

TRANSISTOR (NPN)

FEATURES

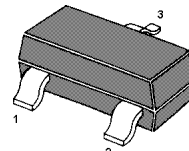
Complementary Type The PNP Transistor MMBT3906 is Recommended
Epitaxial Planar Die Construction

MARKING: 1AM

MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current	200	mA
P_C	Total Device Dissipation	200	mW
$R_{\theta JA}$	Thermal Resistance From Junction to Ambient	625	$^{\circ}\text{C/W}$
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55 ~ +150	$^{\circ}\text{C}$

SOT-23



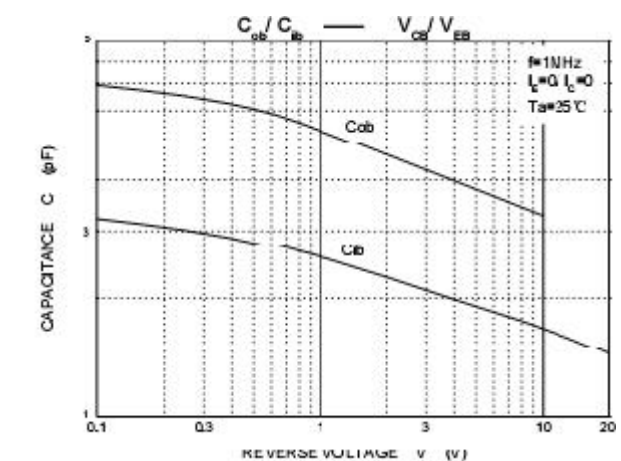
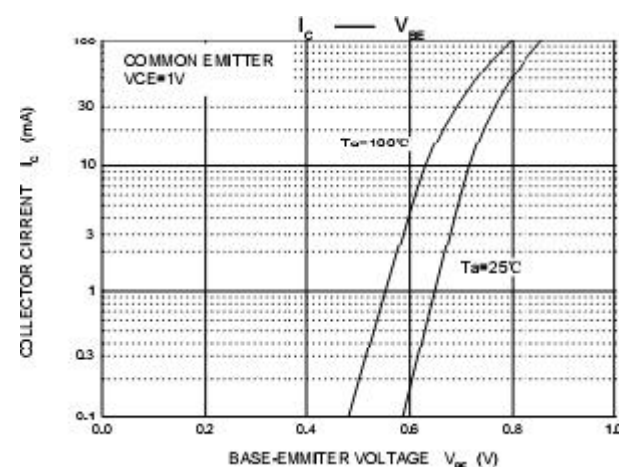
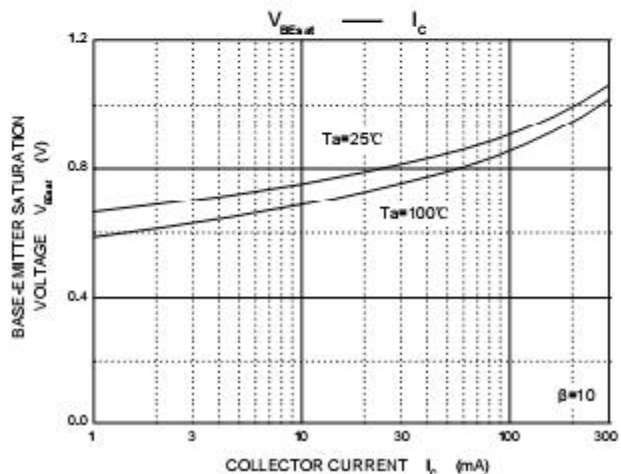
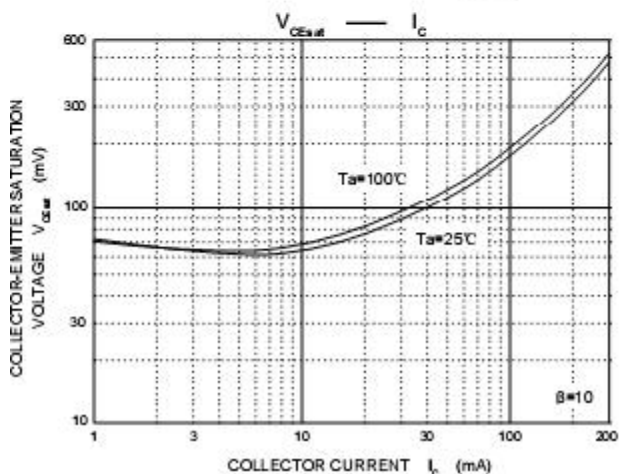
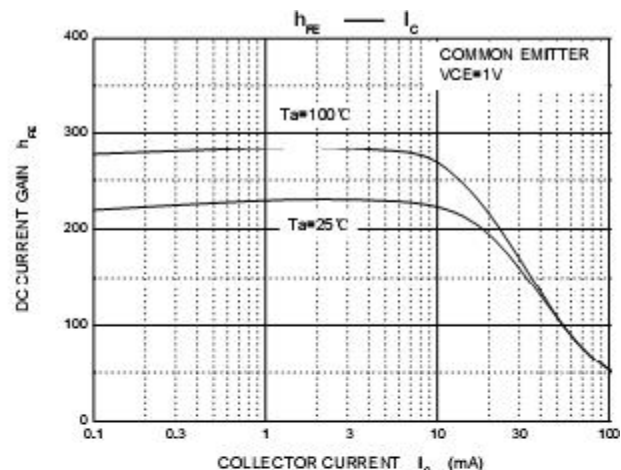
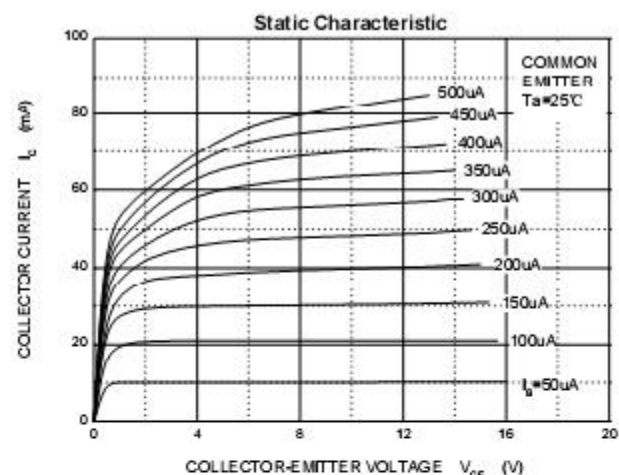
1. BASE
2. EMITTER
3. COLLECTOR

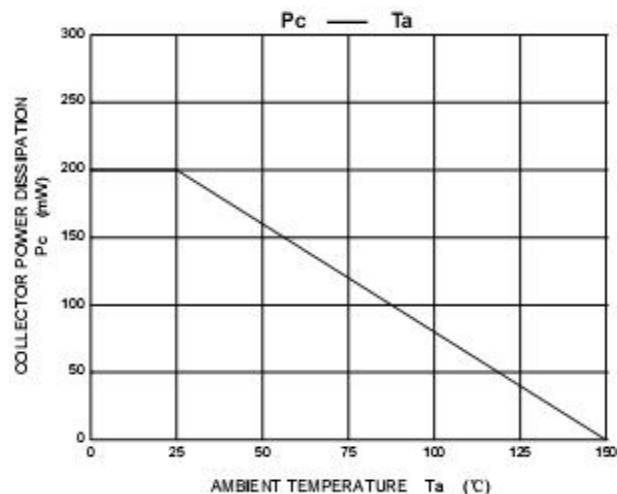
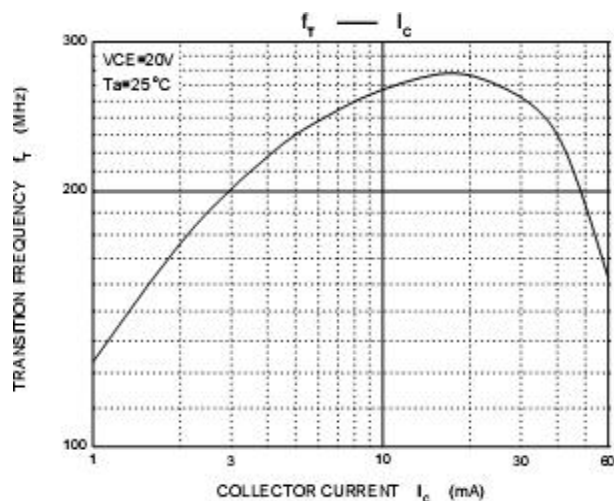
ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}$, $I_E = 0$	60		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}$, $I_B = 0$	40		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}$, $I_C = 0$	6		V
Collector cut-off current	I_{CBO}	$V_{CB} = 60\text{V}$, $I_E = 0$		0.1	μA
Collector cut-off current	I_{CEX}	$V_{CE} = 30\text{V}$, $V_{BE(off)} = 3\text{V}$		50	nA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5\text{V}$, $I_C = 0$		0.1	μA
DC current gain	$h_{FE(1)}$	$V_{CE} = 1\text{V}$, $I_C = 10\text{mA}$	100	300	
	$h_{FE(2)}$	$V_{CE} = 1\text{V}$, $I_C = 0.1\text{mA}$	45		
	$h_{FE(3)}$	$V_{CE} = 1\text{V}$, $I_C = 1\text{mA}$	75		
	$h_{FE(4)}$	$V_{CE} = 1\text{V}$, $I_C = 50\text{mA}$	60		
	$h_{FE(5)}$	$V_{CE} = 1\text{V}$, $I_C = 100\text{mA}$	30		
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 50\text{mA}$, $I_B = 5\text{mA}$		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
Delay Time	t_d	$V_{CC} = 3\text{V}$, $V_{BE} = -0.5\text{V}$		35	nS
Rise Time	t_r	$I_C = 10\text{mA}$, $I_{B1} = -I_{B2} = 1.0\text{mA}$		35	nS

Typical Characteristics

MMBT3904

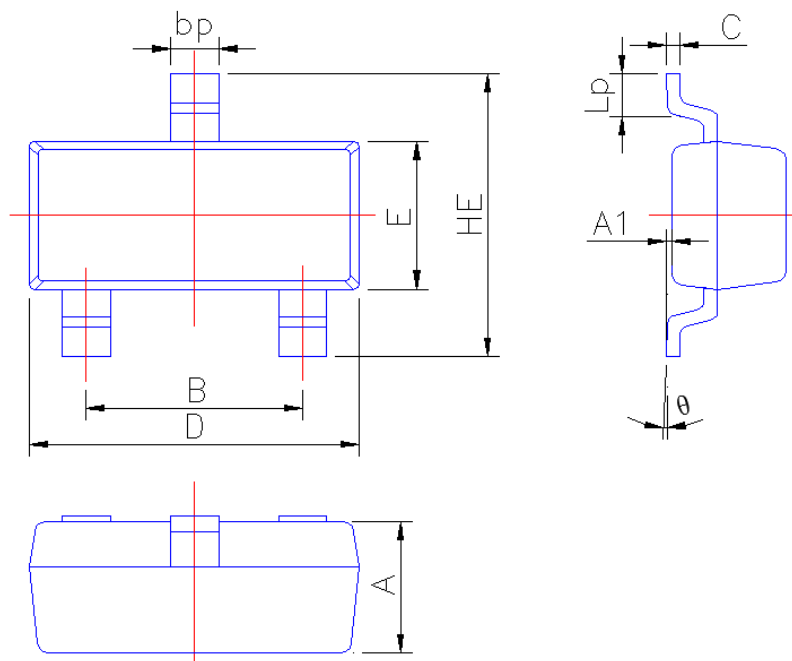




PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



Symbol	Dimension in Millimeters	
	Min	Max
A	0.90	1.10
A1	0.013	0.100
B	1.80	2.00
bp	0.35	0.50
C	0.09	0.150
D	2.80	3.00
E	1.20	1.40
HE	2.20	2.80
Lp	0.20	0.50
θ	0°	5°