

## TO-92 Bipolar Transistor 双极型三极管

### ■ Features 特点

PNP General Purpose 通用

### ■ Absolute Maximum Ratings 最大额定值

### TO-92

1. EMITTER

2. BASE

3. COLLECTOR



| Characteristic 特性参数                         | Symbol 符号                   | Rat 额定值                    | Unit 单位                   |
|---|-----------------------------|----------------------------|---------------------------|
| Collector-Base Voltage 集电极基极电压              | $V_{CBO}$                   | -50                        | V                         |
| Collector-Emitter Voltage 集电极发射极电压          | $V_{CEO}$                   | -45                        | V                         |
| Emitter-Base Voltage 发射极基极电压                | $V_{EBO}$                   | -5                         | V                         |
| Collector Current 集电极电流                     | $I_C$                       | -100                       | mA                        |
| Power dissipation 耗散功率                      | $P_C(T_a=25^\circ\text{C})$ | 450                        | mW                        |
| Thermal Resistance Junction-Ambient 热阻      | $R_{\theta JA}$             | 278                        | $^\circ\text{C}/\text{W}$ |
| Junction and Storage Temperature<br>结温和储藏温度 | $T_J, T_{stg}$              | -55to+150 $^\circ\text{C}$ |                           |

### ■ Device Rank 产品分档

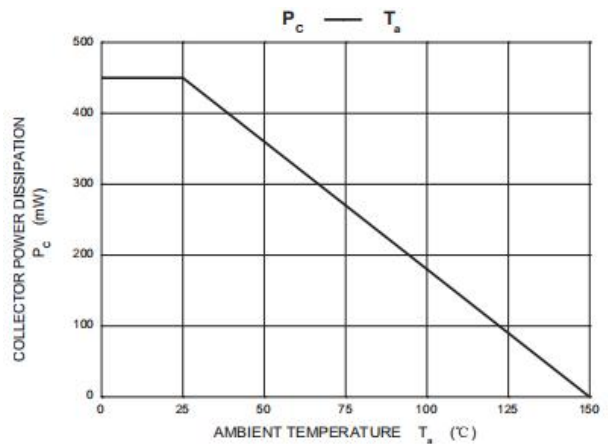
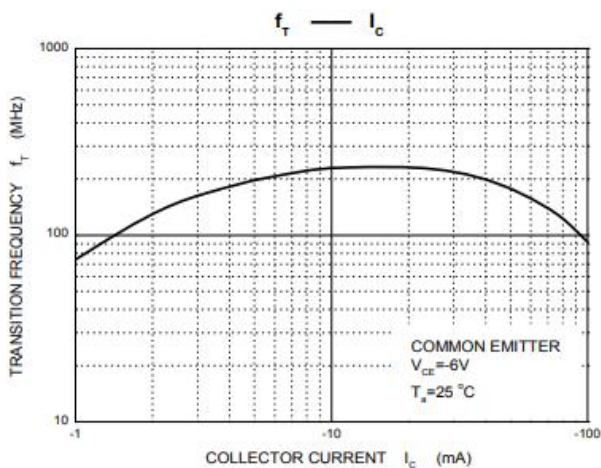
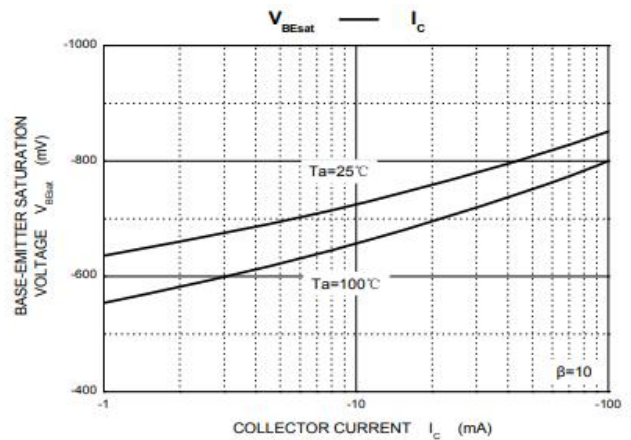
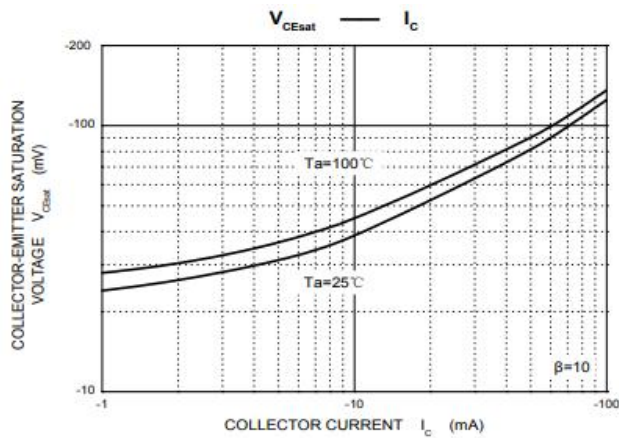
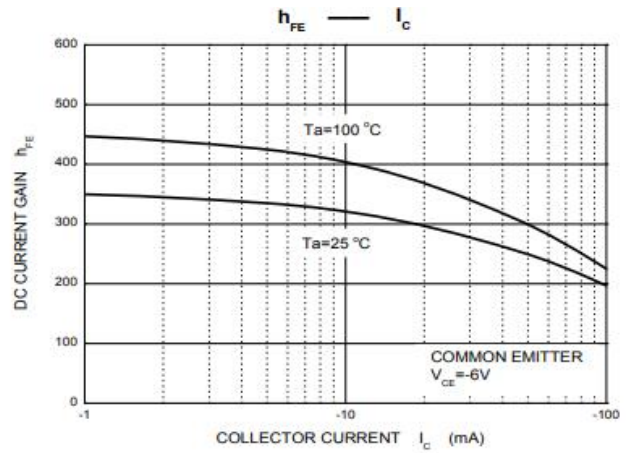
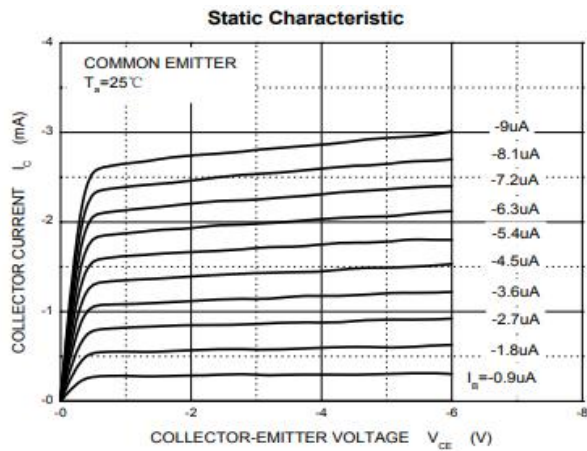
| Rank 档位        | A      | B       | C       | D        |
|----------------|--------|---------|---------|----------|
| $H_{FE}$ Range | 60-150 | 100-300 | 200-600 | 400-1000 |

■ Electrical Characteristics 电特性

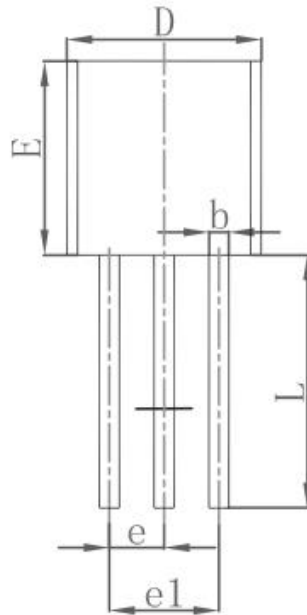
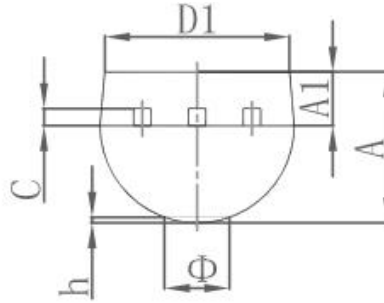
( $T_A=25^{\circ}\text{C}$  unless otherwise noted 如无特殊说明, 温度为  $25^{\circ}\text{C}$ )

| Characteristic<br>特性参数  | Symbol<br>符号  | Min<br>最小值 | Type<br>典型值 | Max<br>最大值 | Unit<br>单位 |
|---|---------------|------------|-------------|------------|------------|
| Collector-Base Breakdown Voltage<br>集电极基极击穿电压<br>( $I_C=-100\mu\text{A}$ , $I_E=0$ )              | $BV_{CBO}$    | -50        | —           | —          | V          |
| Collector-Emitter Breakdown Voltage<br>集电极发射极击穿电压<br>( $I_C=-1\text{mA}$ , $I_B=0$ )              | $BV_{CEO}$    | -45        | —           | —          | V          |
| Emitter-Base Breakdown Voltage<br>发射极基极击穿电压<br>( $I_E=-100\mu\text{A}$ , $I_C=0$ )                | $BV_{EBO}$    | -5         | —           | —          | V          |
| Collector-Base Leakage Current<br>集电极基极漏电流<br>( $V_{CB}=-60\text{V}$ , $I_E=0$ )                  | $I_{CBO}$     | —          | —           | -100       | nA         |
| Emitter-Base Leakage Current<br>发射极基极漏电流<br>( $V_{EB}=-5\text{V}$ , $I_C=0$ )                     | $I_{EBO}$     | —          | —           | -100       | nA         |
| DC Current Gain<br>直流电流增益<br>( $V_{CE}=-5\text{V}$ , $I_C=-1\text{mA}$ )                          | $H_{FE}$      | 60         | —           | 1000       |            |
| Collector-Emitter Saturation Voltage<br>集电极发射极饱和压降<br>( $I_C=-100\text{mA}$ , $I_B=-5\text{mA}$ ) | $V_{CE(sat)}$ | —          | —           | -0.3       | V          |
| Base-Emitter Saturation Voltage<br>基极发射极饱和压降<br>( $I_C=-100\text{mA}$ , $I_B=-5\text{mA}$ )       | $V_{BE(sat)}$ | —          | —           | -1         | V          |
| Transition Frequency<br>特征频率<br>( $V_{CE}=-5\text{V}$ , $I_C=-10\text{mA}$ )                      | $f_T$         | 150        | —           | —          | MHz        |

■ Typical Characteristic Curve 典型特性曲线



■Dimension 外形封装尺寸



| Symbol | Dimensions In Millimeters |        | Dimensions In Inches |       |
|--------|---------------------------|--------|----------------------|-------|
|        | Min                       | Max    | Min                  | Max   |
| A      | 3.300                     | 3.700  | 0.130                | 0.146 |
| A1     | 1.100                     | 1.400  | 0.043                | 0.055 |
| b      | 0.380                     | 0.550  | 0.015                | 0.022 |
| c      | 0.360                     | 0.510  | 0.014                | 0.020 |
| D      | 4.300                     | 4.700  | 0.169                | 0.185 |
| D1     | 3.430                     |        | 0.135                |       |
| E      | 4.300                     | 4.700  | 0.169                | 0.185 |
| e      | 1.270 TYP                 |        | 0.050 TYP            |       |
| e1     | 2.440                     | 2.640  | 0.096                | 0.104 |
| L      | 14.100                    | 14.500 | 0.555                | 0.571 |
| Φ      |                           | 1.600  |                      | 0.063 |
| h      | 0.000                     | 0.380  | 0.000                | 0.015 |