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MMBT3904 TRANSISTOR (NPN)

SOT-23 Plastic-Encapsulate Transistors

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客户确认：

公司签章：

部门

工程部

品保部

采购部

签名

日期



SOT-23 Plastic-Encapsulate Transistors

MMBT3904 TRANSISTOR (NPN)

FEATURES

- As complementary type the PNP transistor MMBT3906 is recommended
- Epitaxial planar die construction

MARKING: 1AM

MAXIMUM RATINGS (T_A=25°C unless otherwise noted)

Symbol	Parameter	Value	Units
V _{CB0}	Collector-Base Voltage	60	V
V _{CEO}	Collector-Emitter Voltage	40	V
V _{EBO}	Emitter-Base Voltage	6	V
I _C	Collector Current -Continuous	200	mA
P _C	Total Device Dissipation	200	mW
R _{θJA}	Thermal Resistance Junction to Ambient	625	°C/W
T _J	Junction Temperature	150	°C
T _{stg}	Storage Temperature	-55 to +150	°C



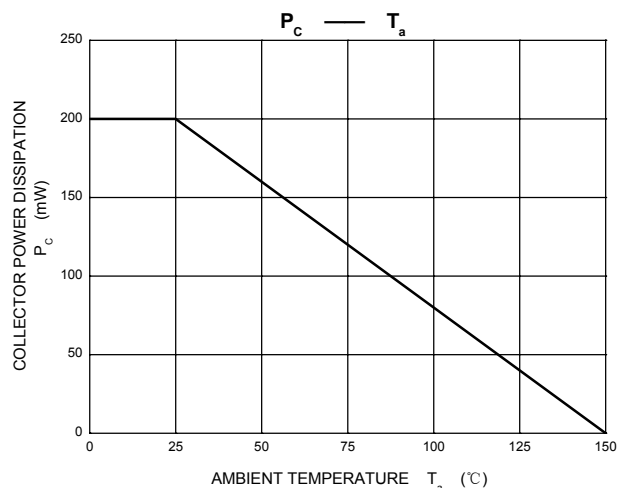
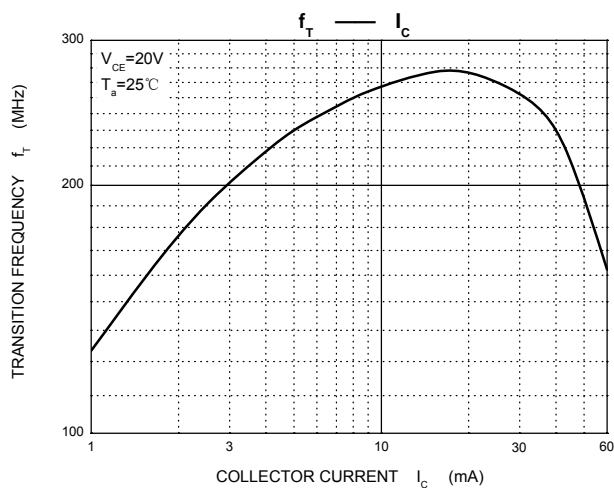
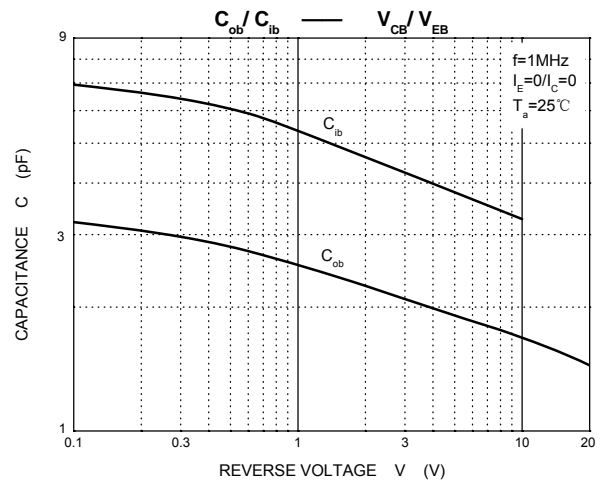
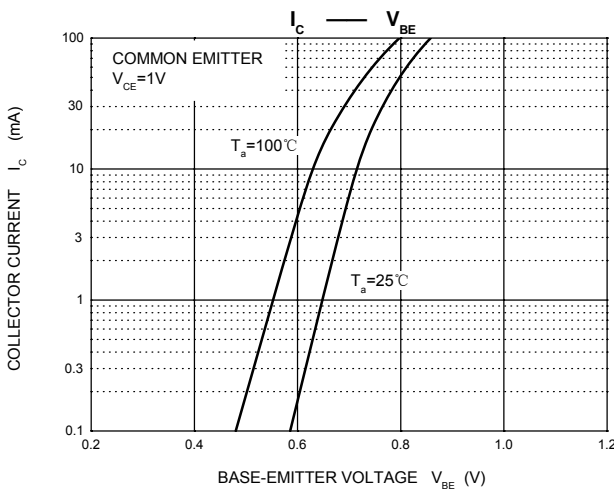
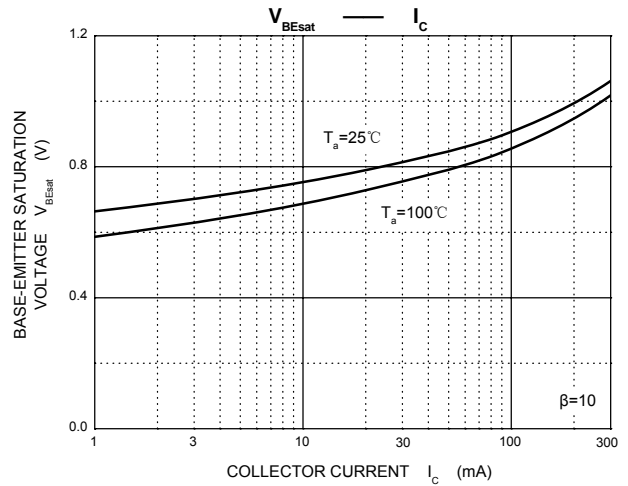
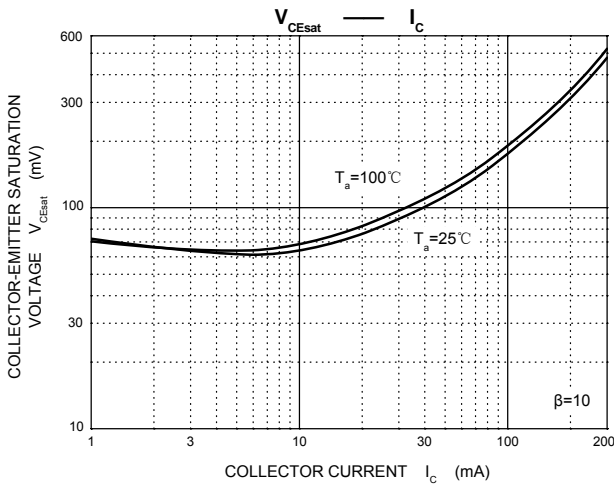
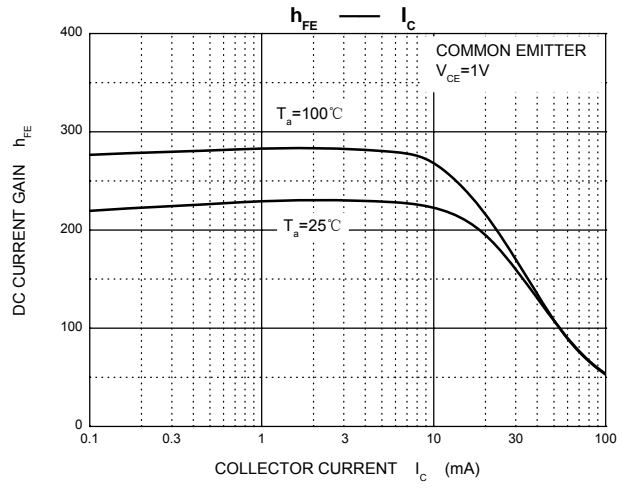
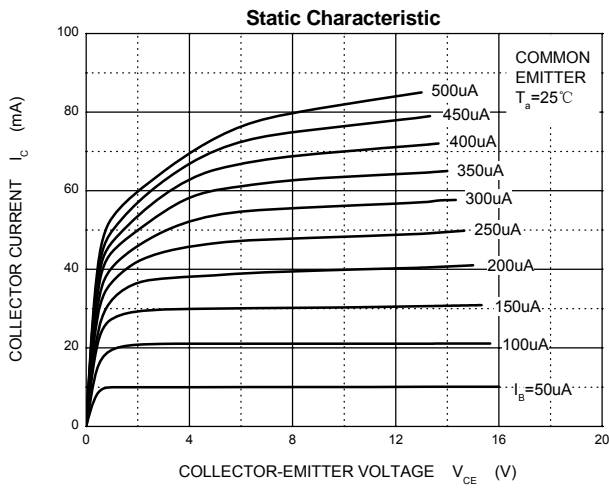
ELECTRICAL CHARACTERISTICS (T_{amb}=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	V _{CB0}	I _C = 10μA, I _E =0	60		V
Collector-emitter breakdown voltage	V _{CEO}	I _C = 1mA, I _B =0	40		V
Emitter-base breakdown voltage	V _{EBO}	I _E =10μA, I _C =0	6		V
Collector cut-off current	I _{CB0}	V _{CB} =60V, 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	400	
	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, I _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		35	nS
Rise Time	t _r	I _C =10mA, I _{B1} =-I _{B2} =1.0mA		35	nS
Storage Time	t _s	V _{CC} =3V, I _C =10mA,		200	nS
Fall Time	t _f	I _{B1} =-I _{B2} =1mA		50	nS

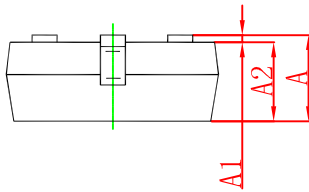
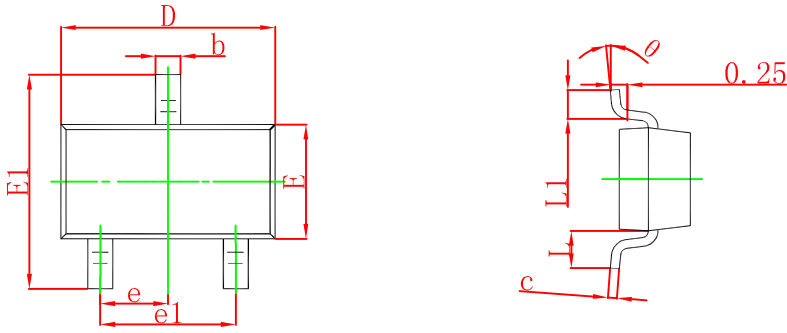
CLASSIFICATION OF h_{FE(1)}

Rank	O	Y	G
Range	100-200	200-300	300-400

Typical Characteristics

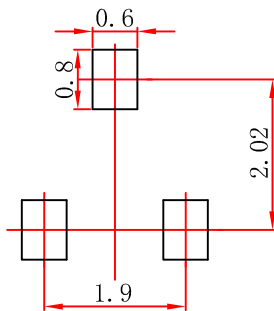


SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

SOT-23 Suggested Pad Layout



Note:

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