



**THE DATASHEET OF
MMBT3906M-TP**





MMBT3906M

PNP Plastic-Encapsulate Transistors

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_a=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V _{CB0}	Collector-Base Voltage	-40	V
V _{CEO}	Collector-Emitter Voltage	-40	V
V _{EBO}	Emitter-Base Voltage	-5	V
I _C	Collector Current	-200	mA
P _C	Collector Power Dissipation	100	mW
R _{θJA}	Thermal Resistance from Junction to Ambient	1250	°C/W
T _j	Junction Temperature	150	°C
T _{stg}	Storage Temperature	-55~+150	°C

SOT-883

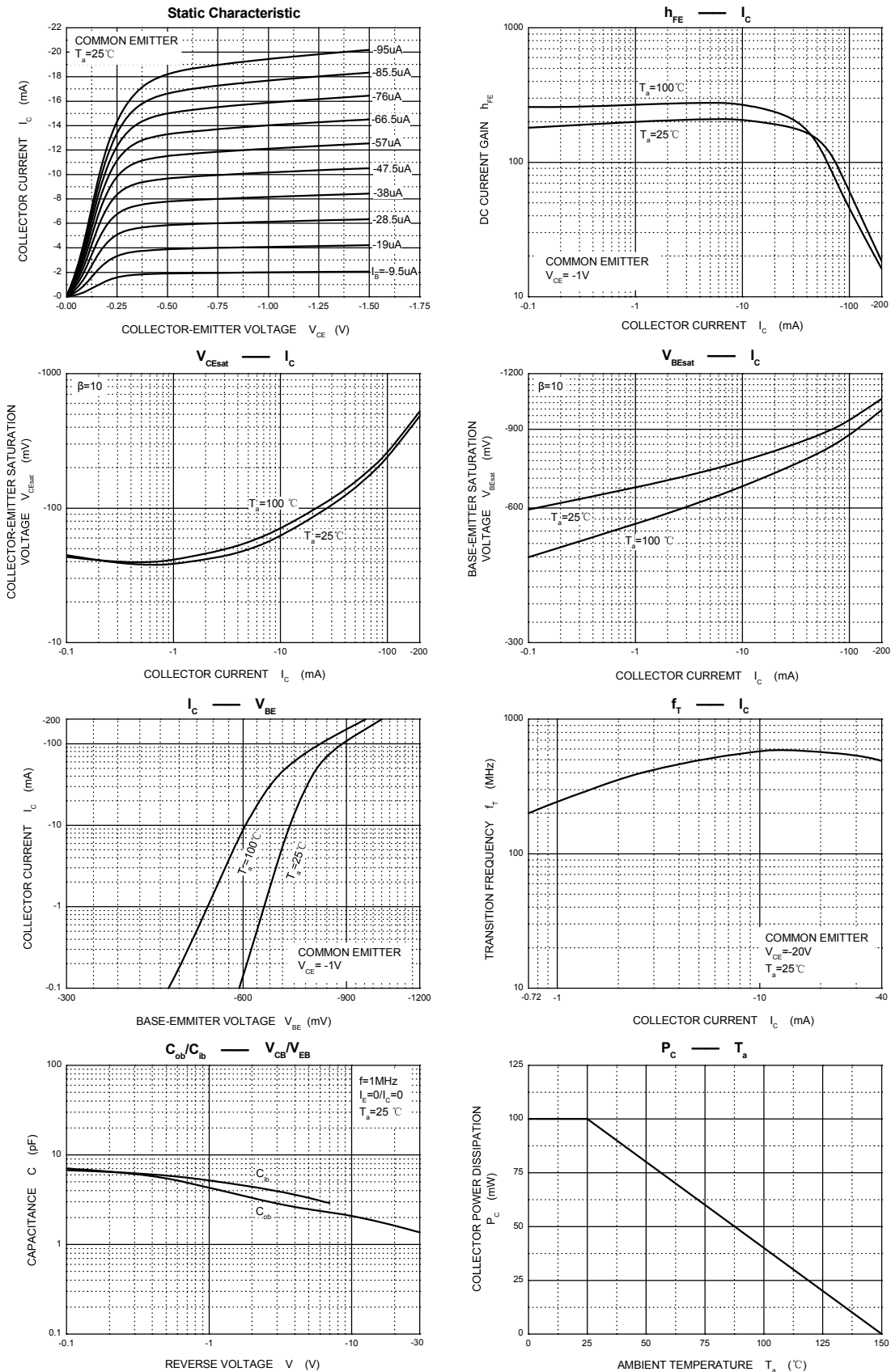
1. BASE
2. EMITTER
3. COLLECTOR

DIMENSIONS					
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	

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	$V_{CC} = -3V, V_{BE(off)} = 0.5V, I_C = -10mA, I_{B1} = -1mA$			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

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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