

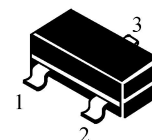
SOT-23 Bipolar Transistor 双极型三极管

■ **Features 特点**

NPN Low Saturation Voltage 低饱和压降

SOT-23

- 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}	40	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}	5	V
Collector Current 集电极电流	I_C	1000	mA
Power dissipation 耗散功率	$P_C(T_a=25^\circ\text{C})$	450	mW
Thermal Resistance Junction-Ambient 热阻	$R_{\theta JA}$	300	$^\circ\text{C}/\text{W}$
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**

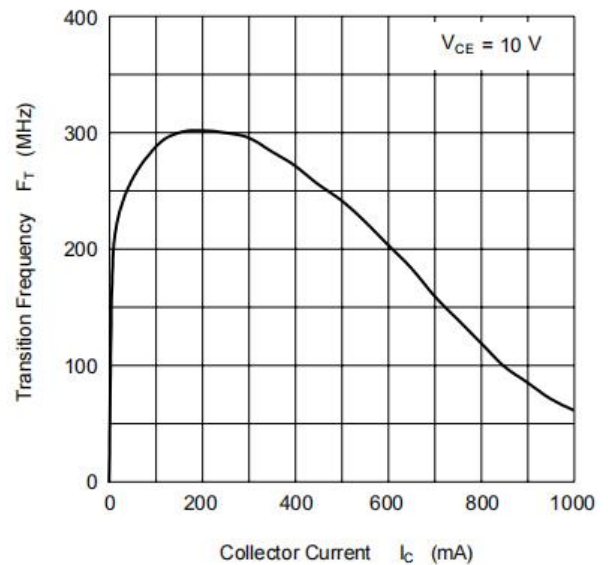
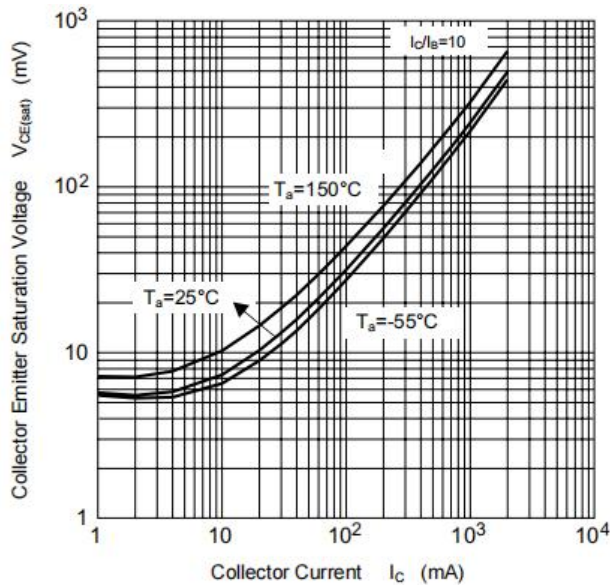
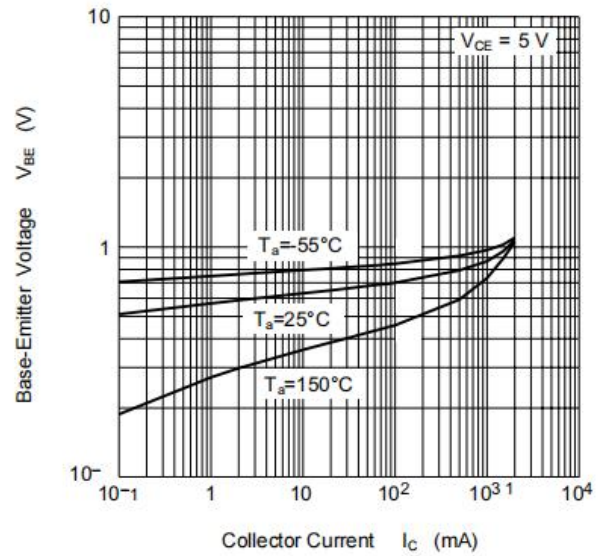
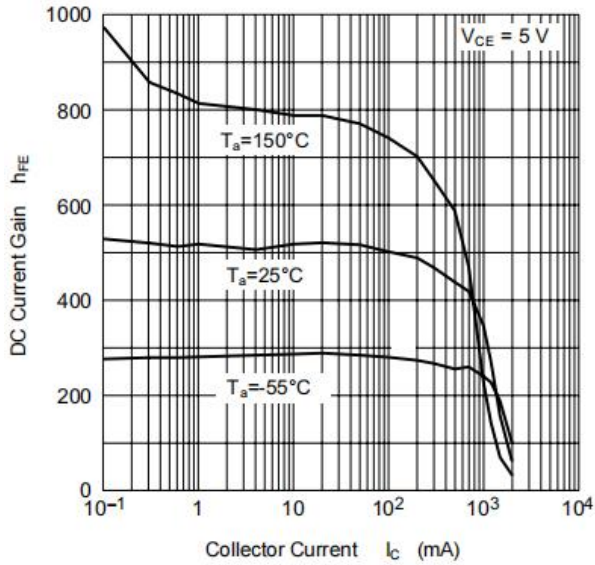
MMBT4140=JD

■ 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($I_C=100\mu\text{A}$, $I_E=0$)	BV_{CBO}	40	—	—	V
Collector-Emitter Breakdown Voltage 集电极发射极击穿电压($I_C=10\text{mA}$, $I_B=0$)	BV_{CEO}	40	—	—	V
Emitter-Base Breakdown Voltage 发射极基极击穿电压($I_E=100\mu\text{A}$, $I_C=0$)	BV_{EBO}	5	—	—	V
Collector-Base Leakage Current 集电极基极漏电流($V_{CB}=40\text{V}$, $I_E=0$)	I_{CBO}	—	—	100	nA
Collector-Emitter Leakage Current 集电极发射极漏电流($V_{CE}=30\text{V}$, $I_B=0$)	I_{CEO}	—	—	100	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($V_{CE}=5\text{V}$, $I_C=1\text{mA}$) 直流电流增益($V_{CE}=5\text{V}$, $I_C=500\text{mA}$) ($V_{CE}=5\text{V}$, $I_C=1000\text{mA}$)	H_{FE}	300 300 200	—	900	
Collector-Emitter Saturation Voltage 集电极发射极饱和压降($I_C=100\text{mA}$, $I_B=1\text{mA}$) ($I_C=500\text{mA}$, $I_B=50\text{mA}$) ($I_C=1000\text{mA}$, $I_B=100\text{mA}$)	$V_{CE(sat)}$	—	—	0.2 0.25 0.5	V
Base-Emitter Saturation Voltage 基极发射极饱和压降 ($I_C=1000\text{mA}$, $I_B=100\text{mA}$)	$V_{BE(sat)}$	—	—	1.2	V
Base-Emitter On Voltage 基极发射极导通电压 ($V_{CE}=5\text{V}$, $I_C=1000\text{mA}$)	$V_{BE(on)}$	—	—	1.1	V
Transition Frequency 特征频率($V_{CE}=10\text{V}$, $I_C=50\text{mA}$)	f_T	150	—	—	MHz
Output Capacitance 输出电容($V_{CB}=10\text{V}$, $I_E=0$, $f=1\text{MHz}$)	C_{ob}	—	10	—	pF

■ 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	0.900	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	0.050	0.055
E1	2.250	2.550	0.089	0.100
e	0.900	1.00	0.035	0.039
e1	1.800	2.000	0.071	0.079
L	0.500	0.600	0.020	0.024
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°