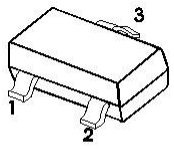
**MMBT2907A** TRANSISTOR(PNP)

**SOT-23**

**SOT-23** 贴片塑封三极管

**SOT-23 Plastic-Encapsulate Transistors**




1. BASE
2. EMITTER
3. COLLECTOR

**Marking: 2F**

特征 **Features**

- 与 MMBT2222A 配对; Complementary to MMBT2222A
- 最大功率耗散 250mW; Power Dissipation of 250mW
- 高稳定性和可靠性。High Stability and High Reliability

机械数据 **Mechanical Data**

- 封装: SOT-23 封装SOT-23 Small Outline Plastic Package
- 环氧树脂UL 易燃等级Epoxy UL: 94V-0
- 安装位置: 任意 Mounting Position: Any

极限值和温度特性(TA = 25℃ 除非另有规定)

**Maximum Ratings & Thermal Characteristics** (Ratings at 25℃ ambient temperature unless otherwise specified.)

| 参数 Parameters | 符号Symbol | 数值 Value | 单位Unit |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | -60 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | -60 | V |
| Emitter -Base Voltage | $V_{EBO}$ | -5 | V |
| Collector Current-Continuous | $I_C$ | -600 | mA |
| Collector Power Dissipation | $P_C$ | 250 | mW |
| Junction Temperature | $T_j$ | 150 | ℃ |
| Storage Temperature | Tstg | -55-+150 | ℃ |
| Thermal resistance From junction to ambient | $R_{\theta JA}$ | 500 | ℃/W |

电特性 (TA = 25℃ 除非另有规定)

**Electrical Characteristics** (Ratings at 25℃ ambient temperature unless otherwise specified).

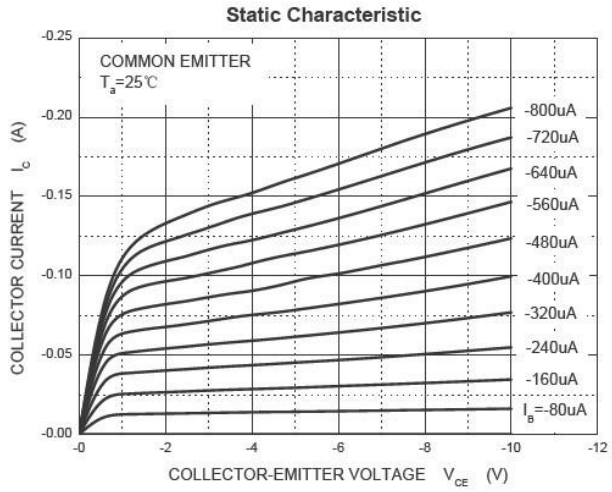
| 参数 **Parameter** | 符号 **Symbols** | 测试条件 **Test Condition** | 界限 **Limits** | | 单位 **Unit** |
|---|---|---|---|---|---|
| | | | **Min** | **Max** | |
| Collector-base breakdown voltage | **$V_{(BR)CBO}$** | $I_C$=-100uA, $I_E$=0 | -60 | | V |
| Collector-emitter breakdown voltage | **$V_{(BR)CEO}$** * | $I_C$=-1mA, $I_B$=0 | -60 | | V |
| Emitter-base breakdown voltage | **$V_{(BR)EBO}$** | $I_E$=-10uA, $I_C$=0 | -5 | | V |
| Collector cut-off current | **$I_{CBO}$** | $V_{CB}$=-50V, $I_E$=0 | | -20 | nA |
| Emitter cut-off current | **$I_{EBO}$** | $V_{EB}$=-3V, $I_C$=0 | | -10 | nA |
| Collector cut-off current | **$I_{CEX}$** | $V_{CE}$=-30V, $V_{BE(off)}$=-0.5V | | -50 | nA |
| DC current gain | $h_{FE(1)}$ * | $V_{CE}$=-10V, $I_C$=-150mA | 100 | 300 | |
| | $h_{FE(2)}$ * | $V_{CE}$=-10V, $I_C$=-0.1mA | 75 | | |
| | $h_{FE(3)}$ * | $V_{CE}$=-10V, $I_C$=-1mA | 100 | | |
| | $h_{FE(4)}$ * | $V_{CE}$=-10V, $I_C$=-10mA | 100 | | |
| | $h_{FE(5)}$ * | $V_{CE}$=-10V, $I_C$=-500mA | 50 | | |
| Collector-emitter saturation voltage | **$V_{CE(sat)1}$** * | $I_C$=-150mA, $I_B$=-15mA | | -0.4 | V |
| | **$V_{CE(sat)2}$** * | $I_C$=-500mA, $I_B$=-50mA | | -1.6 | V |
| Base -emitter saturation voltage | **$V_{BE(sat)1}$** * | $I_C$=-150mA, $I_B$=-15mA | | -1.30 | V |
| | **$V_{BE(sat)2}$** * | $I_C$=-500mA, $I_B$=-50mA | | -2.60 | V |
| Transition frequency | **$f_T$** | $V_{CE}$=-20V, $I_C$=-50mA,f=100MHz | 200 | | MHz |
| Delay time | $t_d$ | $V_{CE}$=-30V, $I_C$=-150mA, $I_{B1}$=-15mA | | 10 | nS |
| Rise time | $t_r$ | | | 25 | nS |
| Storage time | $t_s$ | $V_{CE}$=-6V, $I_C$=-150mA, $I_{B1}$=$I_{B2}$=-15mA | | 225 | nS |
| Fall time | $t_f$ | | | 60 | nS |

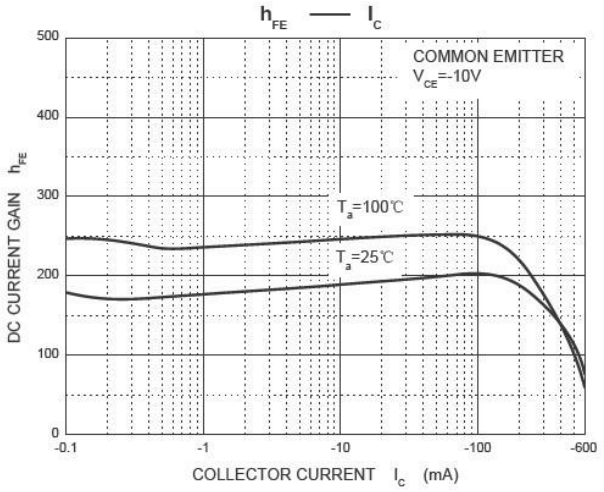
*Pulse test: pulse width≤300us, duty cycle≤2. 0%

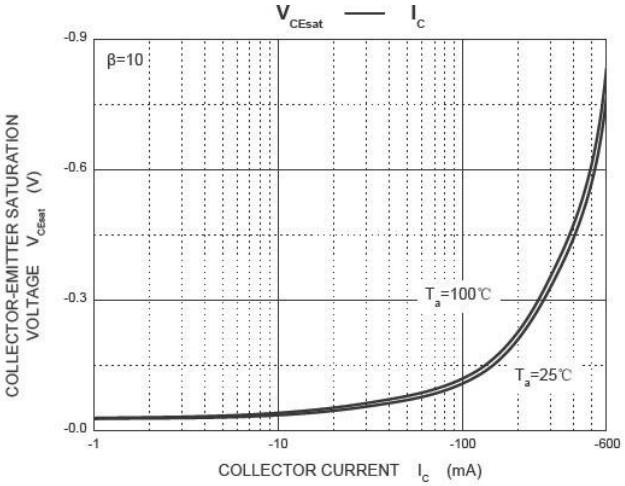
**CLASSIFICATION OF $h_{FE(1)}$**

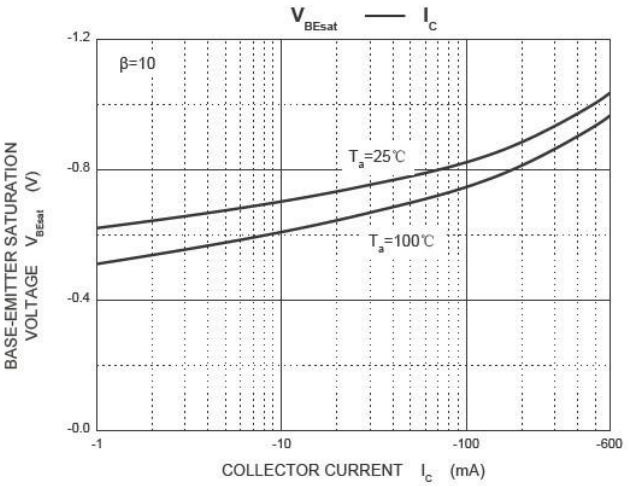
| HFE | 100-300 | |
|---|---|---|
| RANK | L | H |
| RANGE | 100-200 | 200-300 |

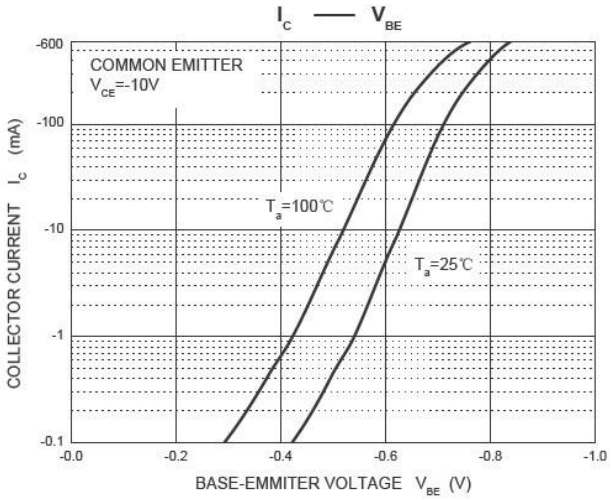
## Typical characteristics

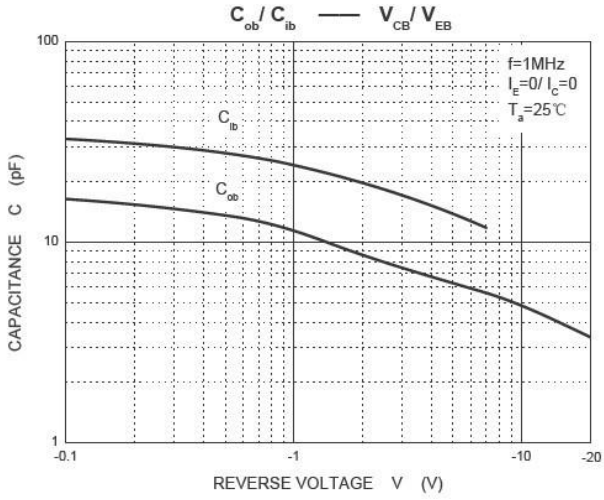


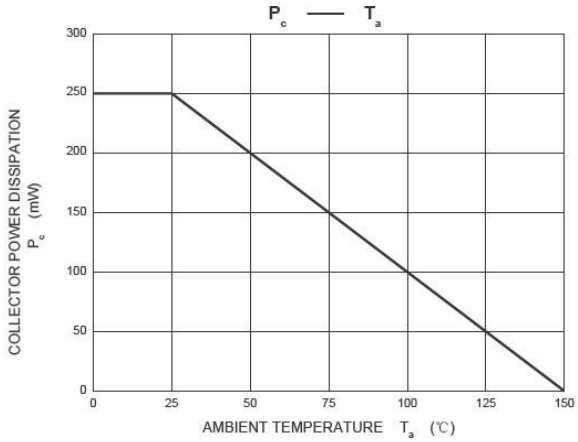



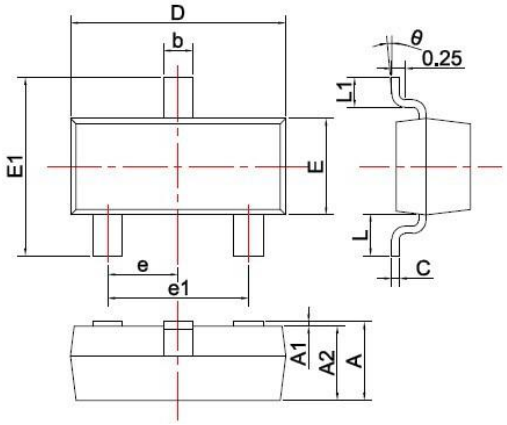






## SOT-23 PACKAGE OUTLINE Plastic surface mounted package

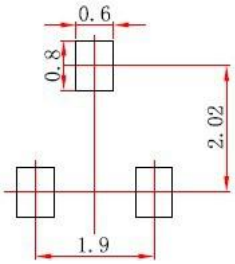



| SYMBOL | DIMENSIONS | |
|---|---|---|
| | MIN. | MAX. |
| A | 0.900 | 1.150 |
| A1 | 0.000 | 0.100 |
| A2 | 0.900 | 1.050 |
| b | 0.300 | 0.500 |
| c | 0.080 | 0.150 |
| D | 2.800 | 3.000 |
| E | 1.200 | 1.400 |
| E1 | 2.250 | 2.550 |
| e | 0.950TYP | |
| e1 | 1.800 | 2.000 |
| L | 0.550REF | |
| L1 | 0.300 | 0.500 |
| θ | 0° | 8° |

Unit: mm

焊盘设计参考Precautions: PCB Design

Recommended land dimensions for SOT-23 diode. Electrode patterns for PCBs




Note:
1.Controlling dimension:In millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.