

BRMMBT4403Q

Rev.B May.-2023

描述 / Descriptions

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

特征 / Features

集电极电流可达 500mA，符合 AEC-Q101 标准高可靠性要求，无卤产品。

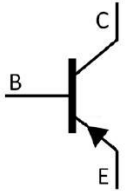
Collector currents up to 500 mA, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

用途 / Applications

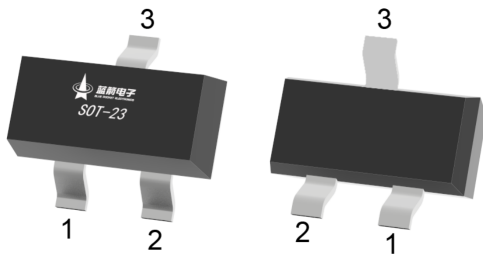
用于普通放大及开关电路，满足汽车应用的严格要求。

General purpose amplifier and switch requiring, 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 | 2TQ |

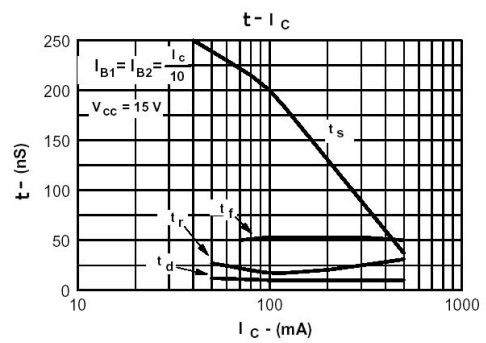
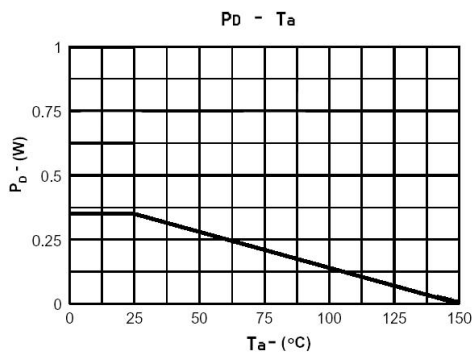
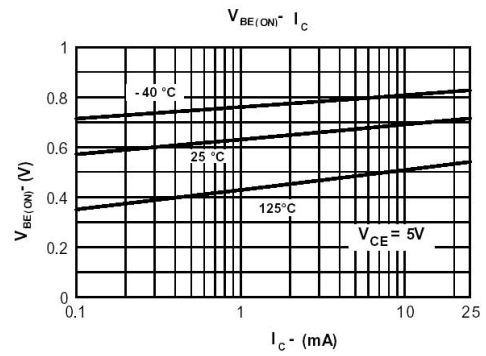
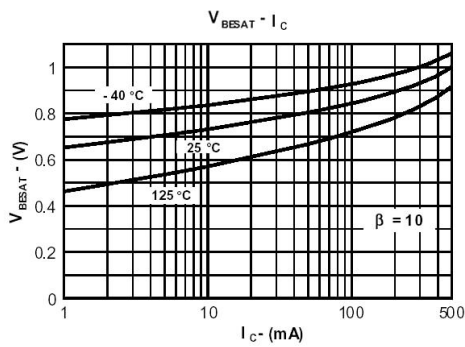
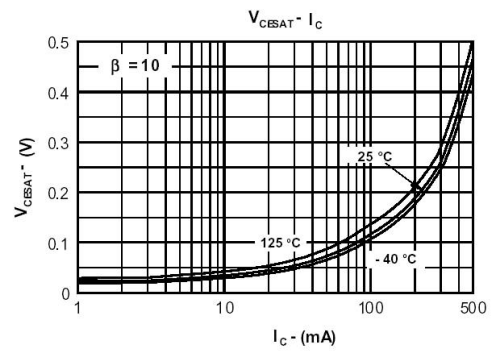
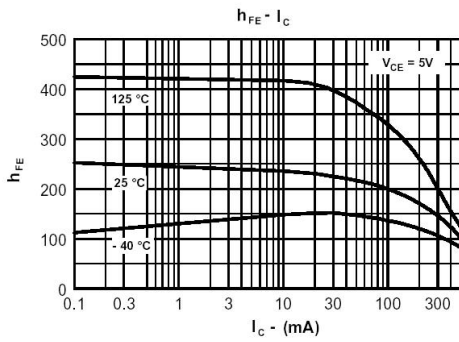
极限参数 / Absolute Maximum Ratings(Ta=25°C)

| 参数 Parameter | 符号 Symbol | 数值 Rating | 单位 Unit |
|------------------------------|------------------|--------------|------------|
| Collector to Base Voltage | V _{CBO} | -40 | V |
| Collector to Emitter Voltage | V _{CEO} | -40 | V |
| Emitter to Base Voltage | V _{EBO} | -5.0 | 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 Base Breakdown Voltage | V _{CBO} | I _C =-0.1mA I _E =0 | -40 | | | V |
| Collector to Emitter Breakdown Voltage | V _{CEO} | I _C =-1.0mA I _B =0 | -40 | | | V |
| Emitter to Base Breakdown Voltage | V _{EBO} | I _E =-0.1mA I _C =0 | -5.0 | | | V |
| Collector Cut-Off Current | I _{CBO} | V _{CB} =-40V I _E =0 | | | -50 | nA |
| Emitter Cut-Off Current | I _{EBO} | V _{EB} =-5.0V I _C =0 | | | -50 | nA |
| DC Current Gain | h _{FE(1)} | V _{CE} =-2.0V I _C =-150mA | 100 | | 300 | |
| | h _{FE(2)} | V _{CE} =-1.0V I _C =-0.1mA | 30 | | | |
| | h _{FE(3)} | V _{CE} =-1.0V I _C =-1.0mA | 60 | | | |
| | h _{FE(4)} | V _{CE} =-1.0V I _C =-10mA | 100 | | | |
| | h _{FE(5)} | V _{CE} =-2.0V I _C =-500mA | 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 | | | -1.3 | V |
| Transition Frequency | f _T | V _{CE} =-10V I _C =-20mA f=100MHz | 200 | | | 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 |

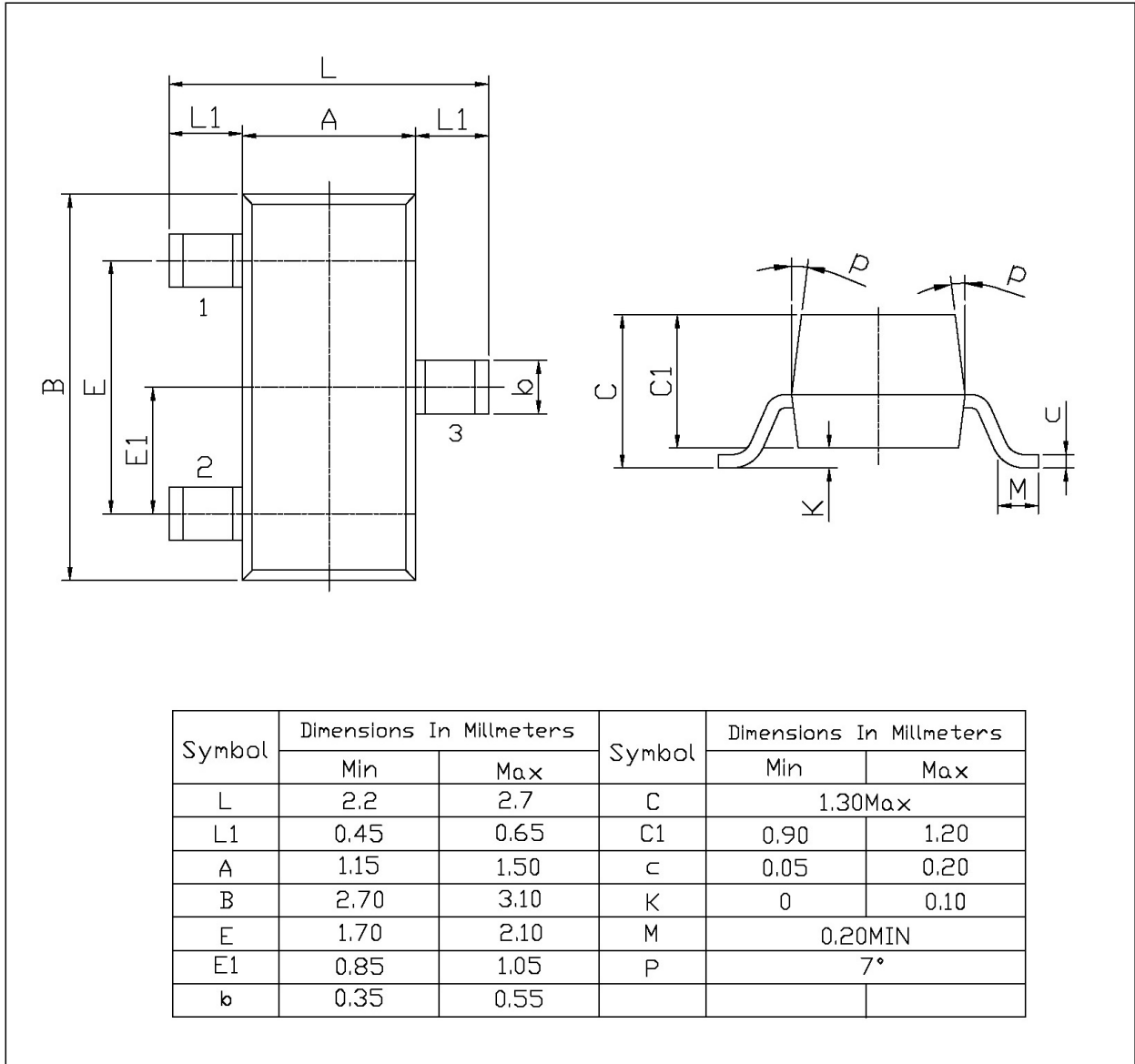
电参数曲线图 / Electrical Characteristic Curve



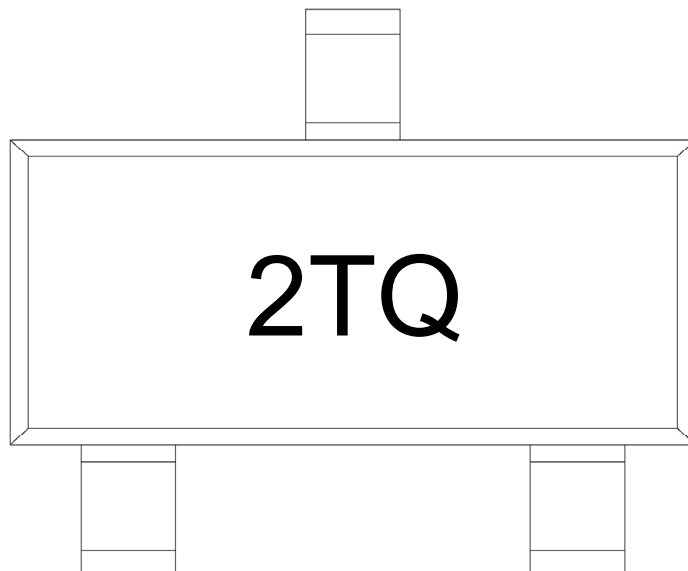
外形尺寸图 / Package Dimensions

SOT-23

单位: mm



印章说明 / Marking Instructions



说明：

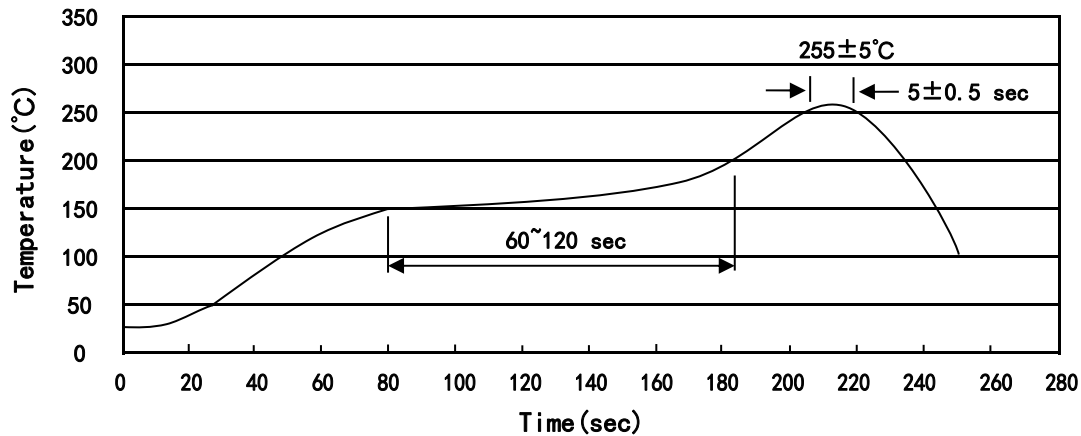
2T： 为型号代码

Q： 为汽车无卤产品标识

Note:

2T： Product Type Code

Q: Automobile halogen-free product 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