

# MJE13003I5(BR3DD13003I5Q)

Rev.C Feb.-2015

## 描述 / Descriptions

TO-126(R)塑封封装 NPN 半导体三极管。Silicon NPN transistor in a TO-126(R) Plastic Package.

## 特征 / Features

耐压高，快速转换。

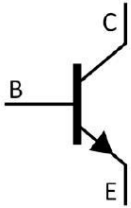
High Voltage Capability High Speed Switching.

## 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

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

见印章说明      See Marking Instructions


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

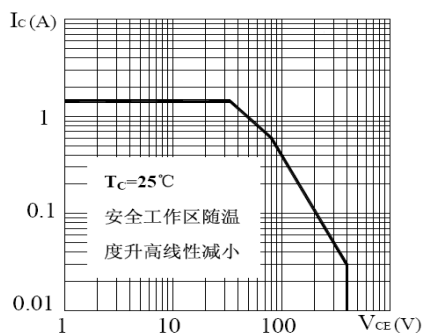
| 参数<br>Parameter                | 符号<br>Symbol           | 数值<br>Rating | 单位<br>Unit  |
|--------------------------------|------------------------|--------------|-------------|
| Collector to Base Voltage      | $V_{CBO}$              | 600          | V           |
| Collector to Emitter Voltage   | $V_{CEO}$              | 400          | V           |
| Emitter to Base Voltage        | $V_{EBO}$              | 9.0          | V           |
| Collector Current - Continuous | $I_C$                  | 1.5          | A           |
| Collector Power Dissipation    | $P_C(T_a=25^{\circ}C)$ | 1.25         | W           |
| Collector Power Dissipation    | $P_C(T_c=25^{\circ}C)$ | 50           | W           |
| Junction Temperature           | $T_j$                  | 150          | $^{\circ}C$ |
| Storage Temperature Range      | $T_{stg}$              | -55~150      | $^{\circ}C$ |

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

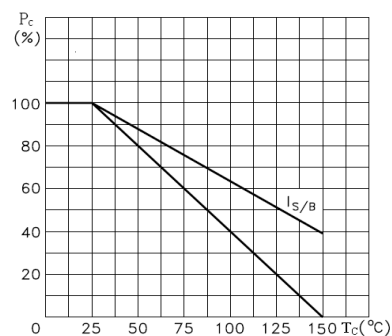
| 参数<br>Parameter                         | 符号<br>Symbol  | 测试条件<br>Test Conditions                | 最小值<br>Min | 典型值<br>Typ | 最大值<br>Max | 单位<br>Unit |
|-----------------------------------------|---------------|----------------------------------------|------------|------------|------------|------------|
| Collector to Base Breakdown Voltage     | $V_{CBO}$     | $I_C=1mA$ $I_E=0$                      | 600        |            |            | V          |
| Collector Cut-Off Current               | $V_{CEO}$     | $I_C=10mA$ $I_B=0$                     | 400        |            |            | V          |
| Emitter Base Cut-Off Current            | $V_{EBO}$     | $I_E=1mA$ $I_C=0$                      | 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 | $V_{CE(sat)}$ | $I_C=500mA$ $I_B=100mA$                |            |            | 0.8        | V          |
| Base to Emitter Saturation Voltage      | $V_{BE(sat)}$ | $I_C=500mA$ $I_B=100mA$                |            |            | 1.2        | V          |
| Transition Frequency                    | $f_T$         | $V_{CE}=10V$ $I_C=100mA$<br>$f=1.0MHz$ | 5.0        |            |            | MHz        |
| Fall time                               | $t_f$         | $V_{CE}=5V$ $I_C=250mA$<br>(UI9600)    |            |            | 0.6        | $\mu s$    |
| Storage time                            | $t_s$         |                                        |            |            | 3.5        | $\mu s$    |

电参数曲线图 / Electrical Characteristic Curve

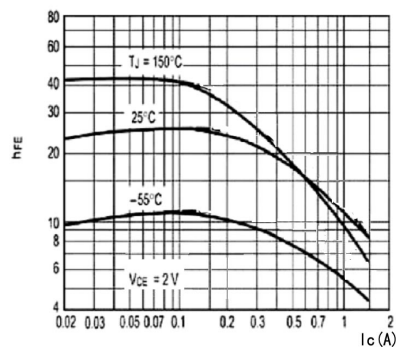
SOA(DC)



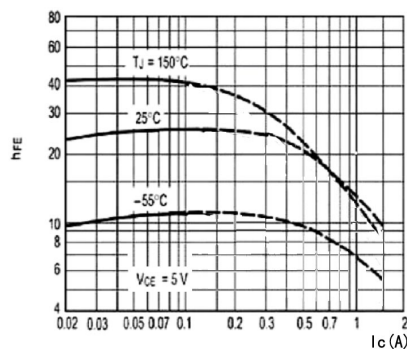
$P_C - T_C$



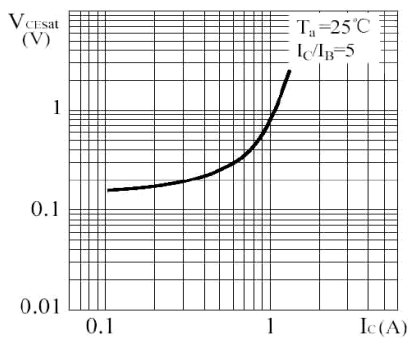
$h_{FE} - I_C$



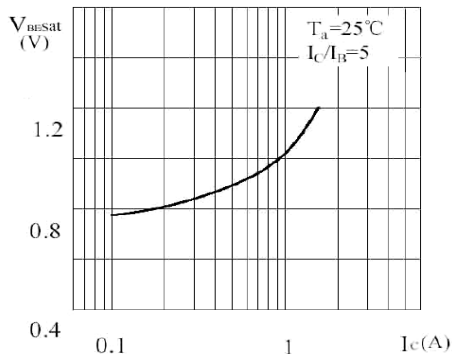
$h_{FE} - I_C$



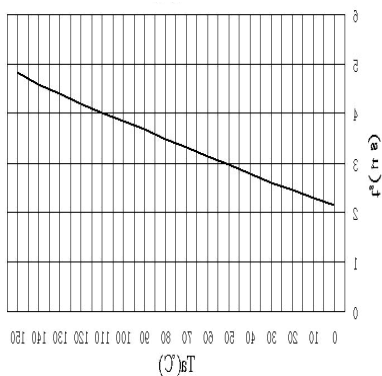
$V_{CES} - I_C$



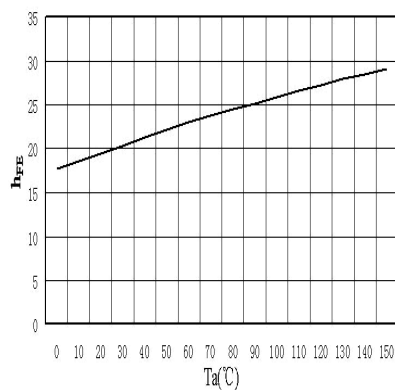
$V_{BES} - I_C$



$t_S - T_a$



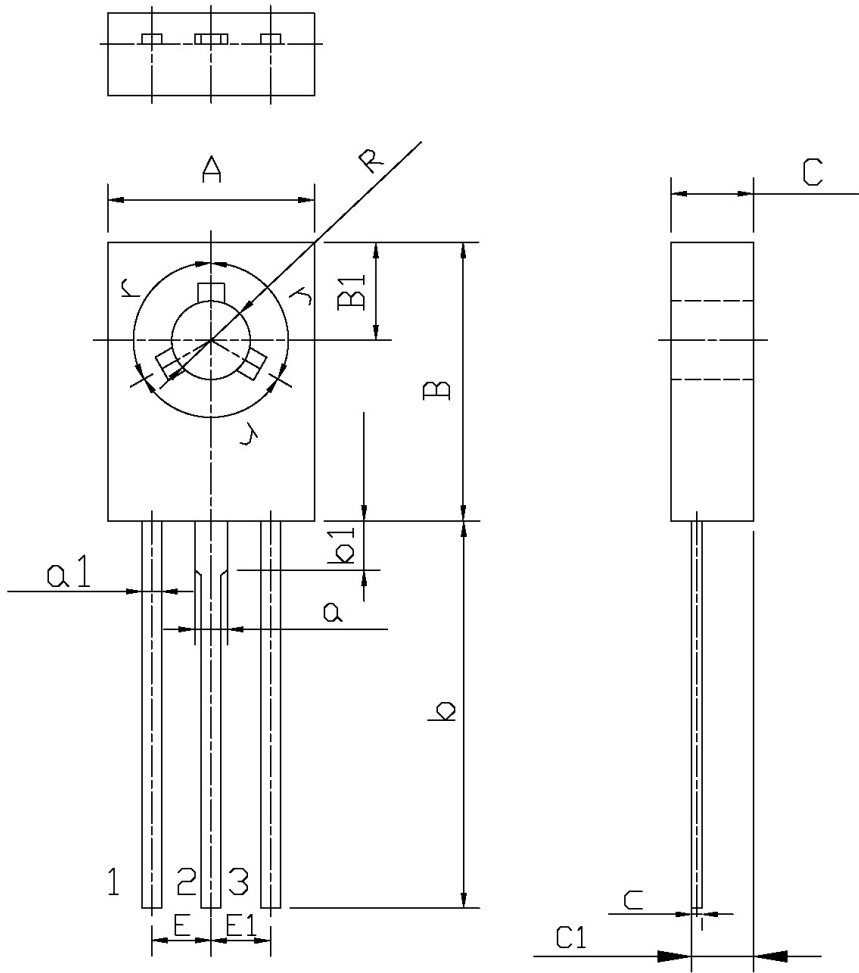
$h_{FE} - T_a$



外形尺寸图 / Package Dimensions

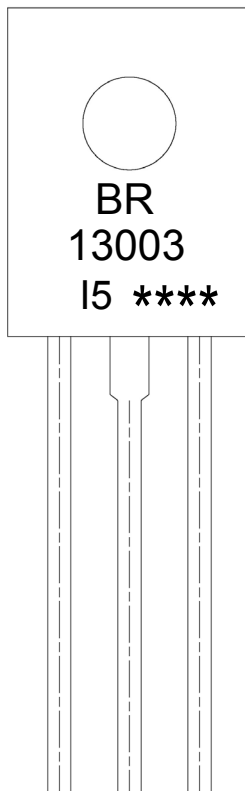
T□-126(R)

单位: mm



| Symbol | Dimensions In Millimeters |      | Symbol | Dimensions In Millimeters |      |
|--------|---------------------------|------|--------|---------------------------|------|
|        | Min                       | Max  |        | Min                       | Max  |
| A      | 7.4                       | 7.8  | a1     | 0.66                      | 0.86 |
| B      | 10.6                      | 11.0 | E      | 2.1                       | 2.5  |
| B1     | 3.9                       | 4.1  | C      | 2.55                      | 2.85 |
| R      | 2.9                       | 3.3  | C1     | 1.60                      | 1.80 |
| b      | 14                        | 16   | c      | 0.3                       | 0.5  |
| b1     | 1.9                       |      | a      | 1.37                      |      |
| E1     | 2.1                       | 2.5  | r      | 120°                      |      |

印章说明 / Marking Instructions



说明：

BR： 为公司代码

13003： 为型号代码

I5： 为规格代码

\*\*\*\*： 为生产批号代码，随生产批号变化。

Note:

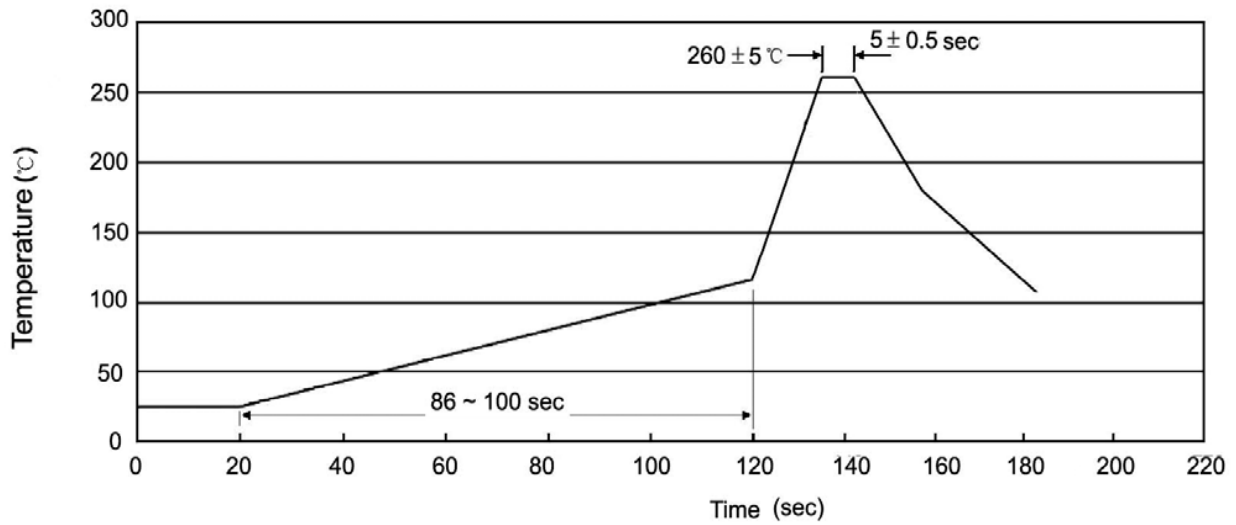
BR: Company Code

13003: Product Type.

I5: Specification Code.

\*\*\*\*: Lot No. Code, code change with Lot No.

**波峰焊温度曲线图(无铅) / Temperature Profile for Dip Soldering(Pb-Free)**



说明：

- 1、预热温度 25~150°C，时间 60~90sec;
- 2、峰值温度 260±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.:260±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：270±5°C

时间：10±1 sec.

Temp.:270±5°C

Time:10±1 sec

**包装规格 / Packaging SPEC.**

散件包装 / BULK

| Package Type<br>封装形式 | Units 包装数量         |                         |                        |                              |                        | Dimension 包装尺寸 (unit: mm <sup>3</sup> ) |             |             |
|----------------------|--------------------|-------------------------|------------------------|------------------------------|------------------------|-----------------------------------------|-------------|-------------|
|                      | Units/Tube<br>只/套管 | Tubes/Inner Box<br>套管/盒 | Units/Inner Box<br>只/盒 | Inner Boxes/Outer Box<br>盒/箱 | Units/Outer Box<br>只/箱 | Tube 套管                                 | Inner Box 盒 | Outer Box 箱 |
| TO-126/F             | 500                | 6                       | 3,000                  | 5                            | 15,000                 | 135×190                                 | 237×172×102 | 560×245×195 |

套管包装 / TUBE

| Package Type<br>封装形式 | Units 包装数量         |                         |                        |                              |                        | Dimension 包装尺寸 (unit: mm <sup>3</sup> ) |             |             |
|----------------------|--------------------|-------------------------|------------------------|------------------------------|------------------------|-----------------------------------------|-------------|-------------|
|                      | Units/Tube<br>只/套管 | Tubes/Inner Box<br>套管/盒 | Units/Inner Box<br>只/盒 | Inner Boxes/Outer Box<br>盒/箱 | Units/Outer Box<br>只/箱 | Tube 套管                                 | Inner Box 盒 | Outer Box 箱 |
| TO-126/F             | 65                 | 26                      | 1,690                  | 5                            | 8,450                  | 532×31×5.6                              | 555×164×50  | 575×290×180 |

**使用说明 / Notices**