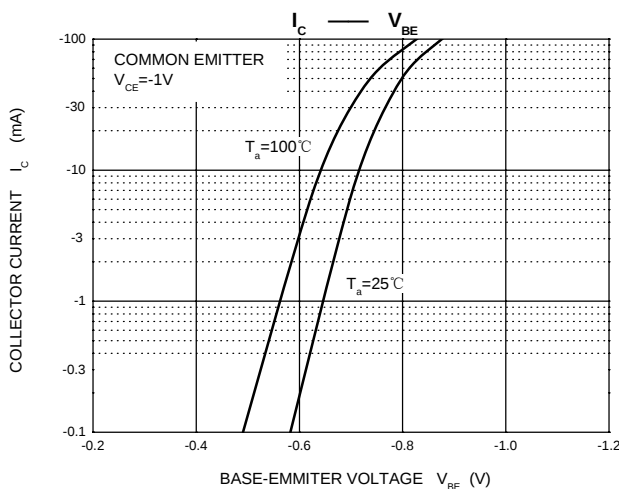
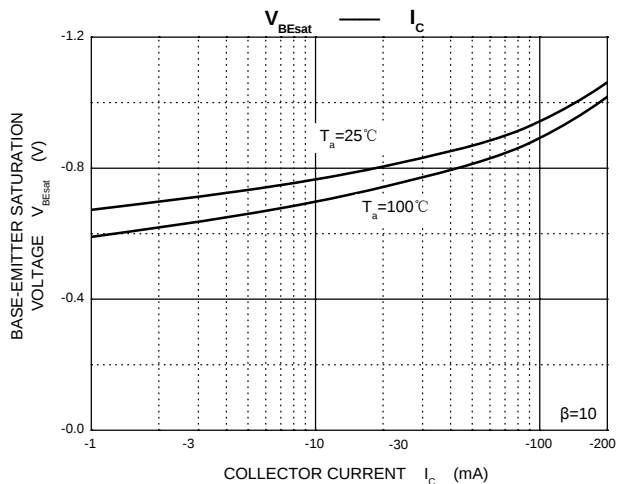
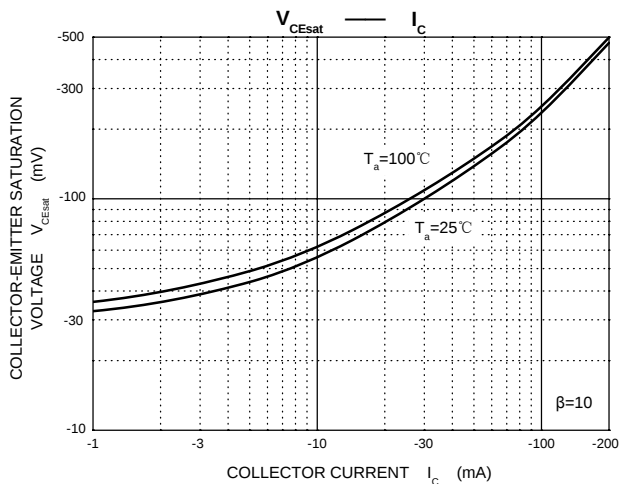
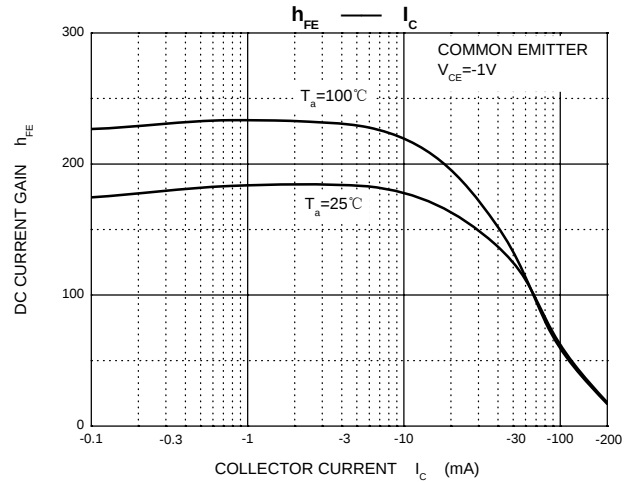
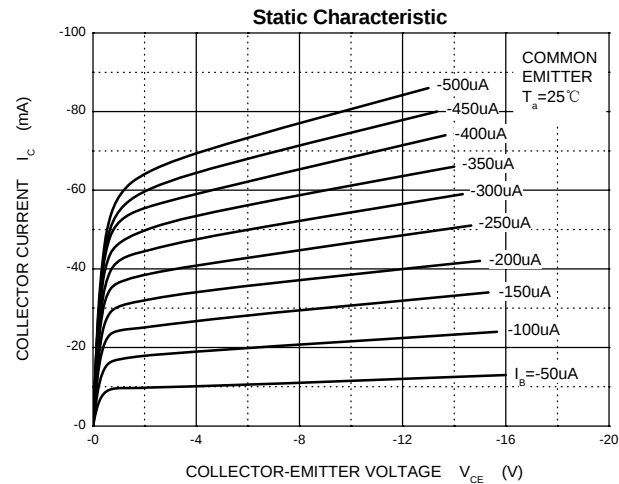
• CLASSIFICATION OF $h_{FE(1)}$

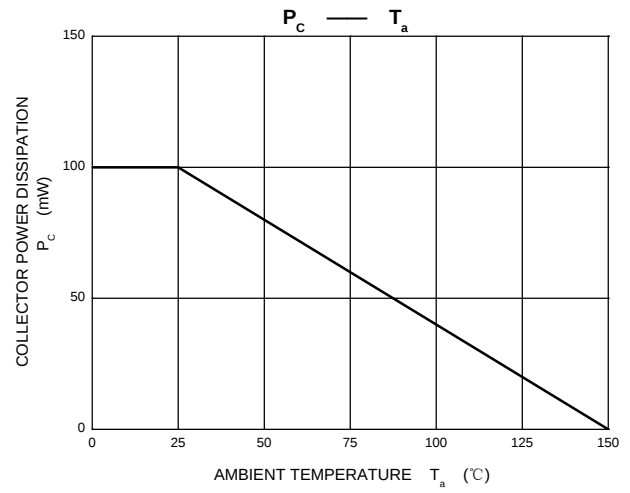
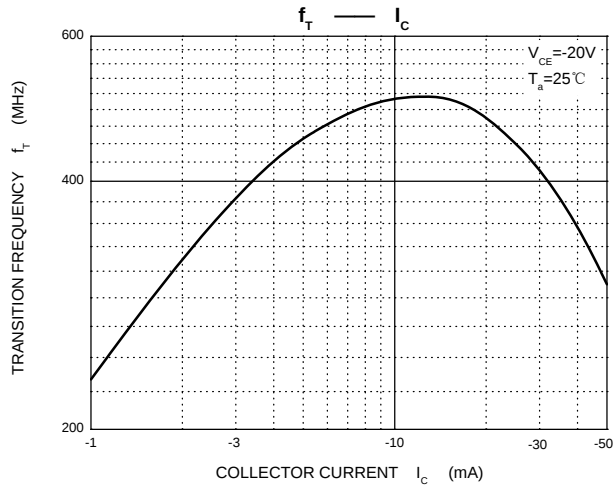
HFE	100-300	
RANK	L	H
RANGE	100 - 200	200 - 300

• Ordering Information:

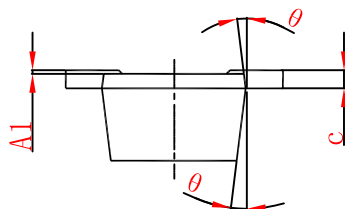
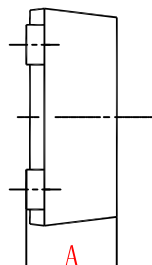
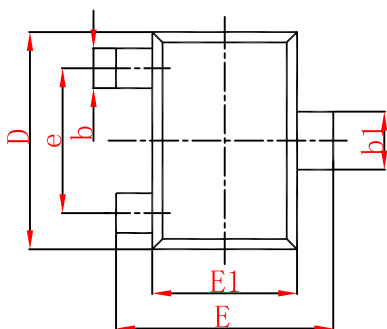
Part NO.	MMBT3906M
Marking	3N
Packing Information	REEL TAPE
Basic ordering unit (pcs)	8000

• Typical Characteristics

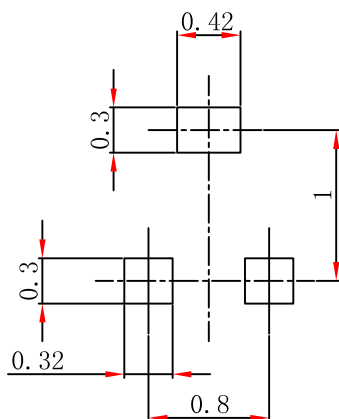




SOT-723 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.430	0.500	0.017	0.020
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.007	0.011
b1	0.270	0.370	0.011	0.015
c	0.080	0.150	0.003	0.006
D	1.150	1.250	0.045	0.049
E	1.150	1.250	0.045	0.049
E1	0.750	0.850	0.030	0.033
e	0.800TYP.		0.031TYP.	
θ	7° REF.		7° REF.	



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.