

BRMMBT4401Q

Rev.A Nov.-2022

描述 / Descriptions

SOT-23 塑封封装 NPN 半导体三极管。Silicon NPN transistor in a SOT-23 Plastic Package.

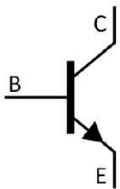
特征 / Features

水分敏感等级 : 1 , ESD 额定值 : 人体 4kV, 机器 400V , 符合 AEC-Q101 标准高可靠性要求 , 无卤产品。
Moisture Sensitivity Level: 1, ESD Rating: Human Body Model; 4 kV, Machine Model; 400 V, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

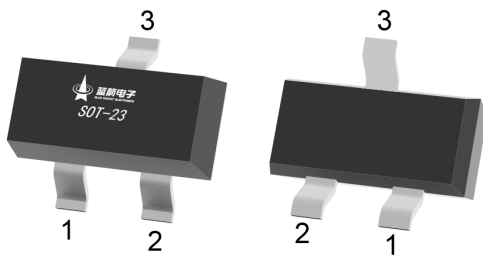
用途 / Applications

用于 I_c 电流达 500mA 的中功率放大及开关电路 , 满足汽车应用的严格要求。
Medium power amplifier and switch requiring collector currents up to 500 mA, Meet the stringent requirements of automotive applications.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



PIN 1 : Base PIN 2 : Emitter PIN 3 : Collector

放大及印章代码 / h_{FE} Classifications & Marking

h_{FE} Range	100~300
Marking	Q2X

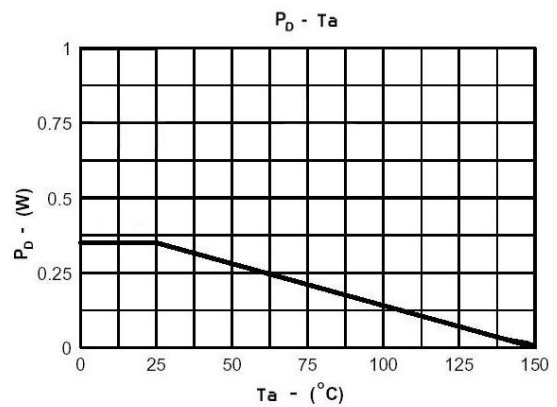
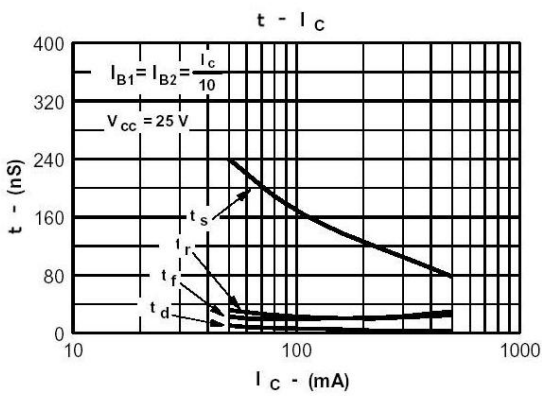
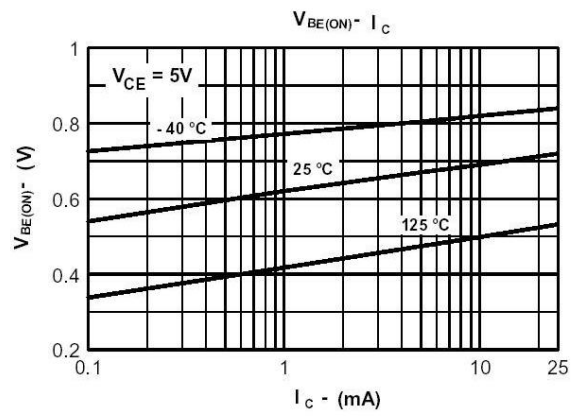
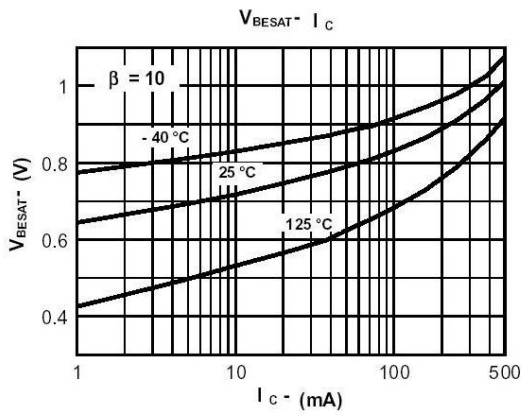
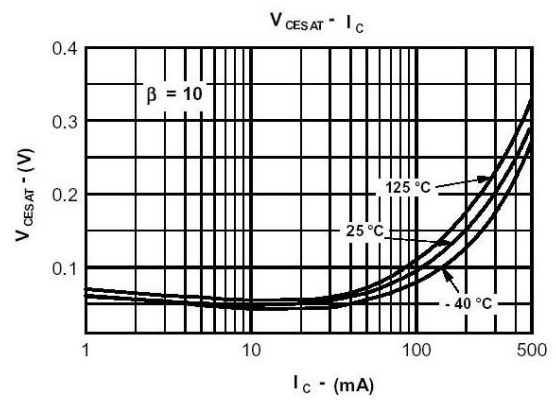
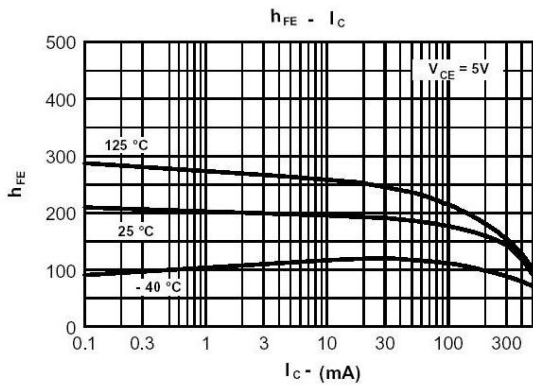
极限参数 / Absolute Maximum Ratings(Ta=25°C)

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Collector to Base Voltage	V _{CBO}	60	V
Collector to Emitter Voltage	V _{CEO}	40	V
Emitter to Base Voltage	V _{EBO}	6.0	V
Collector Current	I _C	600	mA
Collector Power Dissipation	P _C	350	mW
Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{stg}	-55~150	°C

电性能参数 / Electrical Characteristics(Ta=25°C)

参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Collector to Emitter Breakdown Voltage	V _{CEO}	I _C =1.0mA I _B =0	40			V
Collector to Base Breakdown Voltage	V _{CBO}	I _C =0.1mA I _E =0	60			V
Emitter to Base Breakdown Voltage	V _{EBO}	I _E =0.1mA I _C =0	6.0			V
Collector Cut-Off Current	I _{CBO}	V _{CB} =60V I _E =0			50	nA
Emitter Cut-Off Current	I _{EBO}	V _{EB} =6.0V I _C =0			50	nA
DC Current Gain	h _{FE(1)}	V _{CE} =1.0V I _C =150mA	100		300	
	h _{FE(2)}	V _{CE} =2.0V I _C =500mA	40			
	h _{FE(3)}	V _{CE} =1.0V I _C =10mA	80			
	h _{FE(4)}	V _{CE} =1.0V I _C =1.0mA	40			
	h _{FE(5)}	V _{CE} =1.0V I _C =0.1mA	20			
Collector-Emitter Saturation Voltage	V _{CE(sat) (1)}	I _C =150mA I _B =15mA			0.4	V
	V _{CE(sat) (2)}	I _C =500mA I _B =50mA			0.75	V
Base-Emitter Saturation Voltage	V _{BE(sat) (1)}	I _C =150mA I _B =15mA	0.75		0.95	V
	V _{BE(sat) (2)}	I _C =500mA I _B =50mA			1.2	V
Transition Frequency	f _T	V _{CE} =10V I _C =20mA f=100MHz	250			MHz
Delay Time	t _d	V _{CC} =30V I _C =150mA			15	ns
Rise Time	t _r	I _{B1} =15mA			20	ns
Storage Time	t _s	V _{CC} =30V I _C =150mA			225	ns
Fall Time	t _f	I _{B1} =-I _{B2} =15mA			30	ns

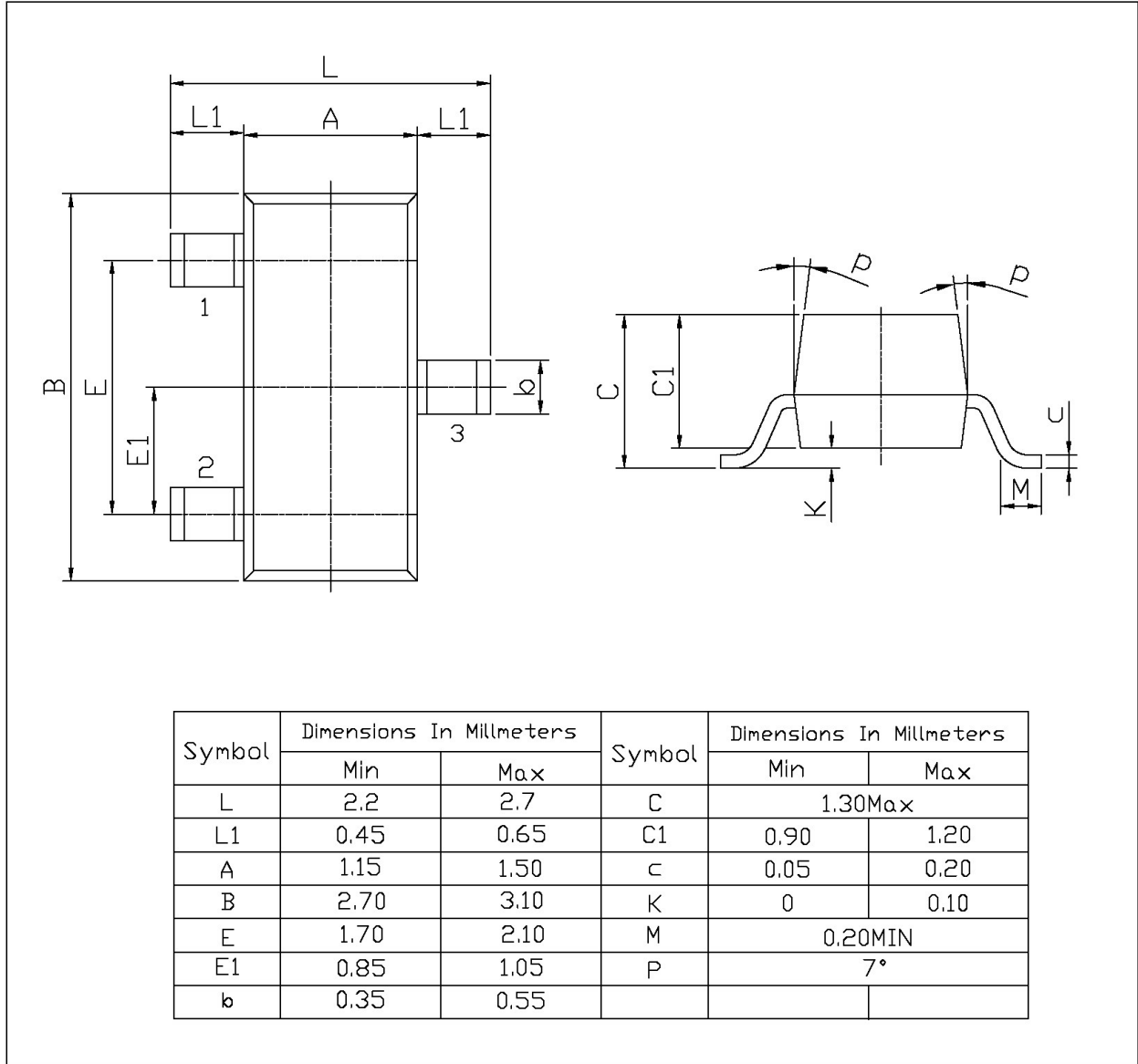
电参数曲线图 / Electrical Characteristic Curve



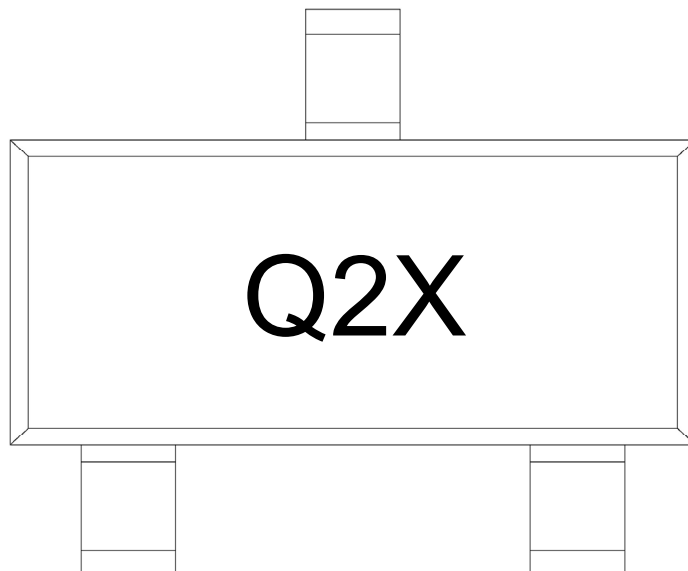
外形尺寸图 / Package Dimensions

SOT-23

单位: mm



印章说明 / Marking Instructions



说明：

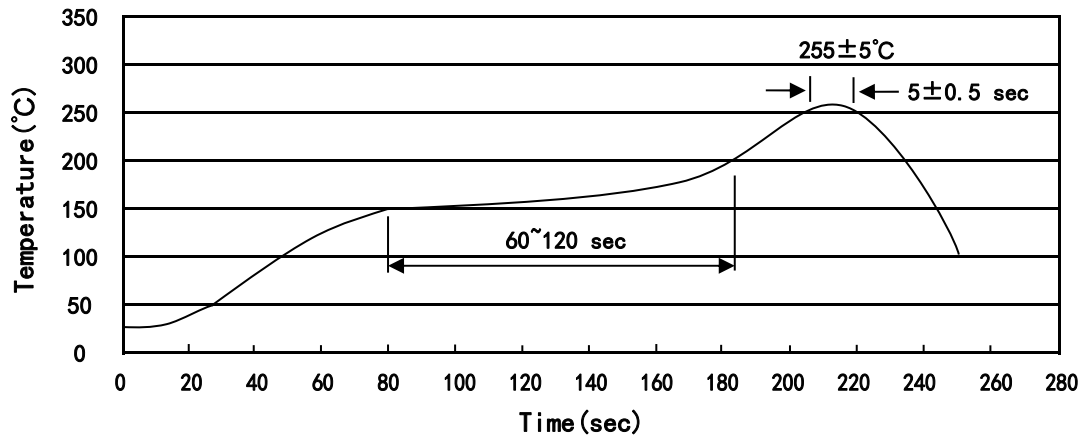
Q： 为汽车无卤产品标识

2X： 为型号代码

Note:

Q: Automobile halogen-free product Code

2X: Product Type Code

回流焊温度曲线图(无铅) / Temperature Profile for IR Reflow Soldering(Pb-Free)


说明：

- 1、预热温度 150~200°C，时间 60~120sec;
- 2、峰值温度 255±5°C，时间持续为 5±0.5sec;
- 3、焊接制程冷却速度为 2~10°C/sec.

Note:

- 1.Preheating:150~200°C, Time:60~120sec.
- 2.Peak Temp.:255±5°C, Duration:5±0.5sec.
3. Cooling Speed: 2~10°C/sec.

耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions

温度：260±5°C

时间：10±1 sec.

Temp.:260±5°C

Time:10±1 sec

包装规格 / Packaging SPEC.

卷盘包装 / REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
SOT-23	3,000	10	30,000	6	180,000	7" ×8	180×120×180	390×385×205

使用说明 / Notices