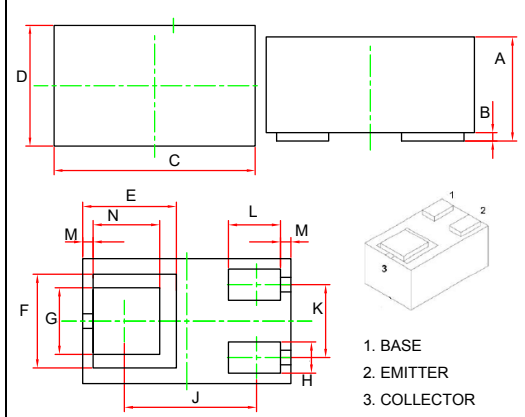




# MMBT3906M

## PNP Plastic-Encapsulate Transistors

### SOT-883



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.018	0.022	0.450	0.550	
B	0.000	0.004	0.010	0.100	
C	0.037	0.041	0.950	1.050	
D	0.022	0.026	0.550	0.650	
E	0.018REF.		0.450REF.		
F	0.018REF.		0.450REF.		
G	0.011	0.015	0.270	0.370	
H	0.004	0.008	0.100	0.200	
J	0.025REF.		0.635REF.		
K	0.012	0.016	0.300	0.400	
L	0.008	0.012	0.200	0.300	
M	0.002REF.		0.050REF.		
N	0.011	0.015	0.270	0.370	

## Features

- Halogen free available upon request by adding suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking :3N
- Single General-Purpose Switching Transistor

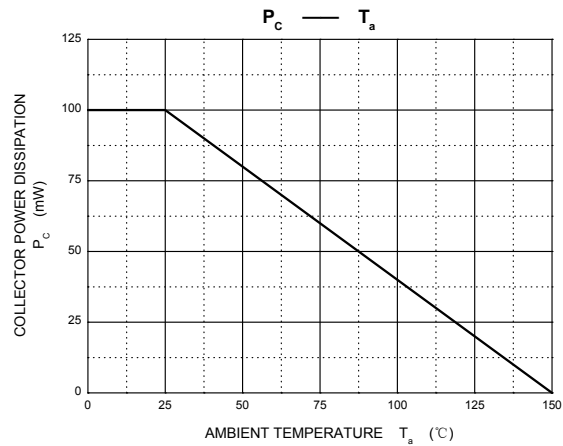
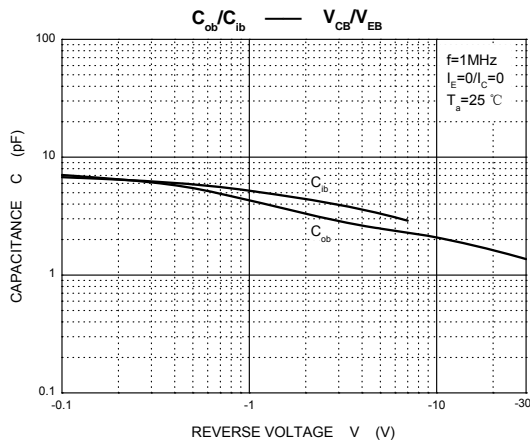
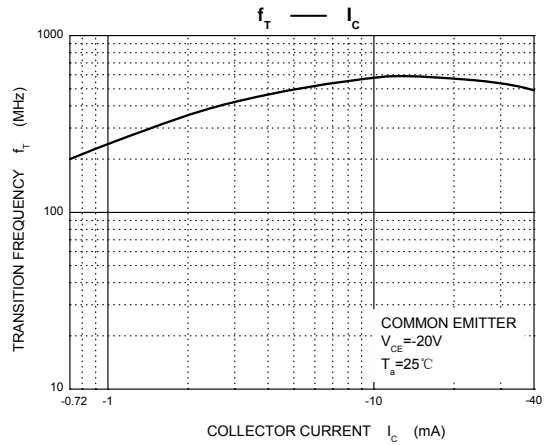
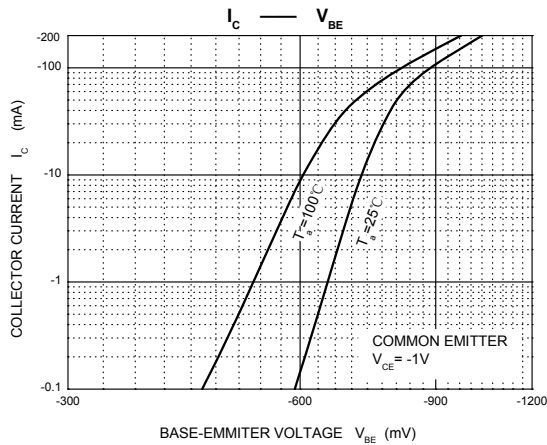
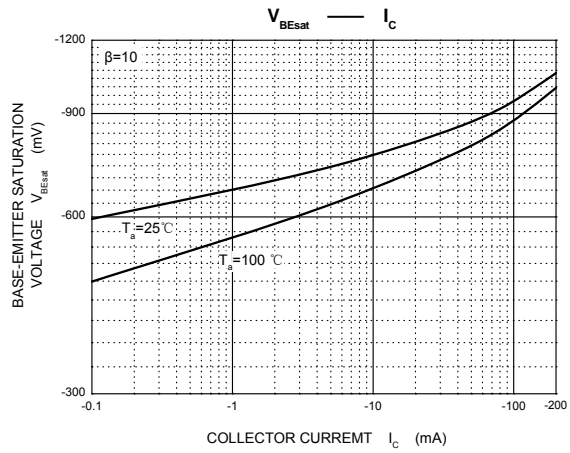
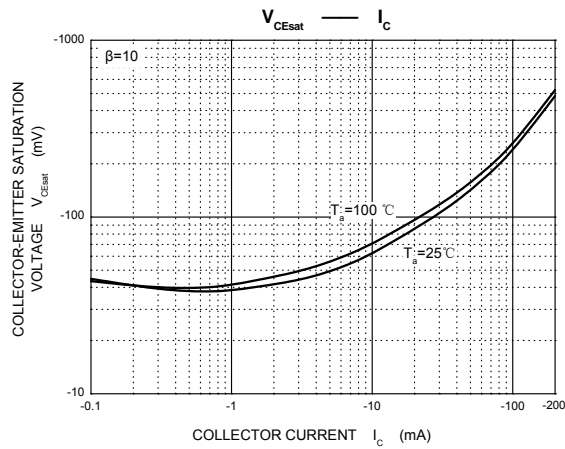
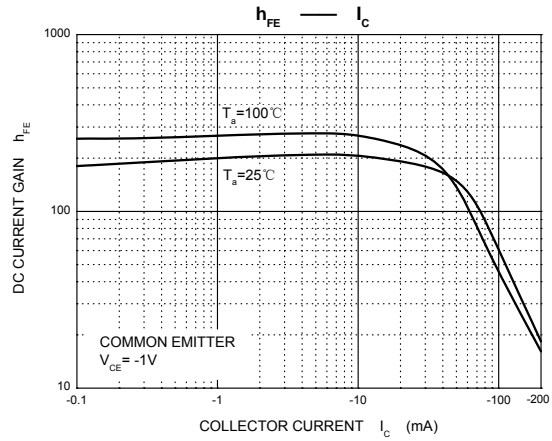
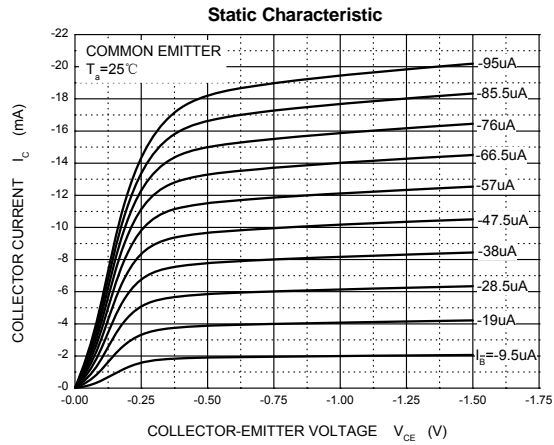
### MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage	-40	V
V <sub>CEO</sub>	Collector-Emitter Voltage	-40	V
V <sub>EBO</sub>	Emitter-Base Voltage	-5	V
I <sub>C</sub>	Collector Current	-200	mA
P <sub>C</sub>	Collector Power Dissipation	100	mW
R <sub>θJA</sub>	Thermal Resistance from Junction to Ambient	1250	°C/W
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55~+150	°C

**ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)**

Parameter	Symbol	Test condition	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-10\mu A, I_E=0$	-40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-1mA, I_B=0$	-40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-10\mu A, I_C=0$	-5			V
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	$h_{FE(1)}$	$V_{CE}=-1V, I_C=-0.1mA$	60			
	$h_{FE(2)}$	$V_{CE}=-1V, I_C=-1mA$	80			
	$h_{FE(3)}$	$V_{CE}=-1V, I_C=-10mA$	100		300	
	$h_{FE(4)}$	$V_{CE}=-1V, I_C=-50mA$	60			
	$h_{FE(5)}$	$V_{CE}=-1V, I_C=-100mA$	30			
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C=-10mA, I_B=-1mA$			-0.25	V
	$V_{CE(sat)2}$	$I_C=-50mA, I_B=-5mA$			-0.4	V
Base-emitter saturation voltage	$V_{BE(sat)1}$	$I_C=-10mA, I_B=-1mA$	-0.6		-0.85	V
	$V_{BE(sat)2}$	$I_C=-50mA, I_B=-5mA$			-0.95	V
Transition frequency	$f_T$	$V_{CE}=-20V, I_C=-10mA, f=100MHz$	250			MHz
Collector output capacitance	$C_{ob}$	$V_{CB}=-5V, I_E=0, f=1MHz$			4.5	pF
Base Input capacitance	$C_{ib}$	$V_{EB}=-0.5V, I_E=0, f=1MHz$			10	pF
Noise figure	NF	$V_{CE}=-5V, I_E=-0.1mA, f=1kHz, R_G=1k\Omega$			4	dB
Delay time	$t_d$	$V_{CC}=-3V, V_{BE(OFF)}=0.5V,$			35	ns
Rise time	$t_r$	$I_C=-10mA, I_{B1}=-1mA$			35	ns
Storage time	$t_s$	$V_{CC}=-3V, I_C=-10mA,$			225	ns
Fall time	$t_f$	$I_{B1}= I_{B2}=-1mA$			75	ns

## Typical Characteristics



**Ordering Information :**

Device	Packing
Part Number-TP	Tape&Reel; 10Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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