



安徽富信半导体科技有限公司

ANHUI FOSAN SEMICONDUCTOR TECHNOLOGY CO., LTD.

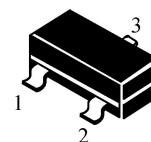
MMBT3904T

SOT-523 Bipolar Transistor 双极型三极管

■ Features 特点

NPN Switching 开关

- 1. BASE
- 2. EMITTER
- 3. COLLECTOR



■ Absolute Maximum Ratings 最大额定值

Characteristic 特性参数	Symbol 符号	Rat 额定值	Unit 单位
Collector-Base Voltage 集电极基极电压	V_{CBO}	60	V
Collector-Emitter Voltage 集电极发射极电压	V_{CEO}	40	V
Emitter-Base Voltage 发射极基极电压	V_{EBO}	6	V
Collector Current 集电极电流	I_C	200	mA
Power dissipation 耗散功率	$P_C(T_a=25^\circ\text{C})$	150	mW
Thermal Resistance Junction-Ambient 热阻	$R_{\theta JA}$	833	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature 结温和储藏温度	T_J, T_{stg}	-55to+150 $^\circ\text{C}$	

■ Device Marking 产品打标

MMBT3904T=1N

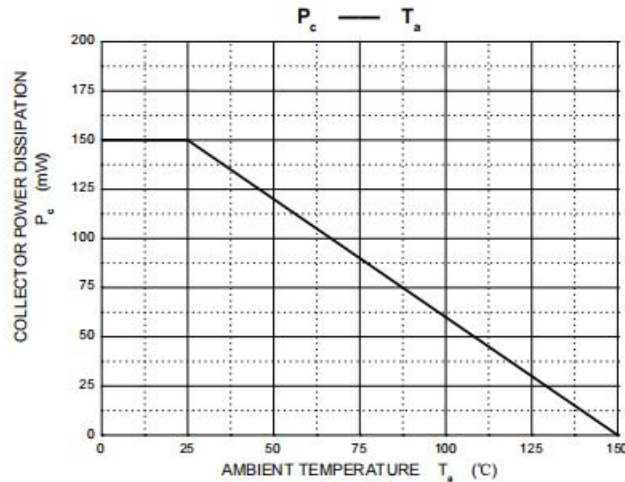
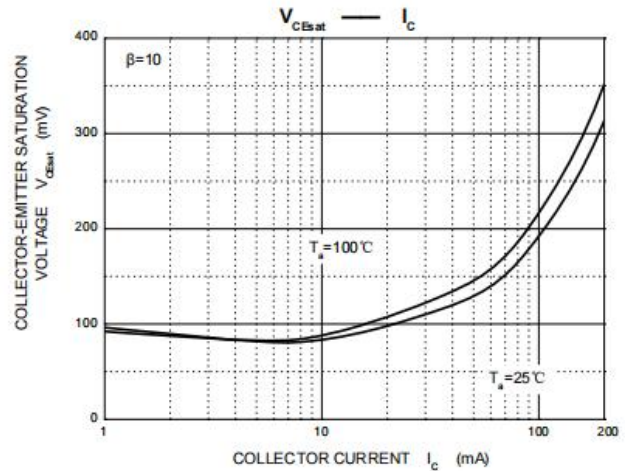
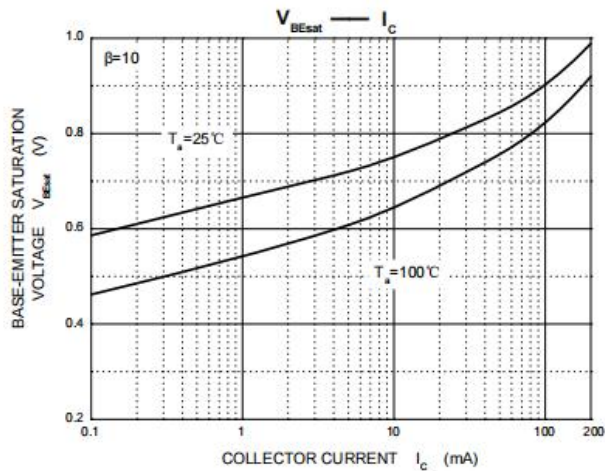
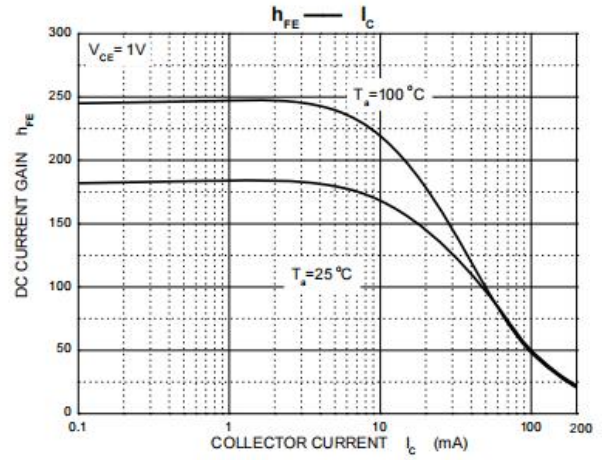
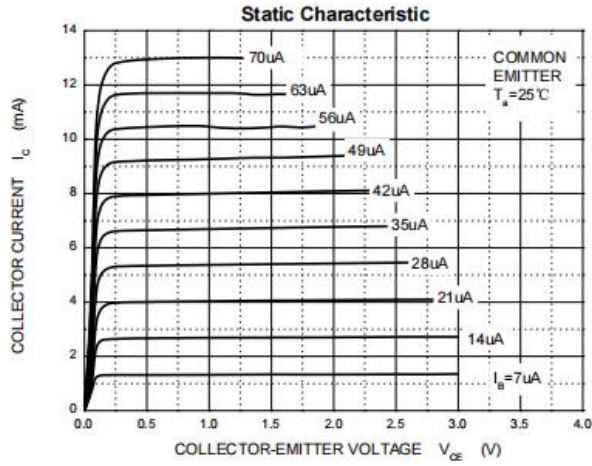


■ Electrical Characteristics 电特性

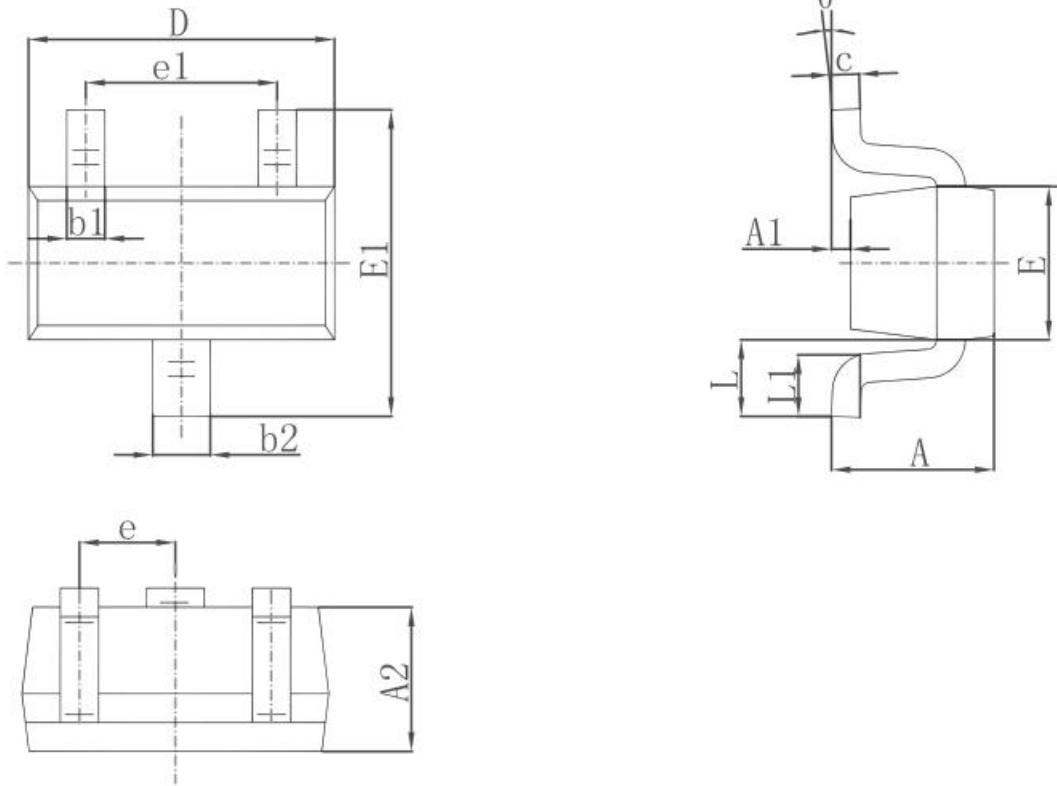
($T_A=25^{\circ}\text{C}$ unless otherwise noted 如无特殊说明, 温度为 25°C)

Characteristic 特性参数	Symbol 符号	Min 最小值	Type 典型值	Max 最大值	Unit 单位
Collector-Base Breakdown Voltage 集电极基极击穿电压($I_C=10\mu\text{A}$, $I_E=0$)	BV_{CBO}	60	—	—	V
Collector-Emitter Breakdown Voltage 集电极发射极击穿电压($I_C=1\text{mA}$, $I_B=0$)	BV_{CEO}	40	—	—	V
Emitter-Base Breakdown Voltage 发射极基极击穿电压($I_E=10\mu\text{A}$, $I_C=0$)	BV_{EBO}	6	—	—	V
Collector-Base Leakage Current 集电极基极漏电流($V_{CB}=60\text{V}$, $I_E=0$)	I_{CBO}	—	—	100	nA
Collector-Emitter Leakage Current 集电极发射极漏电流($V_{CE}=30\text{V}$, $V_{BE}=-3\text{V}$)	I_{CEX}	—	—	50	nA
Emitter-Base Leakage Current 发射极基极漏电流($V_{EB}=5\text{V}$, $I_C=0$)	I_{EBO}	—	—	100	nA
DC Current Gain($V_{CE}=1\text{V}$, $I_C=1\text{mA}$) 直流电流增益($V_{CE}=1\text{V}$, $I_C=10\text{mA}$) ($V_{CE}=1\text{V}$, $I_C=50\text{mA}$)	H_{FE}	70 100 60	—	300	
Collector-Emitter Saturation Voltage 集电极发射极饱和压降($I_C=50\text{mA}$, $I_B=5\text{mA}$)	$V_{CE(sat)}$	—	—	0.3	V
Base-Emitter Saturation Voltage 基极发射极饱和压降($I_C=50\text{mA}$, $I_B=5\text{mA}$)	$V_{BE(sat)}$	—	—	0.95	V
Transition Frequency 特征频率($V_{CE}=20\text{V}$, $I_C=10\text{mA}$)	f_T	300	—	—	MHz
Delay Time 延迟时间 ($V_{CC}=3\text{V}$, $V_{BE}=-0.5\text{V}$, $I_C=10\text{mA}$, $I_{B1}=1\text{mA}$)	t_d	—	—	35	ns
Rise Time 上升时间 ($V_{CC}=3\text{V}$, $V_{BE}=-0.5\text{V}$, $I_C=10\text{mA}$, $I_{B1}=1\text{mA}$)	t_r	—	—	35	ns
Storage Time 贮存时间 ($V_{CC}=3\text{V}$, $I_C=10\text{mA}$, $I_{B1}=I_{B2}=1\text{mA}$)	t_s	—	—	200	ns
Fall Time 下降时间 ($V_{CC}=3\text{V}$, $I_C=10\text{mA}$, $I_{B1}=I_{B2}=1\text{mA}$)	t_f	—	—	50	ns

■ Typical Characteristic Curve 典型特性曲线



■Dimension 外形封装尺寸



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°