

# 2SC1009A

Rev.E Mar.-2016

## 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

输出电容小，特征频率高。

Low  $C_{ob}$ , high  $f_T$ .

## 用途 / Applications

用于调频、调幅、射频放大，混频、振荡。

FM/AM, RF amplifier, mixer, oscillator.

## 内部等效电路 / Equivalent Circuit



## 引脚排列 / Pinning



PIN1 : Emitter

PIN 2 : Base

PIN 3 : Collector

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

|                |        |        |
|----------------|--------|--------|
| $h_{FE}$ Range | 60~120 | 90~180 |
| Marking        | HA3    | HA4    |

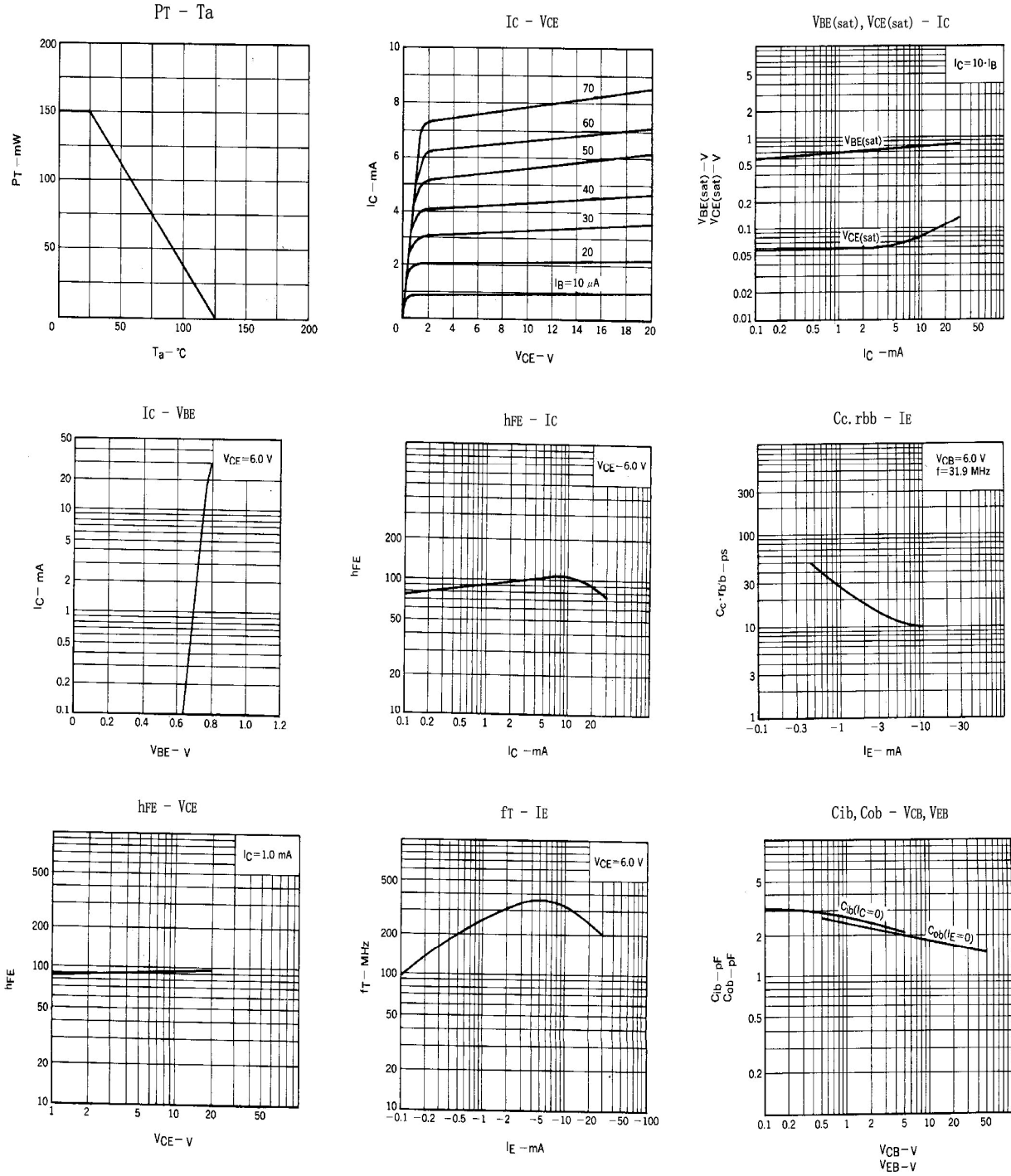
**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

| 参数<br>Parameter              | 符号<br>Symbol | 数值<br>Rating | 单位<br>Unit |
|------------------------------|--------------|--------------|------------|
| Collector to Base Voltage    | $V_{CBO}$    | 50           | V          |
| Collector to Emitter Voltage | $V_{CEO}$    | 30           | V          |
| Emitter to Base Voltage      | $V_{EBO}$    | 5.0          | V          |
| Collector Current            | $I_C$        | 50           | mA         |
| Collector Power Dissipation  | $P_C$        | 150          | 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 Cut-Off Current               | $I_{CBO}$     | $V_{CB}=50V$ $I_E=0$                                    |            |            | 0.1        | $\mu A$    |
| Emitter Base Cut-Off Current            | $I_{EBO}$     | $V_{EB}=5.0V$ $I_C=0$                                   |            |            | 0.1        | $\mu A$    |
| DC Current Gain                         | $h_{FE}$      | $V_{CE}=6.0V$ $I_C=1.0mA$                               | 60         | 100        | 180        |            |
| Collector to Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=10mA$ $I_B=1.0mA$                                  |            | 0.08       | 0.3        | V          |
| Base to Emitter Voltage                 | $V_{BE}$      | $V_{CE}=6.0V$ $I_C=1.0mA$                               | 0.65       | 0.7        | 0.75       | V          |
| Collector Output Capacitance            | $C_{ob}$      | $V_{CB}=6.0V$ $I_E=0$<br>$f=1.0MHz$                     |            | 1.8        | 2.2        | pf         |
| Collector to Base Time Constant         | $C_{C.rbb}$   | $V_{CB}=6.0V$ $I_C=10mA$<br>$f=31.9MHz$                 |            | 10         | 15         | Pb         |
| Transition Frequency                    | $f_T$         | $I_C=1.0mA$ $V_{CE}=6.0V$                               | 150        | 250        |            | MHz        |
| Noise Figure                            | NF            | $V_{CE}=6.0V$ $I_C=1.0mA$<br>$R_G=500\Omega$ $f=1.0KHz$ |            | 2.0        | 4.0        | dB         |

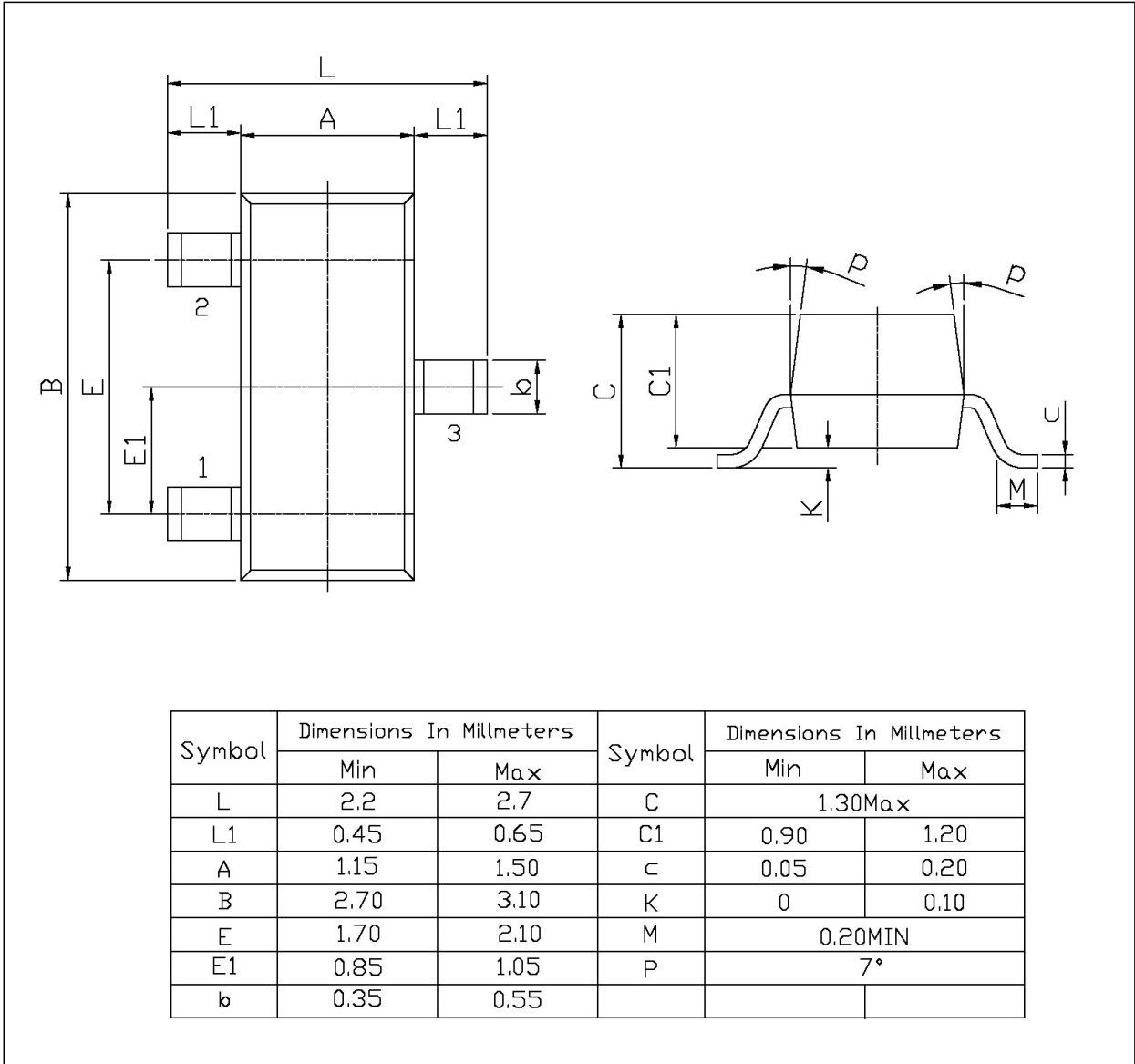
**电参数曲线图 / Electrical Characteristic Curve**



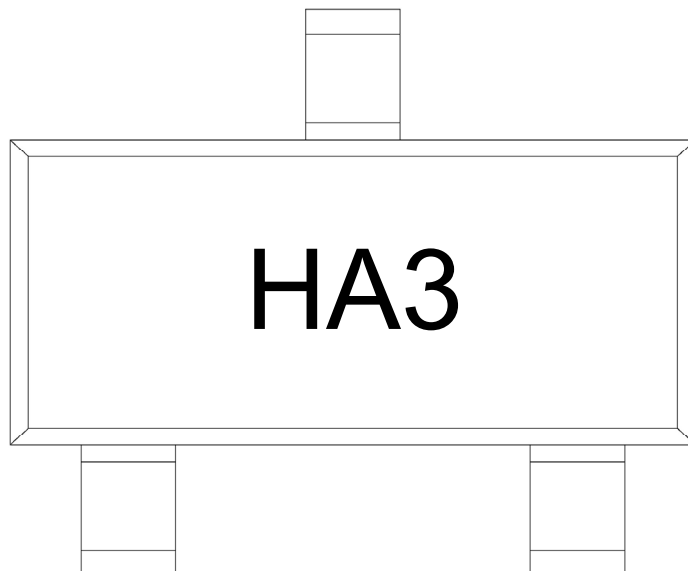
外形尺寸图 / Package Dimensions

SOT-23

单位: mm



印章说明 / Marking Instructions



说明：

H： 为公司代码

A3： 为型号代码

Note:

H: Company Code

A3: 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 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-23               | 3,000              | 10                      | 30,000                 | 8                            | 240,000                | 7" x8                                   | 180×120×180 | 385×257×392 |

**使用说明 / Notices**