

## 描述 / Descriptions

TO-220 塑封封装 PNP 半导体三极管。Silicon PNP transistor in a TO-220 Plastic Package.

## 特征 / Features

基极-发射极设有独立的电阻、直流增益高、与 TIP142T 配对。

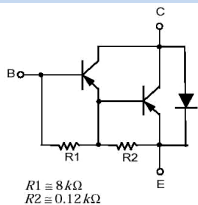
Monolithic construction with built in base-emitter shunt resistors, High DC current gain complement to TIP142T.

## 用途 / Applications

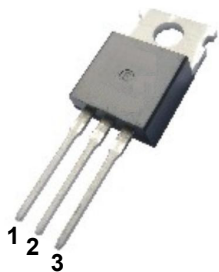
用于工业仪器的线性开关转换。

Linear and switching industrial equipment.

## 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

见印章说明。See Marking Instructions.

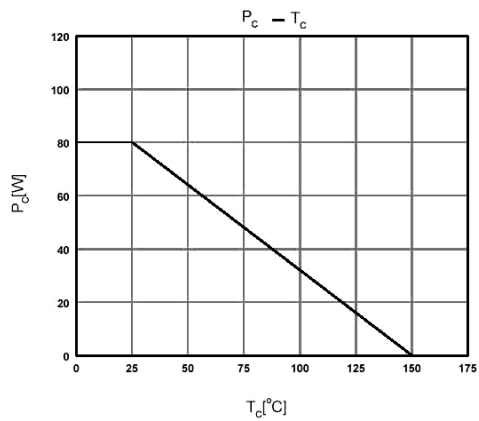
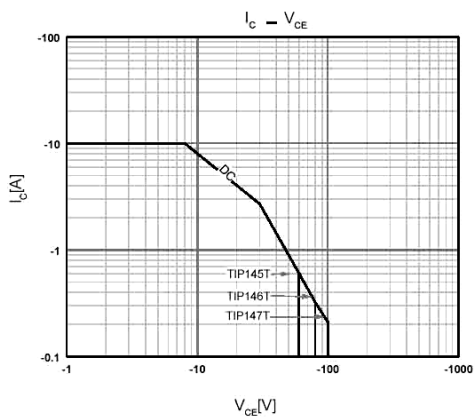
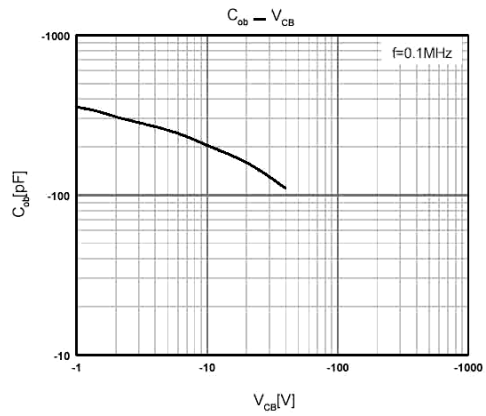
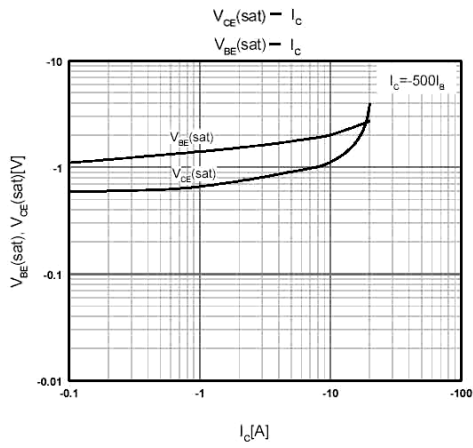
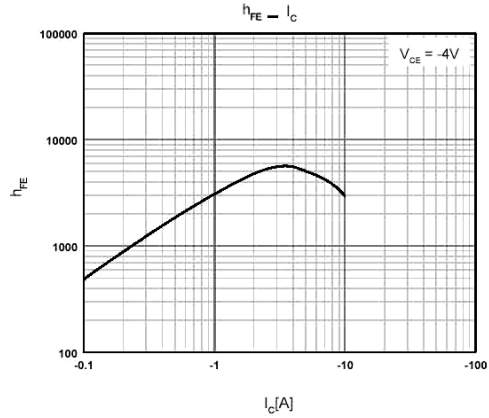
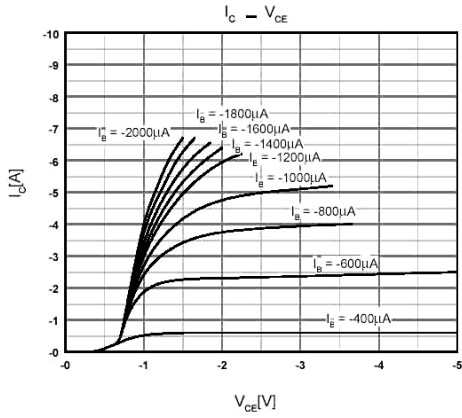
**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

| 参数<br>Parameter                | 符号<br>Symbol                | 数值<br>Rating | 单位<br>Unit |
|--------------------------------|-----------------------------|--------------|------------|
| Collector to Base Voltage      | $V_{CBO}$                   | -100         | V          |
| Collector to Emitter Voltage   | $V_{CEO}$                   | -100         | V          |
| Emitter to Base Voltage        | $V_{EBO}$                   | -5.0         | V          |
| Collector Current - Continuous | $I_C$                       | -10          | A          |
| Peak Collector Current         | $I_{CP}$                    | -15          | A          |
| Base Current - Continuous      | $I_B$                       | -0.5         | A          |
| Collector Power Dissipation    | $P_C(T_C=25^\circ\text{C})$ | 80           | 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<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 Emitter Breakdown Voltage  | $V_{CEO}$        | $I_C=-30\text{mA}$ $I_B=0$  | -100       |            |            | V          |
| Collector Cut-Off Current               | $I_{CEO}$        | $V_{CE}=-50\text{V}$ $I_B=0$  |            |            | -2.0       | mA         |
| Collector Cut-Off Current               | $I_{CBO}$        | $V_{CB}=-100\text{V}$ $I_E=0$   |            |            | -1.0       | mA         |
| Emitter Cut-Off Current                 | $I_{EBO}$        | $V_{EB}=-5.0\text{V}$ $I_C=0$   |            |            | -2.0       | mA         |
| DC Current Gain                         | $h_{FE(1)}$      | $V_{CE}=-4.0\text{V}$ $I_C=-5.0\text{A}$  | 1000       |            |            |            |
|   | $h_{FE(2)}$      | $V_{CE}=-4.0\text{V}$ $I_C=-10\text{A}$   | 500        |            |            |            |
| Collector to Emitter Saturation Voltage | $V_{CE(sat)(1)}$ | $I_C=-5.0\text{A}$ $I_B=-10\text{mA}$   |            |            | -2.0       | V          |
|   | $V_{CE(sat)(2)}$ | $I_C=-10\text{A}$ $I_B=-40\text{mA}$  |            |            | -3.0       | V          |
| Base to Emitter Saturation Voltage      | $V_{BE(sat)}$    | $I_C=-10\text{A}$ $I_B=-40\text{mA}$  |            |            | -3.5       | V          |
| Base to Emitter Voltage                 | $V_{BE}$         | $V_{CE}=-4.0\text{V}$ $I_C=-10\text{A}$   |            |            | -3.0       | V          |
| Delay Time                              | $t_D$            | $V_{CC}=-3\text{V}$ $I_C=-5\text{A}$<br>$I_{B1}=-20\text{mA}$ $I_{B2}=20\text{mA}$<br>$R_L=6\Omega$ |            | 0.15       |            | μs         |
| Rise Time                               | $t_R$            |   |            | 0.55       |            | μs         |
| Storage Time                            | $t_{STG}$        |   |            | 2.5        |            | μs         |
| Fall Time                               | $t_F$            |   |            | 2.5        |            | μs         |

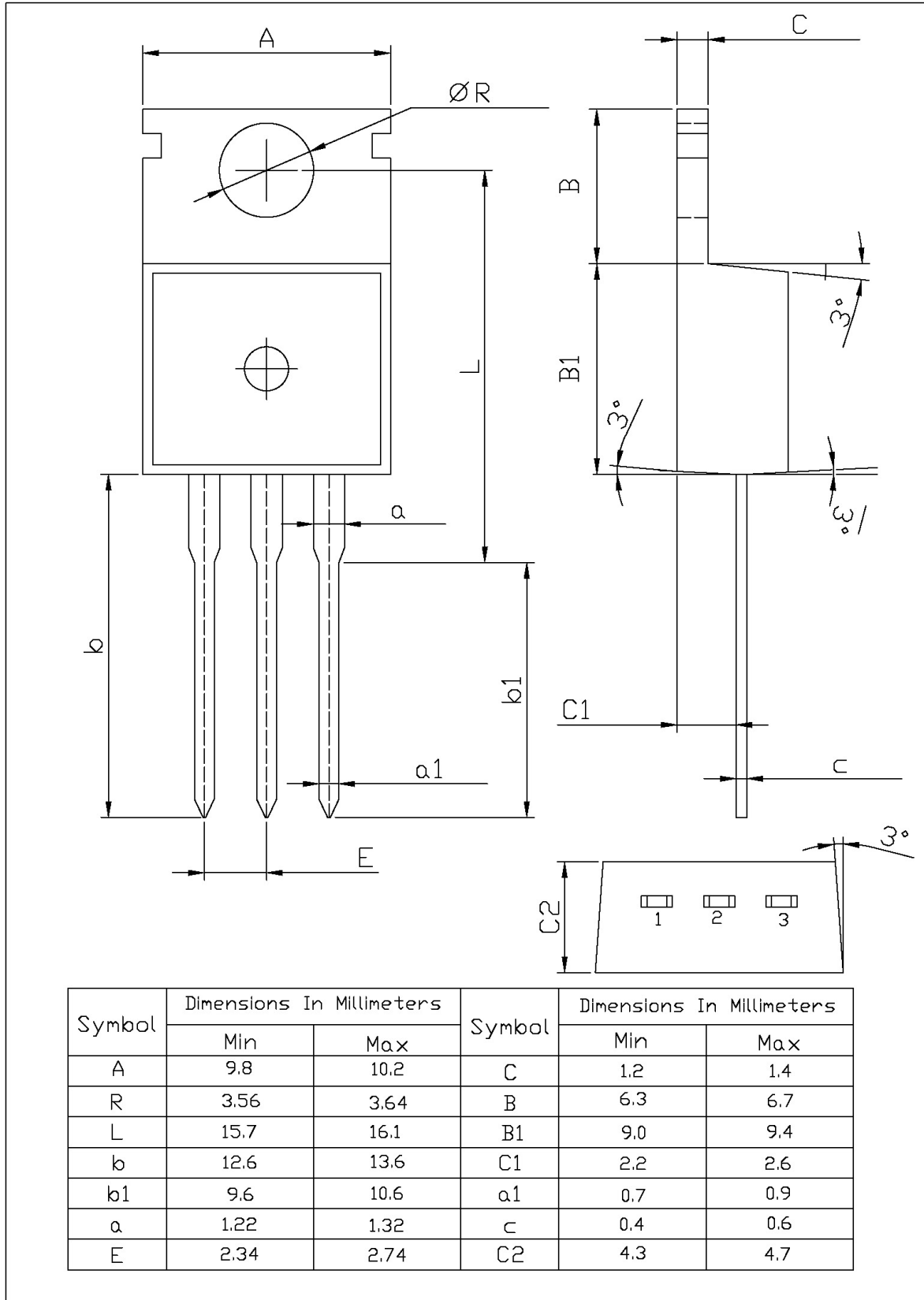
电参数曲线图 / Electrical Characteristic Curve



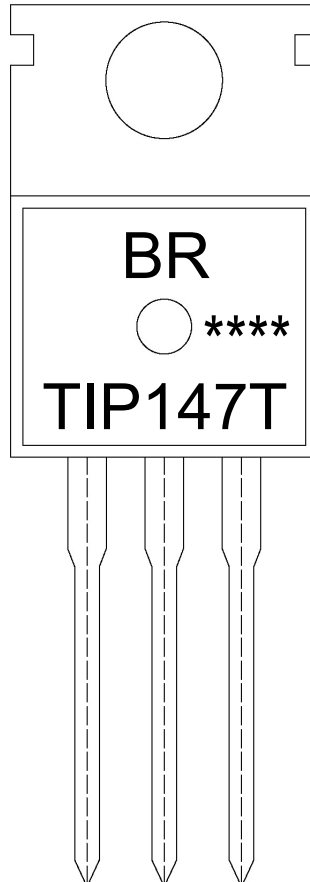
外形尺寸图 / Package Dimensions

T0-220

单位: mm



印章说明 / Marking Instructions



说明：

BR： 为公司代码

TIP147T： 为产品型号

\*\*\*\*： 为生产批号代码，随生产批号变化。

Note:

BR: Company Code

TIP147T: Product Type.

\*\*\*\*: 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<br>封装形式 | Units 包装数量       |                       |                        |                              |                        | Dimension 包装尺寸 (unit: mm <sup>3</sup> ) |             |             |
|----------------------|------------------|-----------------------|------------------------|------------------------------|------------------------|---|-------------|-------------|
|                      | Units/Bag<br>只/袋 | Bags/Inner Box<br>袋/盒 | Units/Inner Box<br>只/盒 | Inner Boxes/Outer Box<br>盒/箱 | Units/Outer Box<br>只/箱 | Bag 袋                                   | Inner Box 盒 | Outer Box 箱 |
| TO-220/F             | 200              | 10                    | 2,000                  | 5                            | 10,000                 | 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-220/F             | 50                 | 20                      | 1,000                  | 5                            | 5,000                  | 532×31.4×5.5                            | 555×164×50  | 575×290×180 |

**使用说明 / Notices**