



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 _{CBO}	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 _{CBO}	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 _{CBO}	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