

描述 / Descriptions

SOT-89 塑封封装 PNP 半导体三极管。Silicon PNP transistor in a SOT-89 Plastic Package.

特征 / Features

集电极耗散功率大，小型封装。

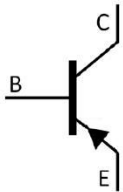
Large collector power dissipation P_C , Mini Power type package.

用途 / Applications

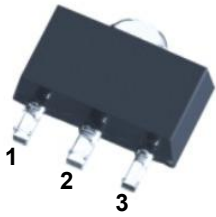
用于低频放大输出。

For low-frequency output amplification.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



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

印章代码 / Marking

| | | | |
|------------------------------------|------------|------------|------------|
| h_{FE} Classifications Symbol | Q | R | S |
| h_{FE} Range | 85~170 | 120~240 | 170~340 |
| Marking | BQH * * | BRH * * | BSH * * |

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

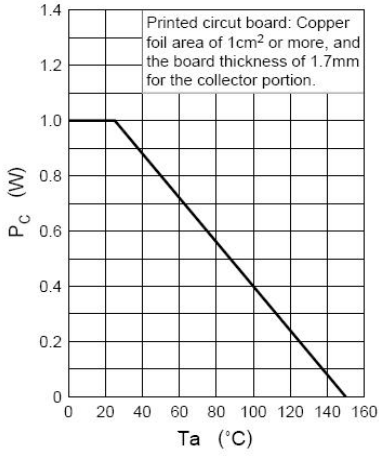
| 参数 Parameter | 符号 Symbol | 数值 Rating | 单位 Unit |
|-------------------------------------|--------------|--------------|------------|
| Collector to Base Voltage | V_{CBO} | -60 | V |
| Collector to Emitter Voltage | V_{CEO} | -50 | V |
| Emitter to Base Voltage | V_{EBO} | -5.0 | V |
| Collector Current-Continuous(Pulse) | I_{CP} | -1.5 | A |
| Collector Current-Continuous | I_C | -1.0 | A |
| Collector Power Dissipation | P_C | 1 | W |
| Junction Temperature | T_j | 150 | °C |
| Storage Temperature Range | T_{stg} | -55~150 | °C |

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

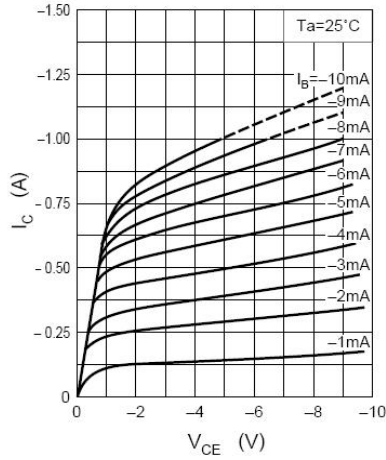
| 参数 Parameter | 符号 Symbol | 测试条件 Test Conditions | 最小值 Min | 典型值 Typ | 最大值 Max | 单位 Unit |
|---|---------------|---|------------|------------|------------|------------|
| Collector to Base Breakdown Voltage | V_{CBO} | $I_C=-10\mu A$ $I_E=0$ | -60 | | | V |
| Collector to Emitter Breakdown Voltage | V_{CEO} | $I_C=-2mA$ $I_B=0$ | -50 | | | V |
| Collector Cut-Off Current | I_{CBO} | $V_{CB}=-20V$ $I_E=0$ | | | -0.1 | μA |
| DC Current Gain | $h_{FE(1)}$ | $V_{CE}=-10V$ $I_C=-500mA$ | 85 | 160 | 340 | |
| | $h_{FE(2)}$ | $V_{CE}=-5.0V$ $I_C=-1A$ | 50 | | | |
| Collector to Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=-500mA$ $I_B=-50mA$ | | -0.2 | -0.4 | V |
| Base to Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C=-500mA$ $I_B=-50mA$ | | -0.85 | -1.2 | V |
| Transition Frequency | f_T | $V_{CB}=-10V$ $I_E=50mA$ $f=200$ MHz | | 200 | | MHz |
| Collector Output Capacitance | C_{ob} | $V_{CB}=-10V$ $I_E=0$ $f=1.0$ MHz | | 20 | 30 | pF |

电参数曲线图 / Electrical Characteristic Curve

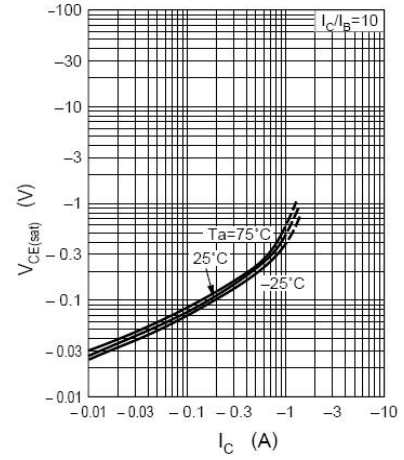
$P_C - T_a$



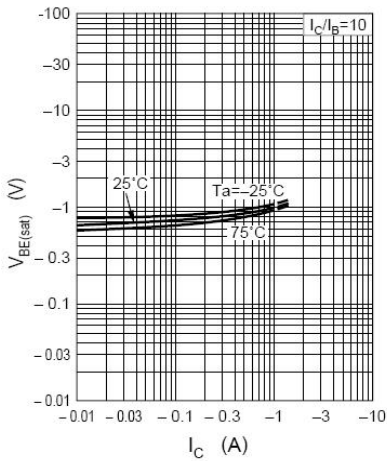
$I_C - V_{CE}$



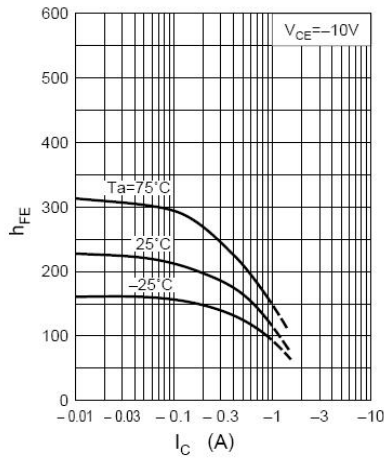
$V_{CE(sat)} - I_C$



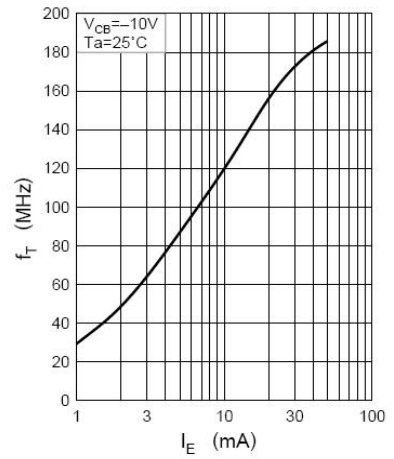
$V_{BE(sat)} - I_C$



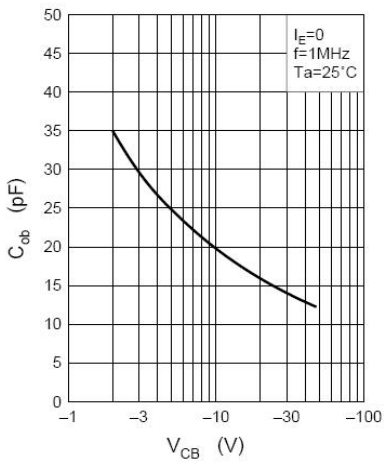
$h_{FE} - I_C$



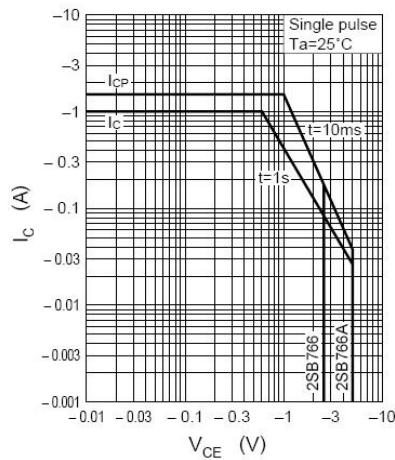
$f_T - I_E$



$C_{ob} - V_{CB}$



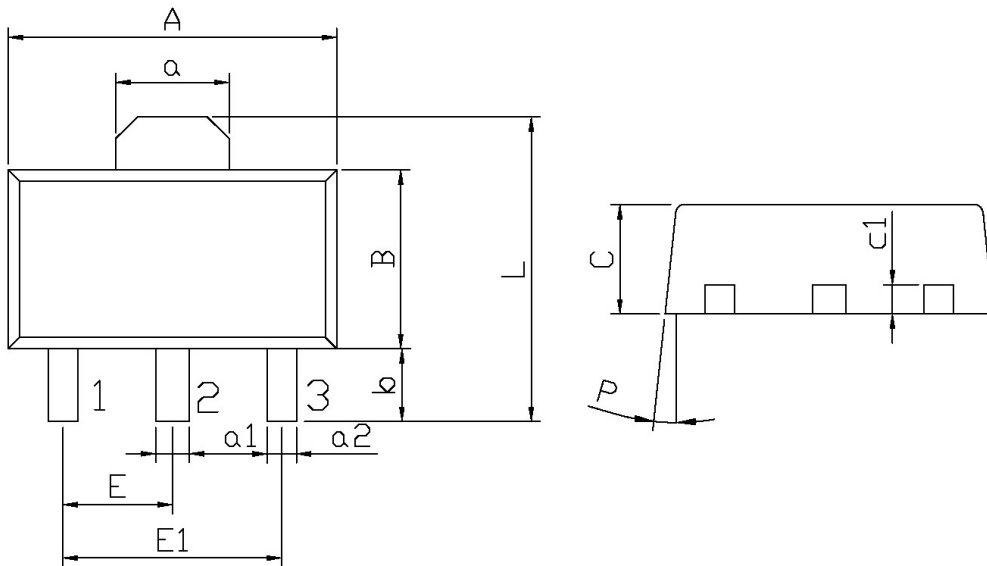
ASO



外形尺寸图 / Package Dimensions

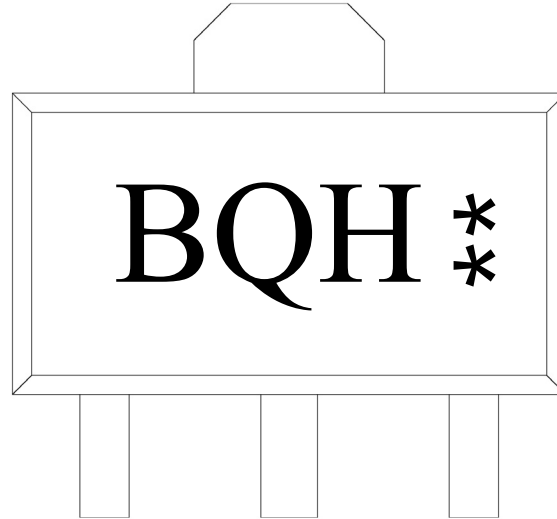
SOT-89

单位: mm



| Symbol | Dimensions In Millimeters | | Symbol | Dimensions In Millimeters | |
|--------|---------------------------|-------|--------|---------------------------|------|
| | Min | Max | | Min | Max |
| A | 4.4 | 4.7 | a1 | 0.36 | 0.56 |
| B | 2.35 | 2.65 | a2 | 0.30 | 0.50 |
| L | 3.878 | 4.478 | C | 1.40 | 1.70 |
| a | 1.45 | 1.65 | c1 | 0.35 | 0.50 |
| E | 1.40 | 1.60 | P | 6° | |
| E1 | 2.80 | 3.20 | | | |
| b | 0.80 | 1.20 | | | |

印章说明 / Marking Instructions



说明：

- B： 为型号代码
- Q： 为 h_{FE} 档次代码
- H： 为公司代码
- **： 为生产批号代码，随生产批号变化。

Note:

- B: Product Type.
- Q: h_{FE} Classifications Symbol
- H: Company Code.
- ** : Lot No. Code, code change with Lot No.

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 25~150°C，时间 60~90sec;
- 2、峰值温度 245±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:25~150°C, Time:60~90sec.
- 2.Peak Temp.:245±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-89 | 1,000 | 7 | 7,000 | 8 | 56,000 | 7" ×12 | 180×120×180 | 385×257×392 |

使用说明 / Notices