

# BRMMBTA06Q

Rev.A Jun.-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

与 BRMMBTA56Q 互补，符合 AEC-Q101 标准高可靠性要求，无卤产品。

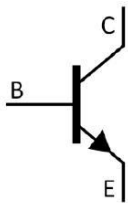
Complementary to BRMMBTA56Q, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

## 用途 / Applications

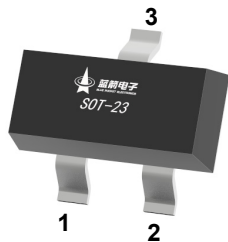
用于中功率放大和开关，满足汽车应用的严格要求。

Ideal for medium power amplification and switching, Meet the stringent requirements of automotive applications.

## 内部等效电路 / Equivalent Circuit



## 引脚排列 / Pinning



PIN1 : Base

PIN 2 : Emitter

PIN 3 : Collector

## 放大及印章代码 / h<sub>FE</sub> Classifications & Marking

|                       |         |
|-----------------------|---------|
| h <sub>FE</sub> Range | 100~300 |
| Marking               | QK1G    |

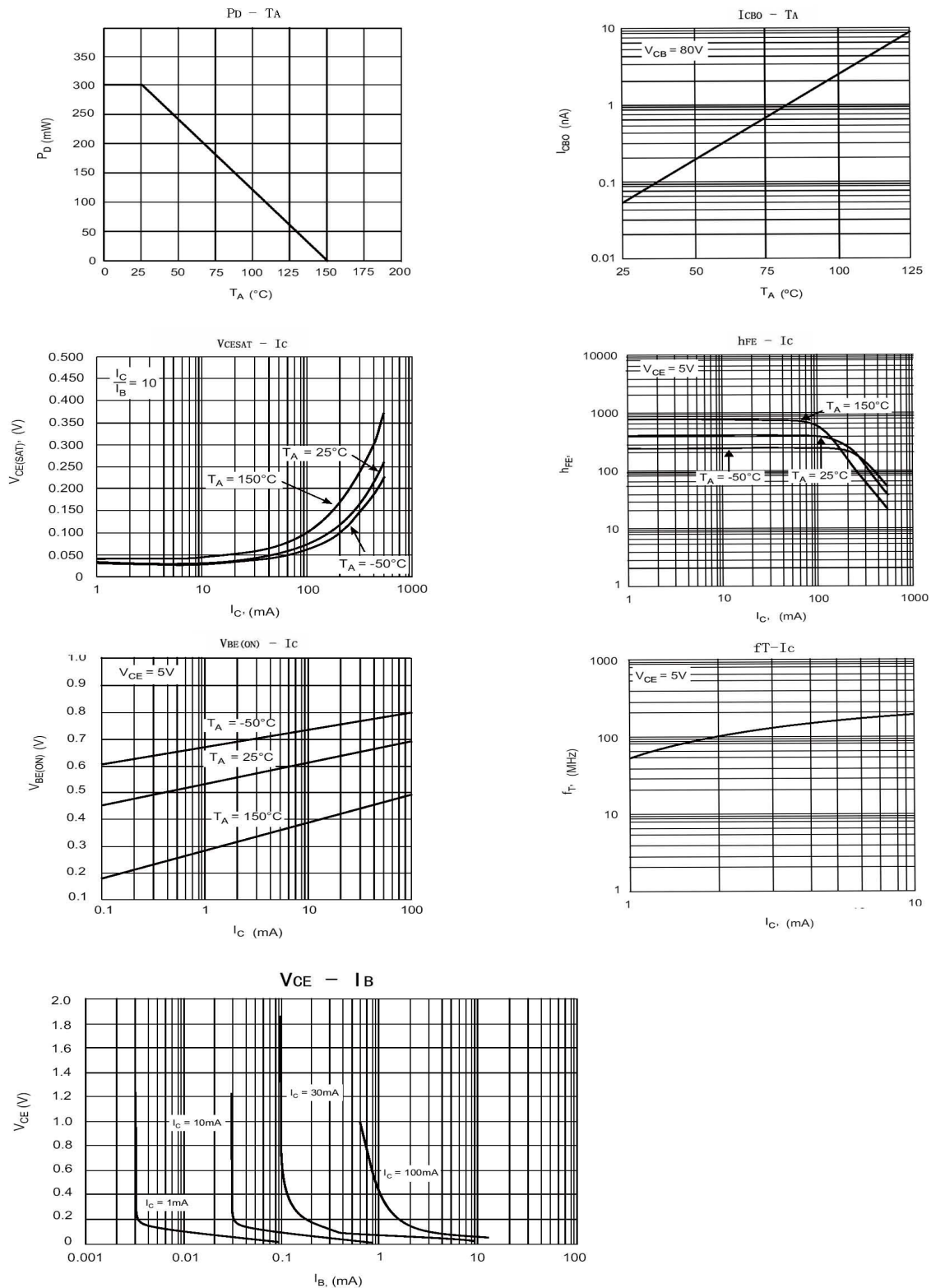
**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

| 参数<br>Parameter                | 符号<br>Symbol | 数值<br>Rating | 单位<br>Unit |
|--------------------------------|--------------|--------------|------------|
| Collector to Base Voltage      | $V_{CBO}$    | 80           | V          |
| Collector to Emitter Voltage   | $V_{CEO}$    | 80           | V          |
| Emitter to Base Voltage        | $V_{EBO}$    | 4.0          | V          |
| Collector Current - Continuous | $I_C$        | 500          | mA         |
| Collector Power Dissipation    | $P_C$        | 300          | 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<br>Parameter                         | 符号<br>Symbol  | 测试条件<br>Test Conditions              | 最小值<br>Min | 典型值<br>Typ | 最大值<br>Max | 单位<br>Unit |
|-----------------------------------------|---------------|--------------------------------------|------------|------------|------------|------------|
| Collector to Base Breakdown Voltage     | $V_{CBO}$     | $I_C=100\mu A$ $I_E=0$               | 80         |            |            | V          |
| Collector to Emitter Breakdown Voltage  | $V_{CEO}$     | $I_C=1.0mA$ $I_B=0$                  | 80         |            |            | V          |
| Emitter to Base Breakdown Voltage       | $V_{EBO}$     | $I_E=100\mu A$ $I_C=0$               | 4.0        |            |            | V          |
| Collector Cut-Off Current               | $I_{CBO}$     | $V_{CB}=80V$ $I_E=0$                 |            |            | 0.1        | $\mu A$    |
| Collector Cut-Off Current               | $I_{CES}$     | $V_{CE}=80V$ $I_E=0$                 |            |            | 0.1        | $\mu A$    |
| DC Current Gain                         | $h_{FE(1)}$   | $V_{CE}=1.0V$ $I_C=100mA$            | 100        |            | 300        |            |
|                                         | $h_{FE(2)}$   | $V_{CE}=1.0V$ $I_C=10mA$             | 100        |            | 300        |            |
| Collector to Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=100mA$ $I_B=10mA$               |            |            | 0.25       | V          |
| Base to Emitter Saturation Voltage      | $V_{BE(sat)}$ | $I_C=100mA$ $I_B=10mA$               |            |            | 1.2        | V          |
| Transition Frequency                    | $f_T$         | $I_C=10mA$ $V_{CE}=2V$<br>$f=100MHz$ | 100        |            |            | MHz        |

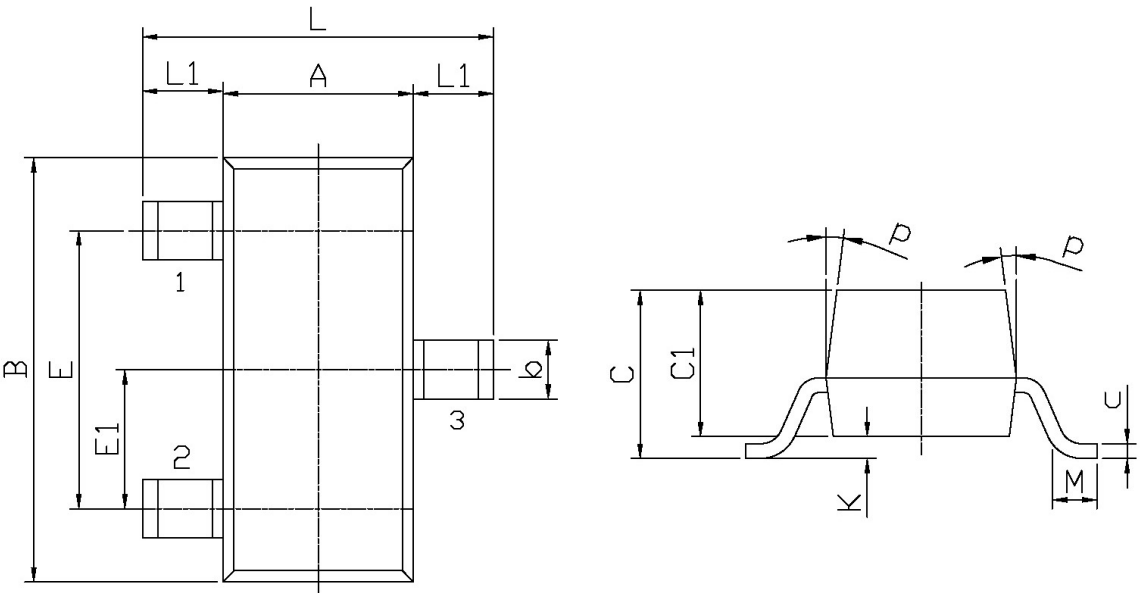
## 电参数曲线图 / Electrical Characteristic Curve



外形尺寸图 / Package Dimensions

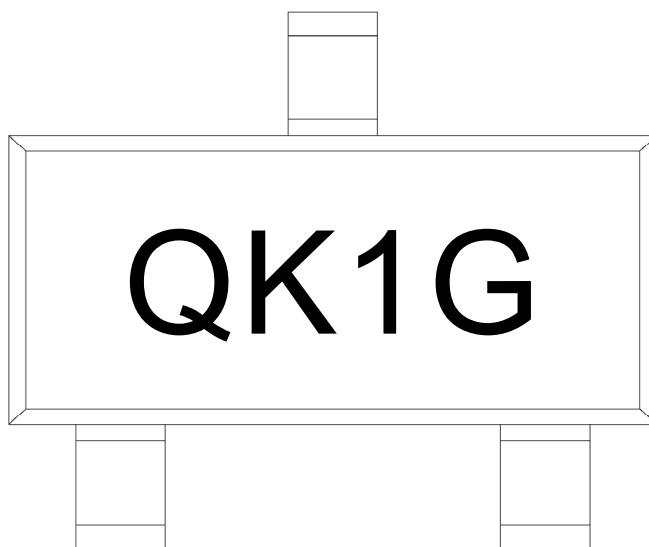
SOT-23

单位：mm



| Symbol | Dimensions In Millimeters |      | Symbol | Dimensions In Millimeters |      |
|--------|---------------------------|------|--------|---------------------------|------|
|        | Min                       | Max  |        | Min                       | Max  |
| L      | 2.2                       | 2.7  | C      | 1.30Max                   |      |
| L1     | 0.45                      | 0.65 | C1     | 0.90                      | 1.20 |
| A      | 1.15                      | 1.50 | c      | 0.05                      | 0.20 |
| B      | 2.70                      | 3.10 | K      | 0                         | 0.10 |
| E      | 1.70                      | 2.10 | M      | 0.20MIN                   |      |
| E1     | 0.85                      | 1.05 | P      | 7°                        |      |
| b      | 0.35                      | 0.55 |        |                           |      |

**印章说明 / Marking Instructions**



说明：

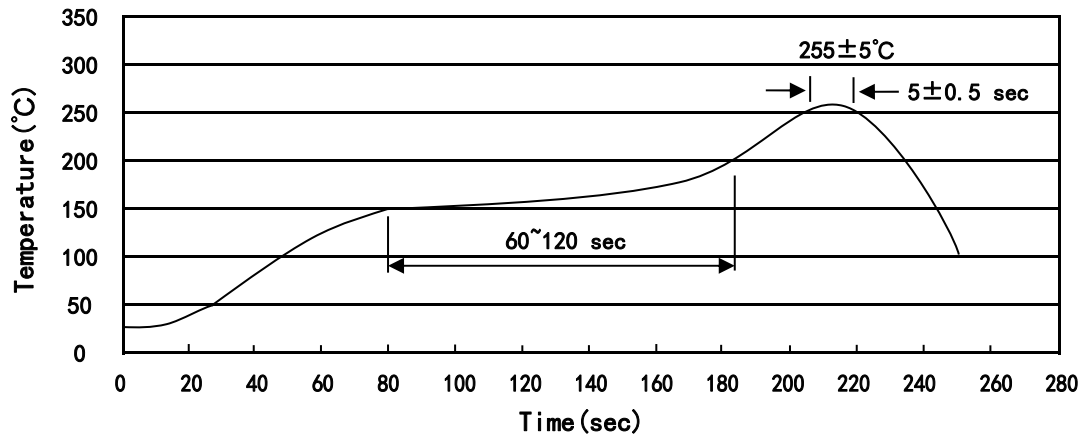
Q： 为汽车无卤产品标识

K1G： 为型号代码

Note:

Q: Automobile halogen-free product Code

K1G: 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<br>封装形式 | Units 包装数量         |                         |                        |                              |                        | Dimension 包装尺寸 (unit: mm <sup>3</sup> ) |             |             |
|----------------------|--------------------|-------------------------|------------------------|------------------------------|------------------------|-----------------------------------------|-------------|-------------|
|                      | Units/Reel<br>只/卷盘 | Reels/Inner Box<br>卷盘/盒 | Units/Inner Box<br>只/盒 | Inner Boxes/Outer Box<br>盒/箱 | Units/Outer Box<br>只/箱 | Reel                                    | Inner Box 盒 | Outer Box 箱 |
| SOT-23               | 3,000              | 10                      | 30,000                 | 6                            | 180,000                | 7" x8                                   | 180×120×180 | 390×385×205 |

**使用说明 / Notices**