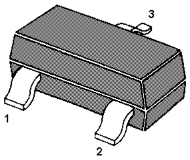
MMBT3906　　TRANSISTOR（PNP）

SOT-23



1. BASE
2. EMITTER
3. COLLECTOR

FEATURES

Complementary Type The NPN Transistor

MMBT3904 is Recommended

Epitaxial Planar Die Construction

MARKING: 2A

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	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	Total Device Dissipation	200	mW
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	625	℃/W
T_J	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55 ~ +150	℃

ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

Parameter	Symbol	Test 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		-0.1	μA
Collector cut-off current	I_{CEX}	V_{CE}=-30V, $V_{BE(off)}$=-3V		-50	nA
Emitter cut-off current	I_{EBO}	V_{EB}=-5V, I_C=0		-0.1	μA
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, $_B$= -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}=-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

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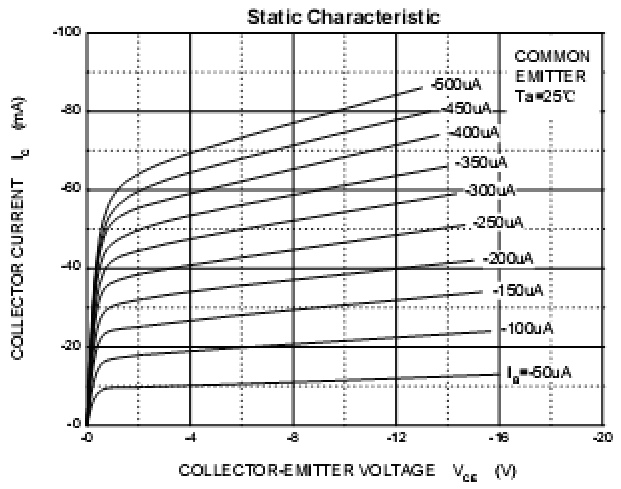
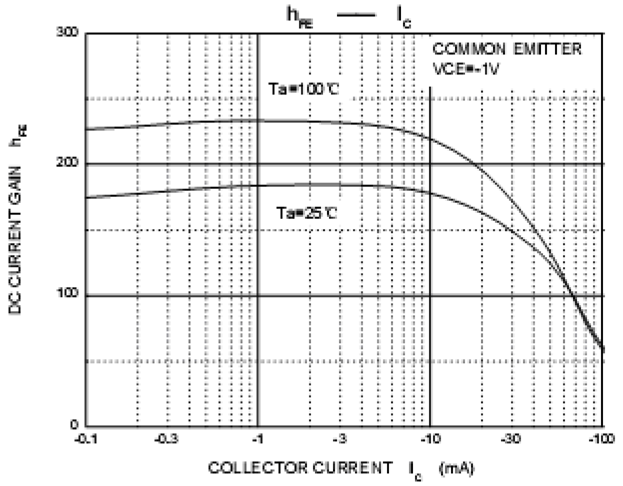
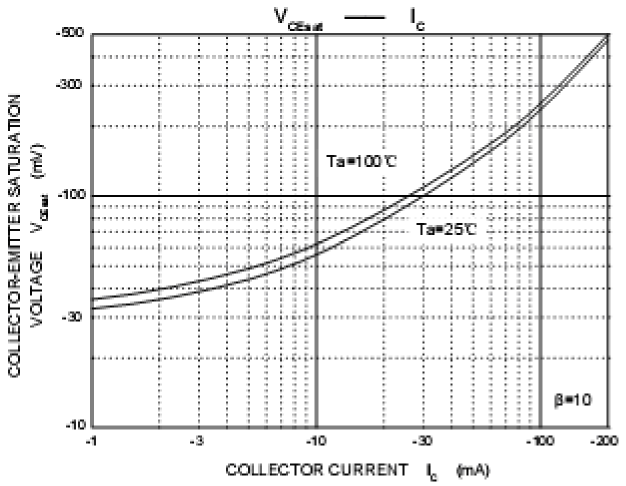
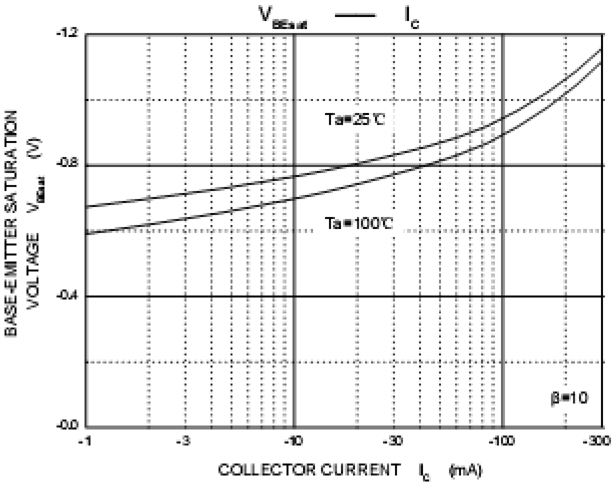
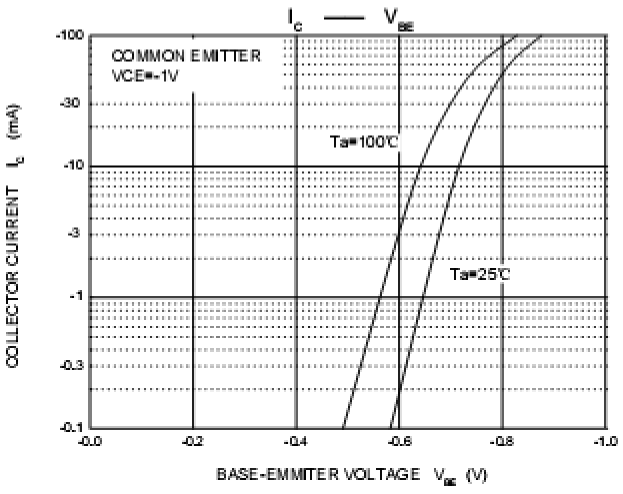
Typical Characteristics　　MMBT3906

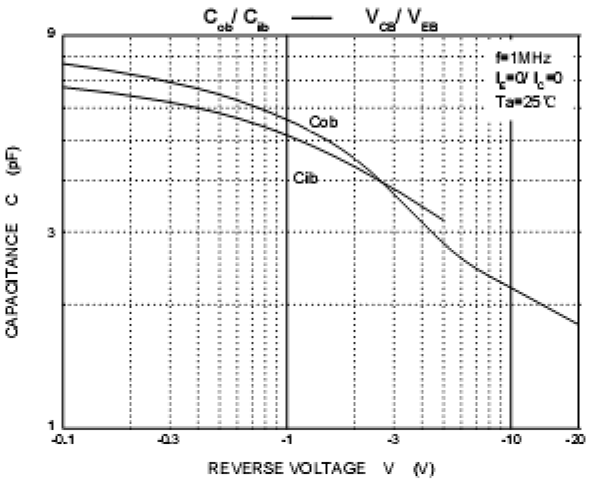


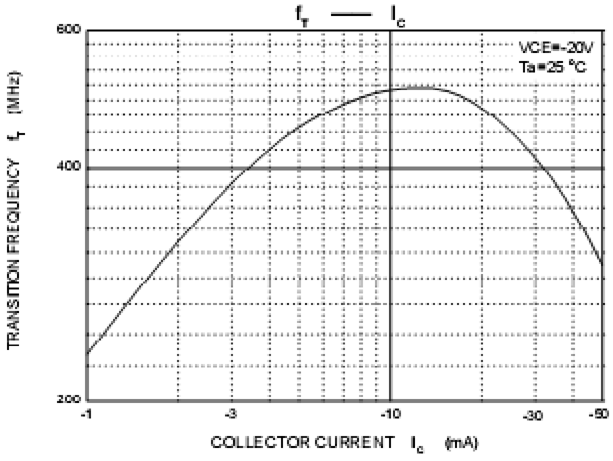


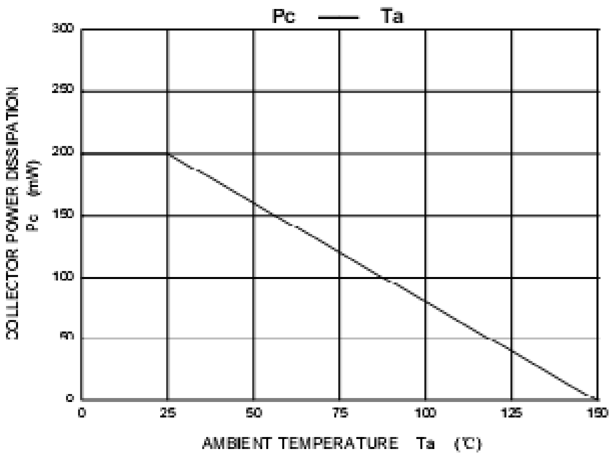






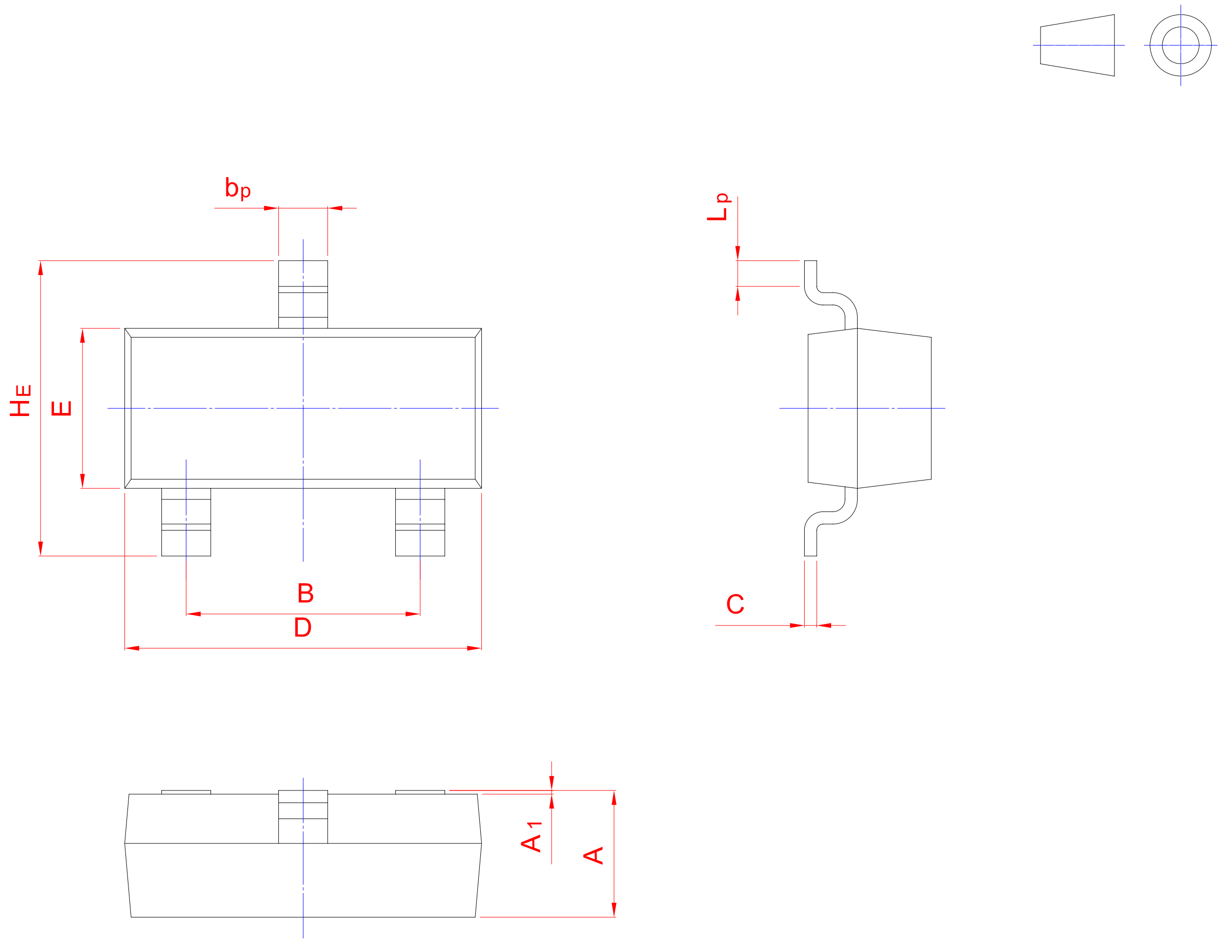



f_T —— I_C
VCE=-20V
Ta=25 °C
TRANSITION FREQUENCY f_T (MHz)
600
400
200
-1
-3
-10
-30
-50
COLLECTOR CURRENT I_C (mA)


Pc —— Ta
COLLECTOR POWER DISSIPATION Pc (mW)
300
250
200
150
100
50
0
0
25
50
75
100
125
150
AMBIENT TEMPERATURE Ta (℃)

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads **SOT-23**



UNIT	A	B	b_p	C	D	E	H_E	A_1	L_p
mm	1.40 0.95	2.04 1.78	0.50 0.35	0.19 0.08	3.10 2.70	1.65 1.20	3.00 2.20	0.100 0.013	0.50 0.20