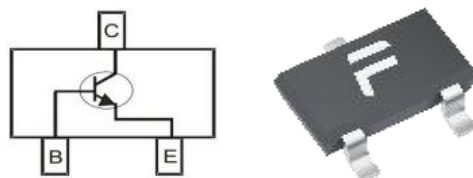


SOT-23 Bipolar Transistor 双极型三极管

■ Features 特点

NPN Switching 开关



■ Absolute Maximum Ratings 最大额定值

Characteristic 特性参数	Symbol 符号	MMBT2222	MMBT2222A	Unit 单位
Collector-Base Voltage 集电极基极电压	V_{CBO}	75	75	V
Collector-Emitter Voltage 集电极发射极电压	V_{CEO}	30	40	V
Emitter-Base Voltage 发射极基极电压	V_{EBO}	6	6	V
Collector Current 集电极电流	I_C	600	600	mA
Power dissipation 耗散功率	$P_C(T_a=25^{\circ}\text{C})$	250	300	mW
Thermal Resistance Junction-Ambient 热阻	$R_{\theta JA}$	500	417	$^{\circ}\text{C}/\text{W}$
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

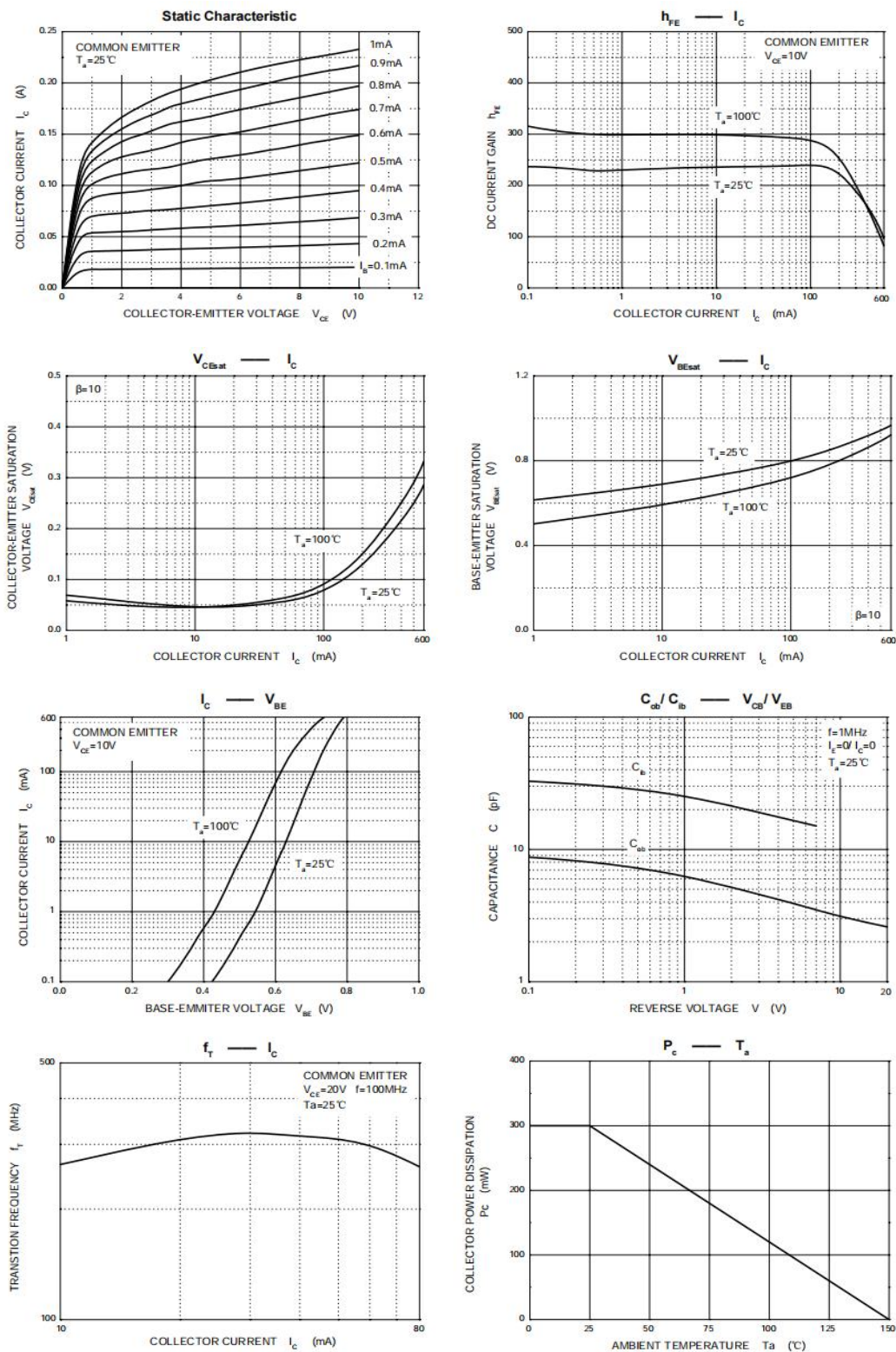
MMBT2222=M1B
MMBT2222A=1P

■Electrical Characteristics 电特性

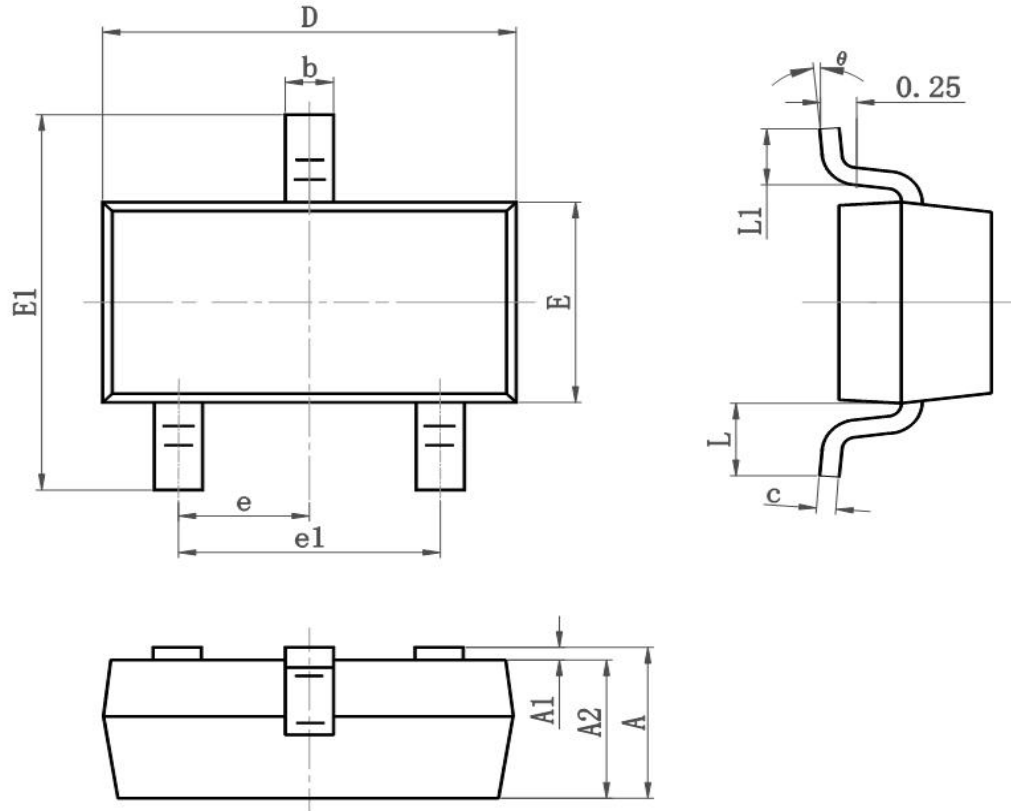
(TA=25℃ unless otherwise noted 如无特殊说明, 温度为 25℃)

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(IC=10uA, IE=0)	BV _{CBO}	75	—	—	V
Collector-Emitter Breakdown Voltage 集电极发射极击穿电压(IC=1mA, IB=0)	BV _{CEO}	30(MMBT2222) 40(MMBT2222A)	—	—	V
Emitter-Base Breakdown Voltage 发射极基极击穿电压(IE=10uA, IC=0)	BV _{EBO}	6	—	—	V
Collector-Base Leakage Current 集电极基极漏电流(V _{CB} =60V, IE=0)	I _{CBO}	—	—	100	nA
Collector-Emitter Leakage Current 集电极发射极漏电流(V _{CE} =35V, V _{BE} =-3V)	I _{CEX}	—	—	100	nA
Emitter-Base Leakage Current 发射极基极漏电流(V _{EB} =5V, IC=0)	I _{EBO}	—	—	100	nA
DC Current Gain(V _{CE} =10V, IC=150mA) 直流电流增益(V _{CE} =10V, IC=0.1mA) (V _{CE} =10V, IC=500mA)	H _{FE}	100 40 40	—	300	
Collector-Emitter Saturation Voltage 集电极发射极饱和压降(IC=500mA, IB=50mA) (IC=150mA, IB=15mA)	V _{CE(sat)}	—	—	1 0.3	V
Base-Emitter Saturation Voltage 基极发射极饱和压降(IC=500mA, IB=50mA) (IC=150mA, IB=15mA)	V _{BE(sat)}	—	—	2 1.2	V
Transition Frequency 特征频率(V _{CE} =20V, IC=20mA)	f _T	300	—	—	MHz
Delay Time 延迟时间 (V _{CC} =30V, V _{BE} =-0.5V, IC=150mA, IB1=15mA)	t _d	—	—	10	ns
Rise Time 上升时间 (V _{CC} =30V, V _{BE} =-0.5V, IC=150mA, IB1=15mA)	t _r	—	—	25	ns
Storage Time 贮存时间 (V _{CC} =30V, IC=150mA, IB1=IB2=15mA)	t _s	—	—	225	ns
Fall Time 下降时间 (V _{CC} =30V, IC=150mA, IB1=IB2=15mA)	t _f	—	—	60	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	0.900	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°