

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} | -40 | V |
| Collector-Emitter Voltage 集电极发射极电压 | V_{CEO} | -25 | V |
| Emitter-Base Voltage 发射极基极电压 | V_{EBO} | -5 | V |
| Collector Current 集电极电流 | I_C | -500 | mA |
| Power dissipation 耗散功率 | $P_C(T_a=25^\circ\text{C})$ | 625 | mW |
| Thermal Resistance Junction-Ambient 热阻 | $R_{\theta JA}$ | 200 | $^\circ\text{C}/\text{W}$ |
| Junction and Storage Temperature 结温和储藏温度 | T_J, T_{stg} | -55to+150 $^\circ\text{C}$ | |

■ **Classification of H_{FE} 放大倍数分档**

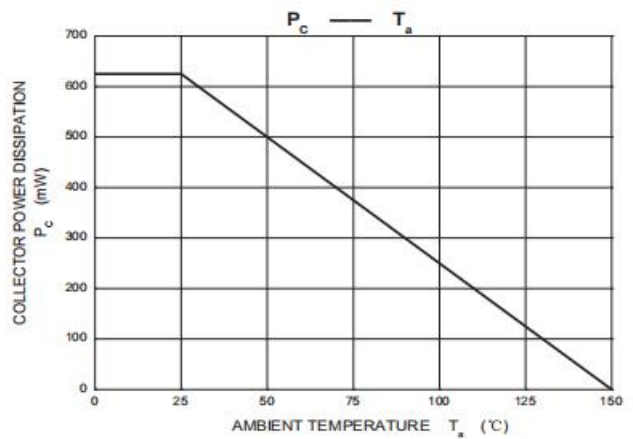
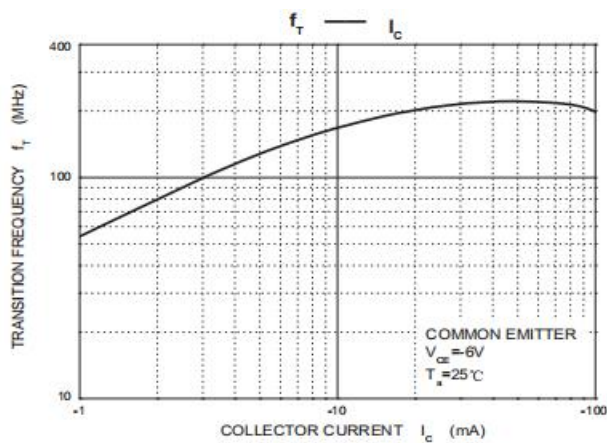
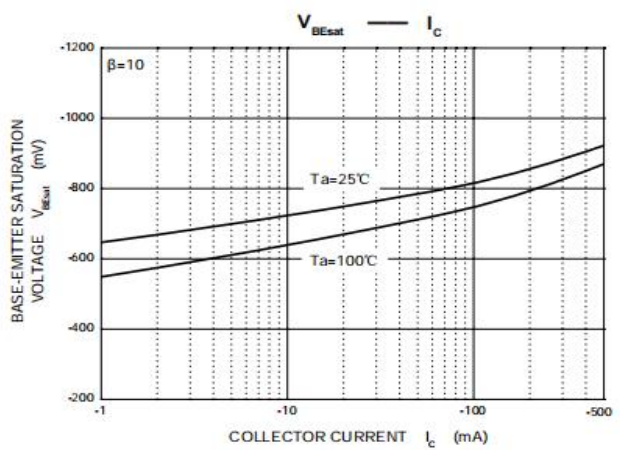
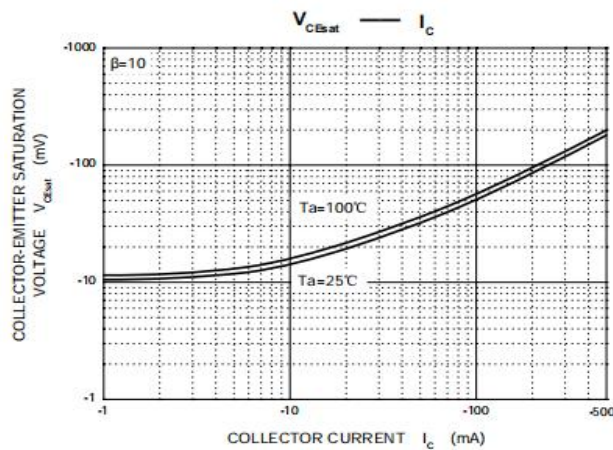
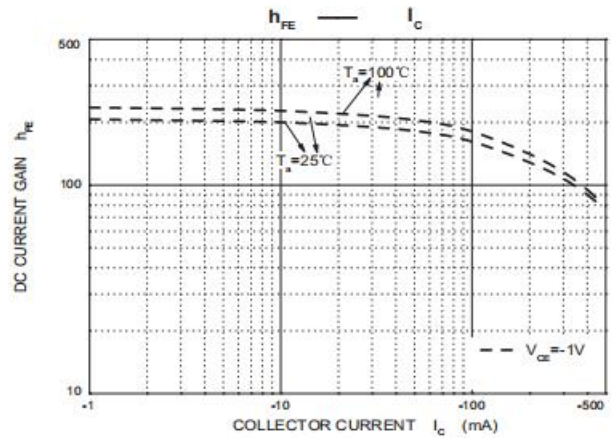
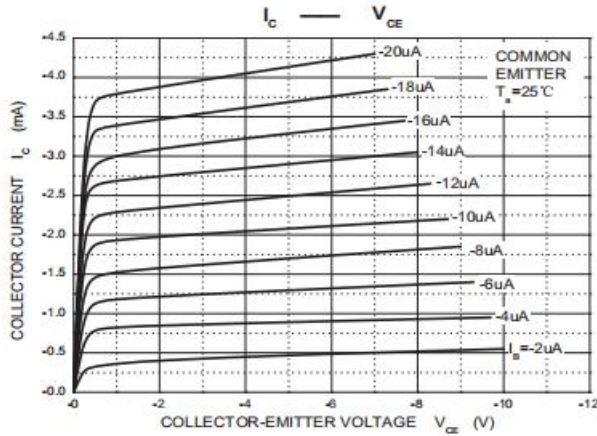
| Rank 档位 | D | E | F | G | H | I | J |
|----------------|-------|--------|--------|---------|---------|---------|---------|
| H_{FE} Range | 64-91 | 78-112 | 96-135 | 112-166 | 144-202 | 190-300 | 280-400 |

■ Electrical Characteristics 电特性

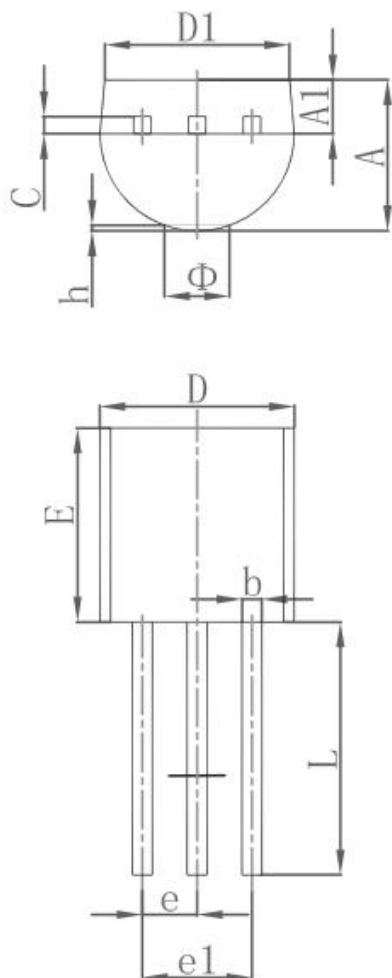
($T_A=25^{\circ}\text{C}$ unless otherwise noted 如无特殊说明, 温度为 25°C)

| Characteristic 特性参数 | Symbol 符号 | Min 最小值 | Type 典型值 | Max 最大值 | Unit 单位 |
|--------------------------------------------------------------------------------------------------------|---------------|------------|-------------|------------|------------|
| Collector-Base Breakdown Voltage 集电极基极击穿电压($I_C = -100\mu\text{A}$, $I_E = 0$) | BV_{CBO} | -40 | — | — | V |
| Collector-Emitter Breakdown Voltage 集电极发射极击穿电压($I_C = -1\text{mA}$, $I_B = 0$) | BV_{CEO} | -25 | — | — | V |
| Emitter-Base Breakdown Voltage 发射极基极击穿电压($I_E = -100\mu\text{A}$, $I_C = 0$) | BV_{EBO} | -5 | — | — | V |
| Collector-Base Leakage Current 集电极基极漏电流($V_{CB} = -40\text{V}$, $I_E = 0$) | I_{CBO} | — | — | -100 | nA |
| Collector-Emitter Punch Throng Current 集电极发射极穿透电流($V_{CE} = -20\text{V}$, $V_{BE} = 0$) | I_{CES} | — | — | -100 | nA |
| Emitter-Base Leakage Current 发射极基极漏电流($V_{EB} = -5\text{V}$, $I_C = 0$) | I_{EBO} | — | — | -100 | nA |
| DC Current Gain 直流电流增益($V_{CE} = -1\text{V}$, $I_C = -50\text{mA}$) | H_{FE} | 64 | — | 400 | |
| Collector-Emitter Saturation Voltage 集电极发射极饱和压降 ($I_C = -500\text{mA}$, $I_B = -50\text{mA}$) | $V_{CE(sat)}$ | — | — | -0.6 | V |
| Base-Emitter Saturation Voltage 基极发射极饱和压降 ($I_C = -500\text{mA}$, $I_B = -50\text{mA}$) | $V_{BE(sat)}$ | — | — | -1.2 | V |
| Transition Frequency 特征频率($V_{CE} = -5\text{V}$, $I_C = -20\text{mA}$) | f_T | — | 200 | — | MHz |
| Output Capacitance 输出电容($V_{CB} = -10\text{V}$, $I_E = 0$, $f = 1\text{MHz}$) | C_{ob} | — | 7 | — | pF |

■ 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 |