

**描述 / Descriptions**

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

**特征 / Features**

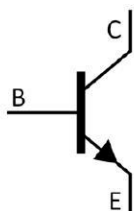
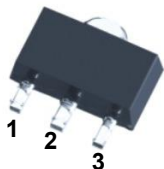
快速转换。

High Speed Switching

**用途 / Applications**

主要用于节能灯、日光灯电子镇流器及其它开关、振荡电路。

High frequency electronic lighting ballast applications, converters, inverters switching , regulators, etc.

**内部等效电路 / Equivalent Circuit****引脚排列 / Pinning**

PIN1 : Base

PIN 2 : Collector

PIN 3 : Emitter

**印章代码 / Marking**

|         |             |
|---------|-------------|
| Marking | H03F *<br>* |
|---------|-------------|

**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      | $V_{CBO}$    | 600          | V          |
| Collector to Emitter Voltage   | $V_{CEO}$    | 400          | V          |
| Emitter to Base Voltage        | $V_{EBO}$    | 9.0          | V          |
| Collector Current - Continuous | $I_C$        | 0.5          | A          |
| Collector Power Dissipation    | $P_C$        | 500          | mW         |
| Collector Power Dissipation    | $*P_C$       | 1.0          | W          |
| Junction Temperature           | $T_J$        | 150          | °C         |
| Storage Temperature Range      | $T_{stg}$    | -55~150      | °C         |

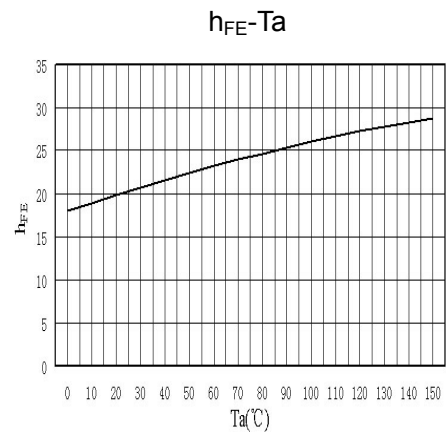
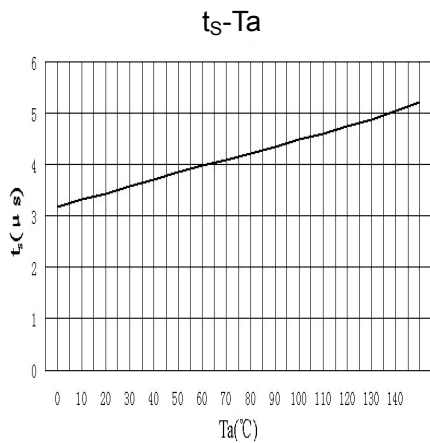
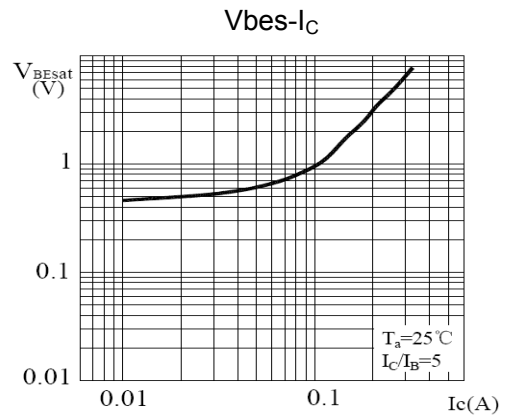
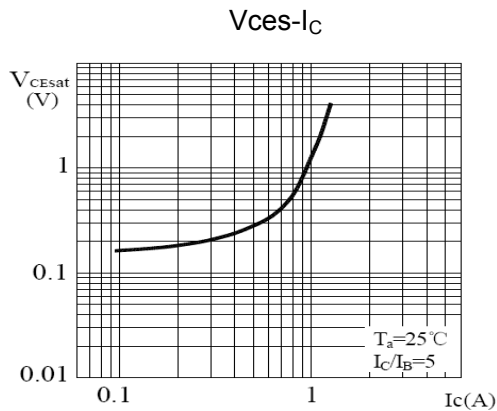
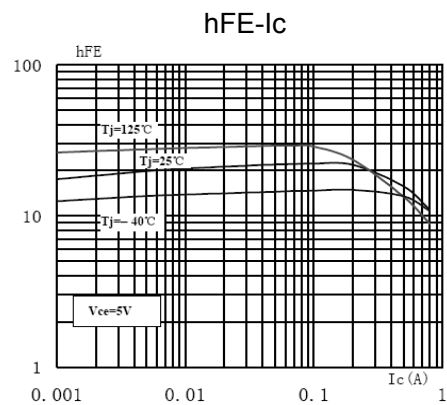
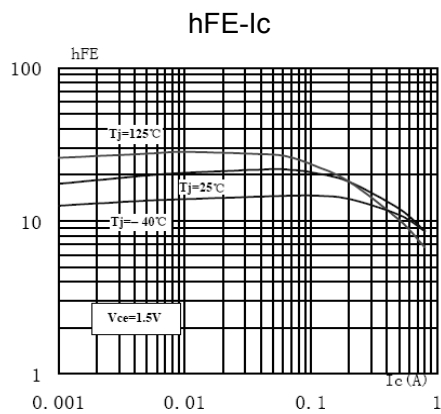
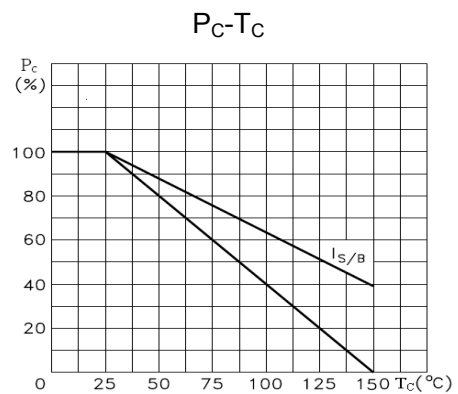
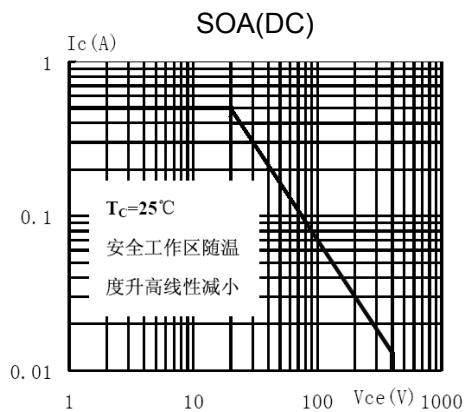
\*mounted on ceramic substrate(250mm<sup>2</sup>×0.8t)

\*贴装于 250mm<sup>2</sup>×0.8t 的陶瓷板上。

**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-Base Voltage                  | $V_{CBO}$     | $I_C=1mA$ $I_E=0$                     | 600        |            |            | V          |
| Collector-Emitter Voltage               | $V_{CEO}$     | $I_C=10mA$ $I_B=0$                    | 400        |            |            | V          |
| Emitter-Base Voltage                    | $V_{EBO}$     | $I_E=1mA$ $I_C=0$                     | 9.0        |            |            | V          |
| Collector Cut-Off Current               | $I_{CBO}$     | $V_{CB}=600V$ $I_E=0$                 |            |            | 0.1        | mA         |
| Collector cut-off current               | $I_{CEO}$     | $V_{CE}=400V$ $I_B=0$                 |            |            | 0.1        | mA         |
| Emitter Base Cut-Off Current            | $I_{EBO}$     | $V_{EB}=9.0V$ $I_C=0$                 |            |            | 0.1        | mA         |
| DC Current Gain                         | $h_{FE}$      | $V_{CE}=5.0V$ $I_C=200mA$             | 10         |            | 40         |            |
| Collector to Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=200mA$ $I_B=40mA$                |            |            | 0.5        | V          |
| Base to Emitter Saturation Voltage      | $V_{BE(sat)}$ | $I_C=200mA$ $I_B=40mA$                |            |            | 1.2        | V          |
| Transition Frequency                    | $f_T$         | $V_{CE}=10V$ $I_C=50mA$<br>$f=1.0MHz$ | 5.0        |            |            | MHz        |
| Fall time                               | $t_f$         | $V_{CE}=5V$ $I_C=100mA$<br>(UI9600)   |            |            | 0.6        | μs         |
| Storage time                            | $t_s$         |                                       |            |            | 4.0        | μs         |

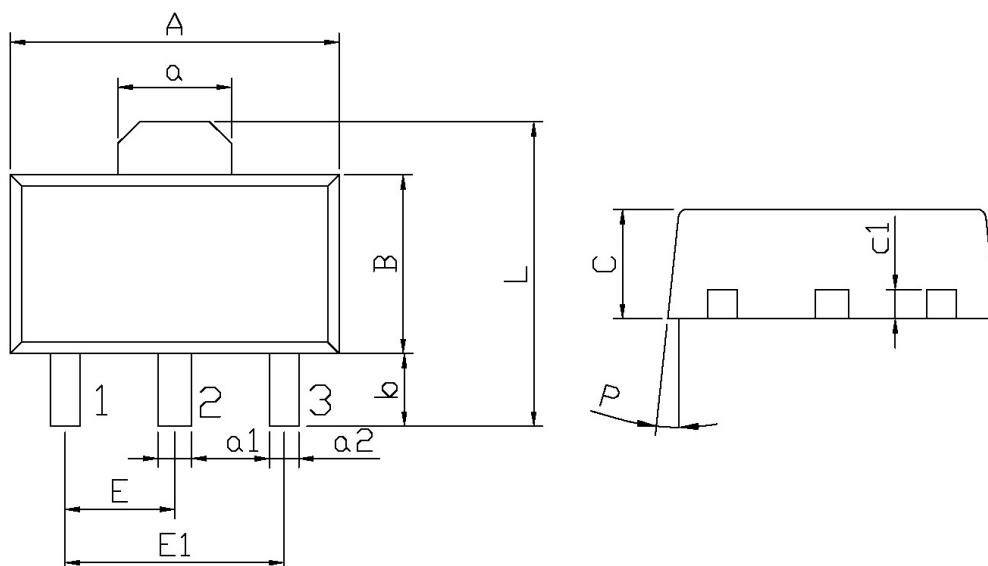
## 电参数曲线图 / Electrical Characteristic Curve



外形尺寸图 / Package Dimensions

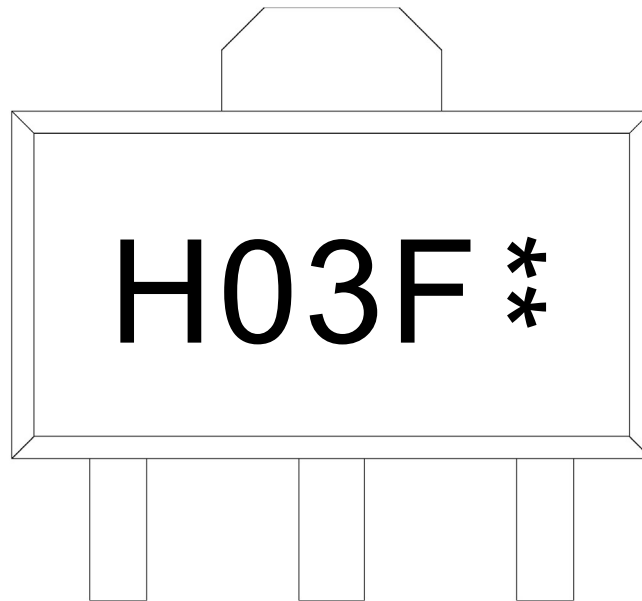
SOT-89

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：

H： 为公司代码

03F： 为型号代码

\*\*： 为生产批号代码，随生产批号变化

Note:

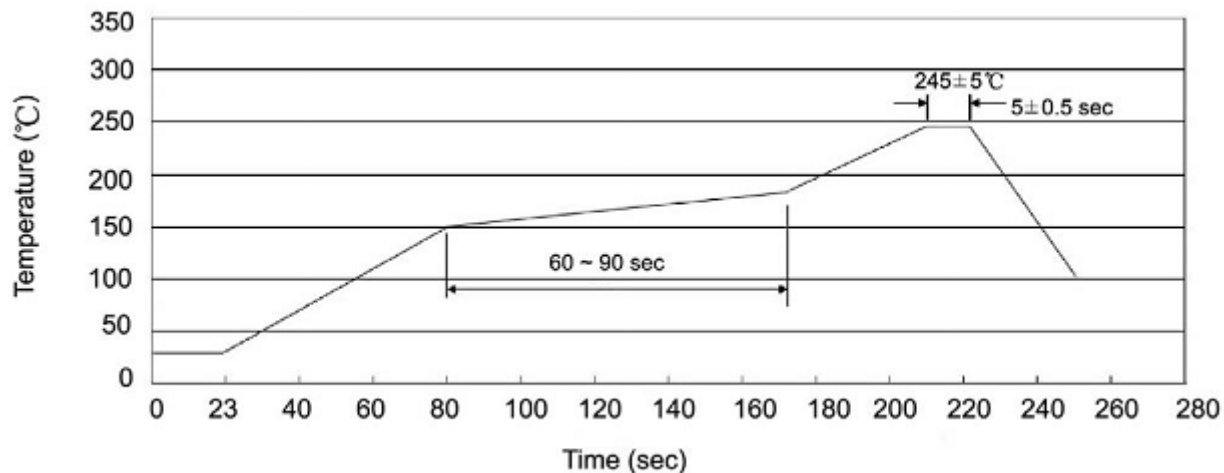
H: Company Code.

03F: Product Type.

\*\*: 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<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-89               | 1,000              | 7                       | 7,000                  | 8                            | 56,000                 | 7" ×12                                  | 180×120×180 | 385×257×392 |

## 使用说明 / Notices