



TO-92MOD Plastic-Encapsulate Transistors

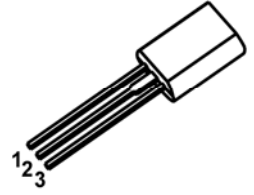
2SA1283 TRANSISTOR (PNP)

FEATURES

- High Collector-Emitter Voltage
- Low Collector-Emitter Saturation Voltage

TO – 92MOD

1. EMITTER
2. COLLECTOR
3. BASE



MAXIMUM RATINGS (T_a=25°C unless otherwise noted)

| Symbol | Parameter | Value | Unit |
|------------------|---|----------|------|
| V _{CB0} | Collector-Base Voltage | -60 | V |
| V _{CEO} | Collector-Emitter Voltage | -60 | V |
| V _{EBO} | Emitter-Base Voltage | -6 | V |
| I _C | Collector Current | -1 | A |
| P _C | Collector Power Dissipation | 900 | mW |
| R _{θJA} | Thermal Resistance From Junction To Ambient | 139 | °C/W |
| T _j | Junction Temperature | 150 | °C |
| T _{stg} | Storage Temperature | -55~+150 | °C |

ELECTRICAL CHARACTERISTICS (T_a=25°C unless otherwise specified)

| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|--------------------------------------|----------------------|--|-----|-----|------|------|
| Collector-base breakdown voltage | V _{(BR)CBO} | I _C = -10μA, I _E =0 | -60 | | | V |
| Collector-emitter breakdown voltage | V _{(BR)CEO} | I _C =-2mA, I _B =0 | -60 | | | V |
| Emitter-base breakdown voltage | V _{(BR)EBO} | I _E =-10μA, I _C =0 | -6 | | | V |
| Collector cut-off current | I _{CB0} | V _{CB} =-50V, I _E =0 | | | -0.2 | μA |
| Emitter cut-off current | I _{EBO} | V _{EB} =-4V, I _C =0 | | | -0.2 | μA |
| DC current gain | h _{FE} | V _{CE} =-4V, I _C =-100mA | 55 | | 300 | |
| Collector-emitter saturation voltage | V _{CE(sat)} | I _C =-500mA, I _B =-25mA | | | -0.3 | V |
| Collector output capacitance | C _{ob} | V _{CB} =-10V, I _E =0, f=1MHz | | | 25 | pF |
| Transition frequency | f _T | V _{CE} =-2V, I _C =-10mA | 50 | | | MHz |

CLASSIFICATION OF h_{FE}

| RANK | C | D | E |
|-------|--------|--------|---------|
| RANGE | 55-110 | 90-180 | 150-300 |

描述 / Descriptions

TO-92LM 塑封封装 PNP 半导体三极管。Silicon PNP transistor in a TO-92LM Plastic Package.

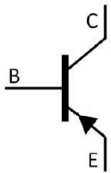
特征 / Features

高 I_C , 高 V_{CBO} 。
High Collector current, high Collector-base voltage.

用途 / Applications

用于一般放大电路。
General purpose amplifier.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



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

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

| h_{FE} Classifications Symbol | C | D | E |
|------------------------------------|--------|--------|---------|
| h_{FE} Range | 60~120 | 90~180 | 150~300 |

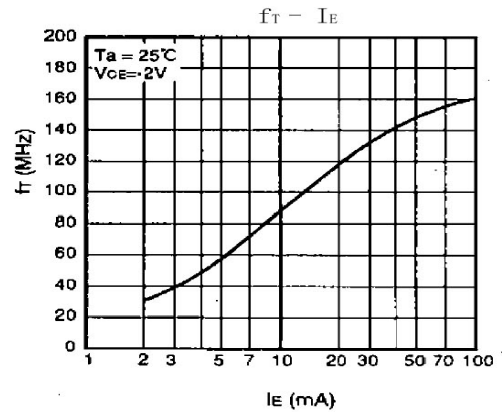
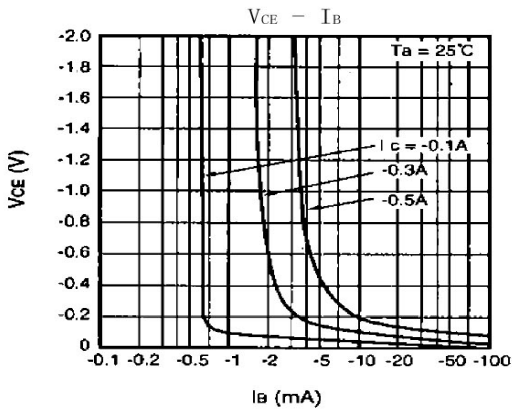
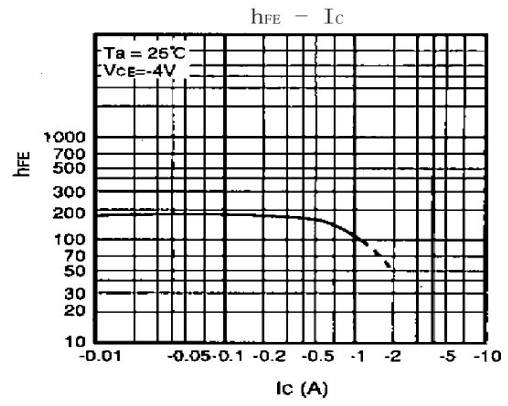
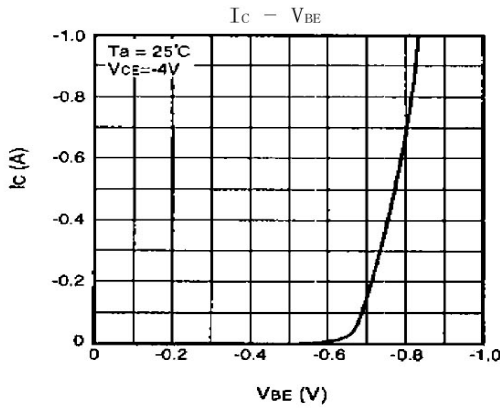
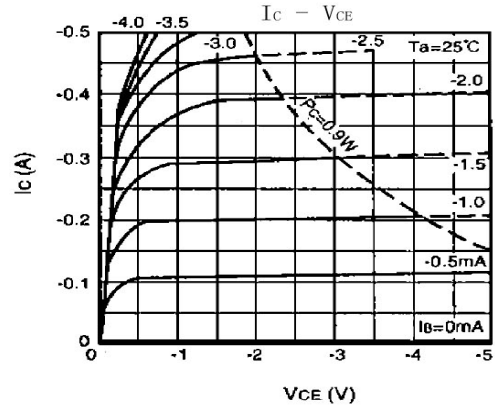
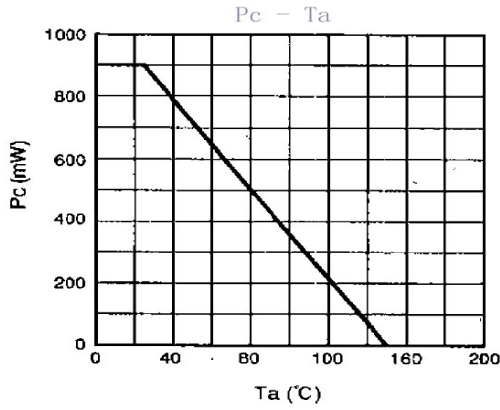
极限参数 / Absolute Maximum Ratings(Ta=25°C)

| 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} | -60 | V |
| Emitter to Base Voltage | V_{EBO} | -6.0 | V |
| Collector Current - Continuous | I_C | -1.0 | A |
| Collector Power Dissipation | P_C | 0.9 | 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} | $I_C=-2.0mA$ $I_B=0$ | -60 | | | V |
| Emitter to Base Breakdown Voltage | V_{EBO} | $I_E=-10\mu A$ $I_C=0$ | -6.0 | | | V |
| Collector Cut-Off Current | I_{CBO} | $V_{CB}=-50V$ $I_E=0$ | | | -0.2 | μA |
| Emitter Cut-Off Current | I_{EBO} | $V_{EB}=-4.0V$ $I_C=0$ | | | -0.2 | μA |
| DC Current Gain | h_{FE} | $V_{CE}=-4.0V$ $I_C=-100mA$ | 60 | | 300 | |
| Collector to Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=-500mA$ $I_B=-25mA$ | | | -0.3 | V |
| Transition Frequency | f_T | $V_{CE}=-2.0V$ $I_C=-10mA$ | 50 | | | MHz |
| Collector output capacitance | C_{ob} | $V_{CB}=-10V$ $I_E=0$ $f=1.0MHz$ | | | 25 | pF |

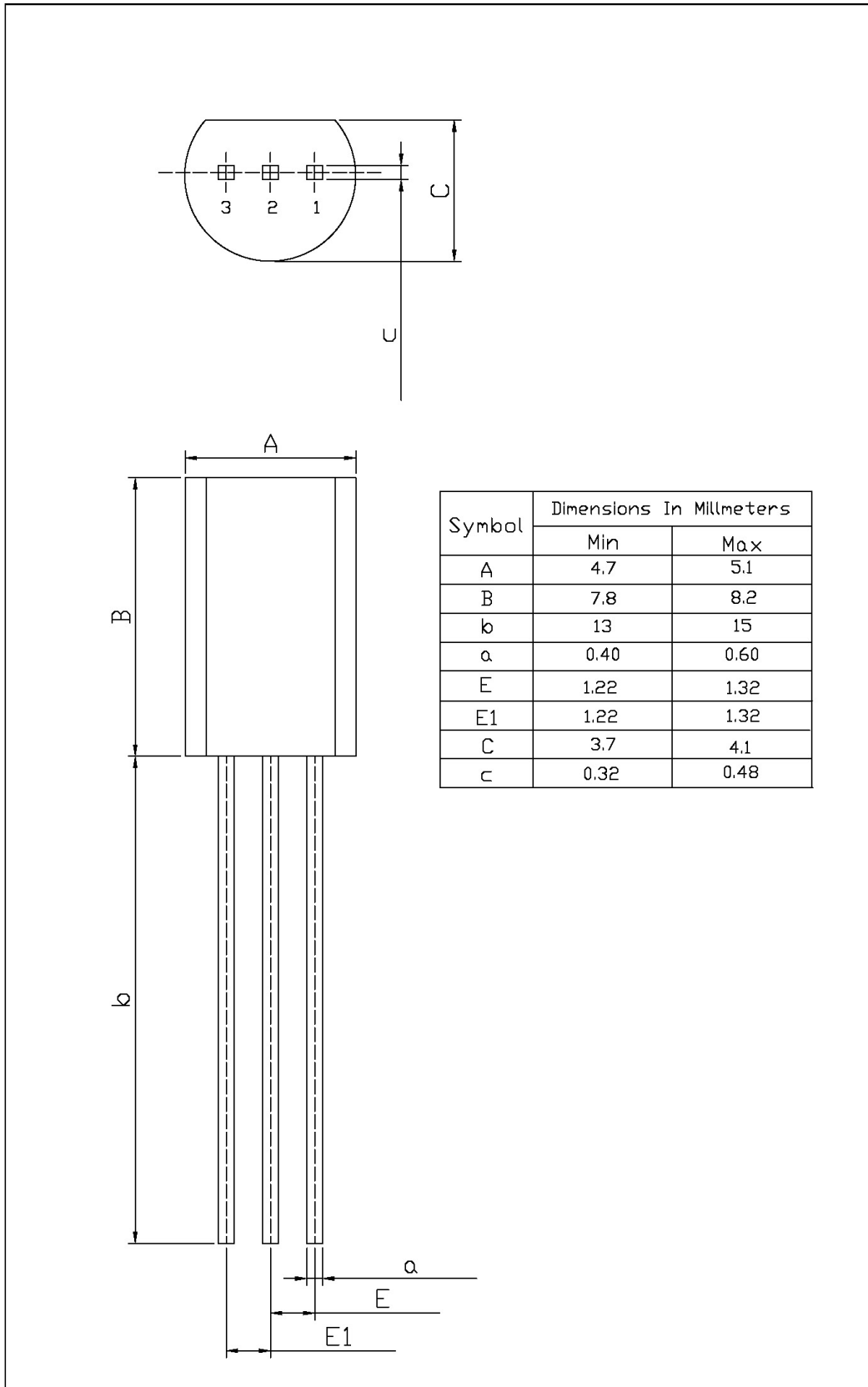
电参数曲线图 / Electrical Characteristic Curve



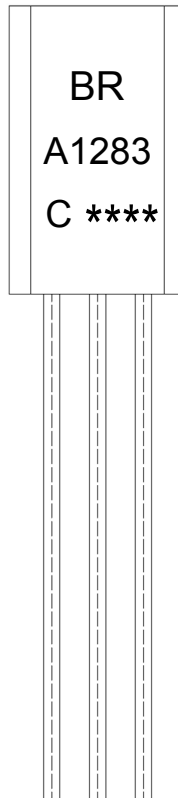
外形尺寸图 / Package Dimensions

T0-92LM

Unit: mm



印章说明 / Marking Instructions



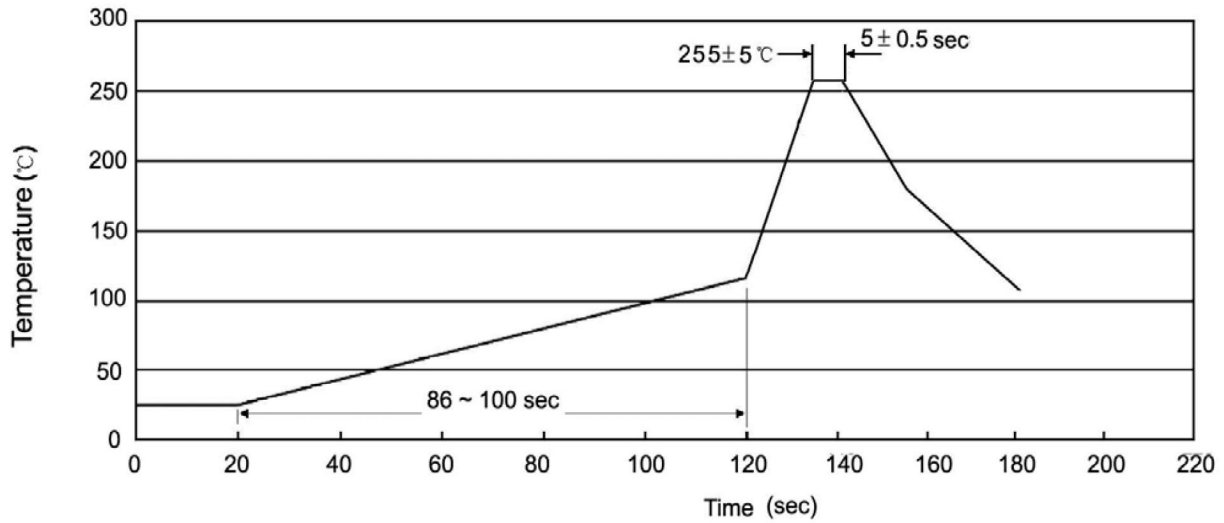
说明：

- BR: 为公司代码
- A1283 : 为型号代码
- C: 为 h_{FE} 分档代码
- **** : 为生产批号代码，随生产批号变化。

Note:

- BR: Company Code.
- A1283: Product Type.
- C: h_{FE} Classifications Symbol
- ****: 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 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:25~150°C, Time:60~90sec.
- 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：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 封装形式 | Units 包装数量 | | | | | Dimension 包装尺寸 (unit: mm3) | | |
|----------------------|------------------|-----------------------|------------------------|------------------------------|------------------------|----------------------------|-------------|-------------|
| | Units/Bag 只/袋 | Bags/Inner Box 袋/盒 | Units/Inner Box 只/盒 | Inner Boxes/Outer Box 盒/箱 | Units/Outer Box 只/箱 | Bag 袋 | Inner Box 盒 | Outer Box 箱 |
| TO-92LM | 1,000 | 8 | 8,000 | 5 | 40,000 | 135×190 | 237×172×102 | 560×245×195 |

编带包装 / AMMO

| Package Type 封装形式 | Units 包装数量 | | | | | Dimension 包装尺寸 (unit: mm3) | |
|----------------------|--------------------|------------------------|-------------------------|------------------------------|------------------------|----------------------------|----------------------------------|
| | Units/tape 只/纸带 | Tape/Inner Box 纸带/盒 | Rows/Inner Box 纸带层/盒 | Inner Boxes/Outer Box 盒/箱 | Units/Outer Box 只/箱 | Inner Box 盒 | Outer Box 箱 |
| TO-92LM | 2,500 | 1 | 100 | 10 | 25,000 | 328×230×42 | 小箱 480×346×235 大箱 547×407×268 |

使用说明 / Notices