



## SOT-23 Bipolar Transistor 双极型三极管

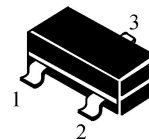
## SOT-23

### ■ Features 特点

NPN General Purpose 通用



1. BASE
2. EMITTER
3. COLLECTOR



### ■ Absolute Maximum Ratings 最大额定值

| Characteristic<br>特性参数                      | Symbol<br>符号           | BC846<br>A/B/C<br>-6AF | BC847<br>A/B/C<br>-6AF | BC848<br>A/B/C<br>-6AF | Unit<br>单位    |
|---------------------------------------------|------------------------|------------------------|------------------------|------------------------|---------------|
| Collector-Base Voltage<br>集电极基极电压           | $V_{CBO}$              | 80                     | 50                     | 30                     | V             |
| Collector-Emitter Voltage<br>集电极发射极电压       | $V_{CEO}$              | 65                     | 45                     | 30                     | V             |
| Emitter-Base Voltage<br>发射极基极电压             | $V_{EBO}$              | 6                      | 6                      | 5                      | V             |
| Collector Current<br>集电极电流                  | $I_C$                  | 100                    |                        |                        | mA            |
| Power dissipation<br>耗散功率                   | $P_C(T_a=25^{\circ}C)$ | 200                    |                        |                        | mW            |
| Thermal Resistance<br>Junction-Ambient 热阻   | $R_{\theta JA}$        | 625                    |                        |                        | $^{\circ}C/W$ |
| Junction and Storage Temperature<br>结温和储藏温度 | $T_J, T_{stg}$         | -55to+150 $^{\circ}C$  |                        |                        |               |

### ■ Device Marking 产品打标

| $H_{FE}$ |                | 110-220(A) | 200-450(B) | 420-800(C) |
|----------|----------------|------------|------------|------------|
| Mark     | BC846A/B/C-6AF | 1A         | 1B         | 1C         |
|          | BC847A/B/C-6AF | 1E         | 1F         | 1G         |
|          | BC848A/B/C-6AF | 1J         | 1K         | 1L         |

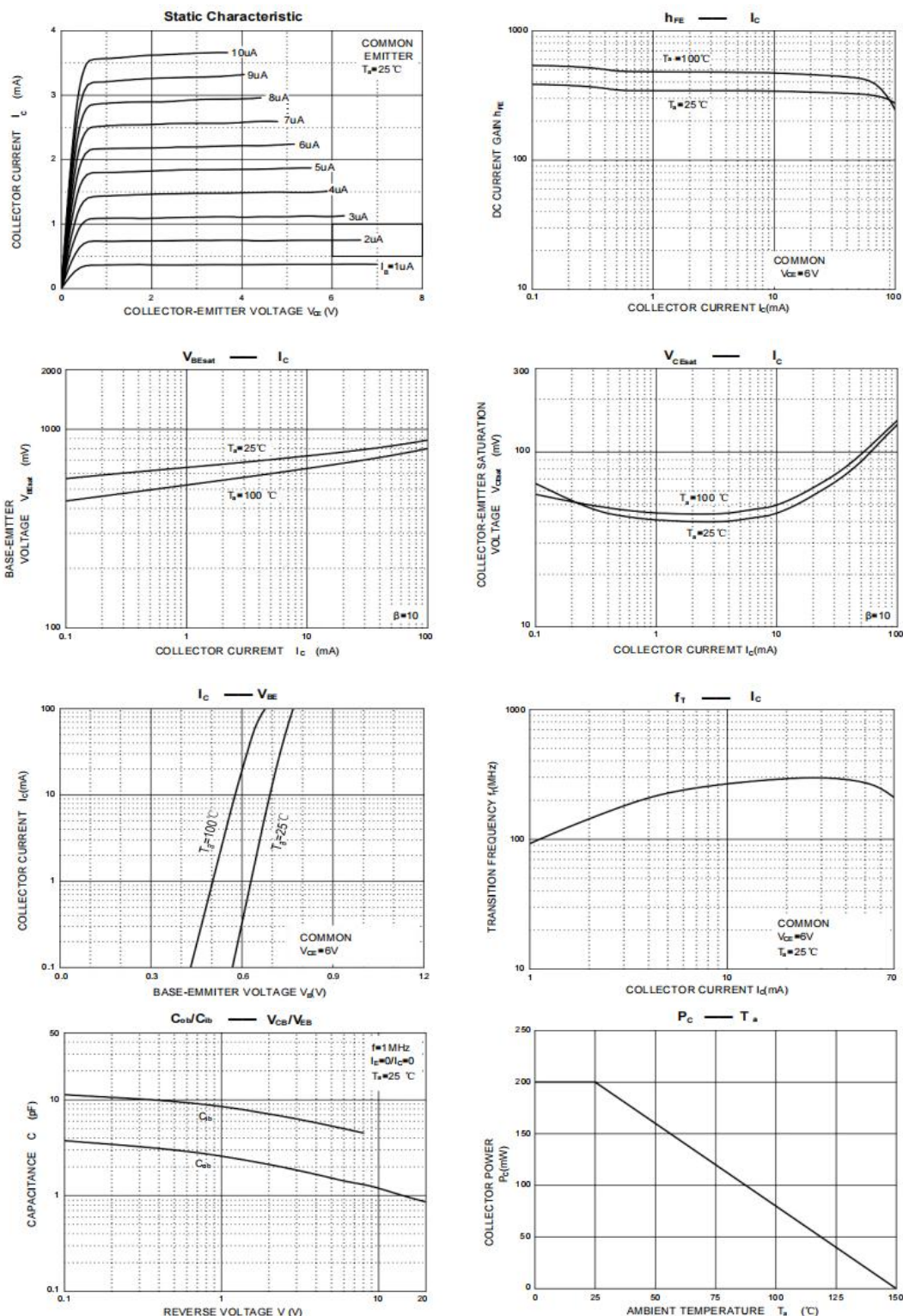


#### ■Electrical Characteristics 电特性

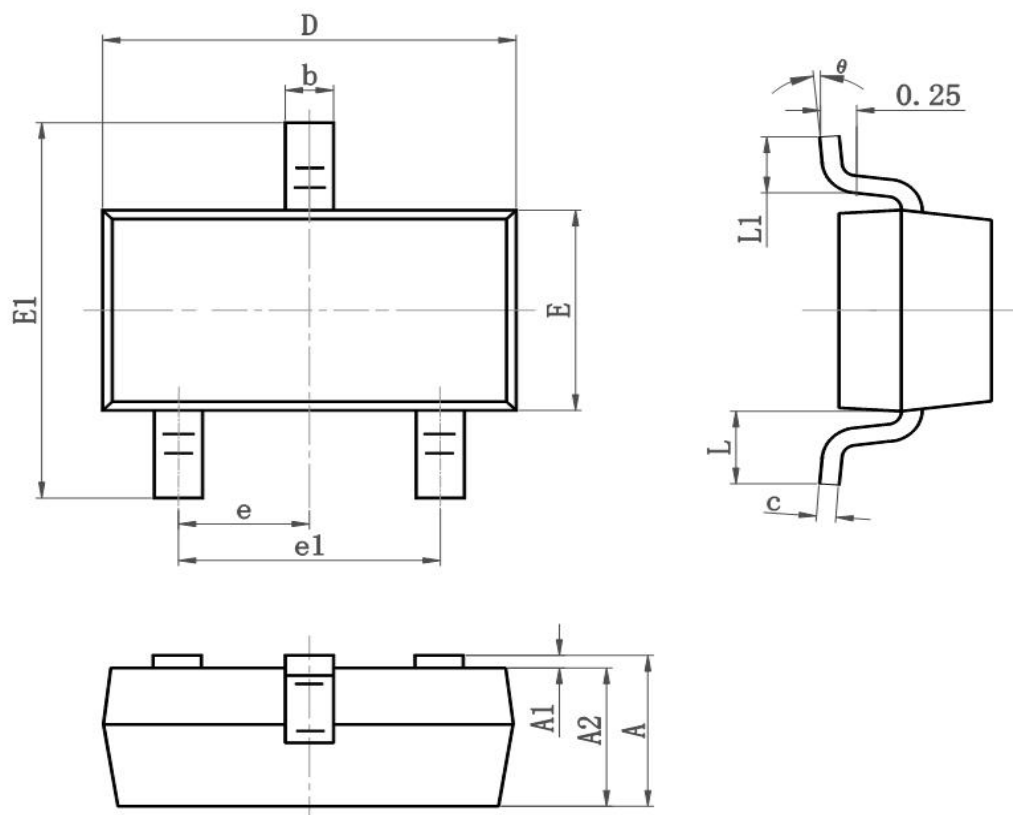
( $T_A=25^{\circ}\text{C}$  unless otherwise noted 如无特殊说明, 温度为  $25^{\circ}\text{C}$ )

| 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>( $I_C=10\mu\text{A}$ , $I_E=0$ )              | BC846A/B/C-6AF                               | $BV_{CBO}$    | 80         | —           | —          | V          |
|                                                                                                 | BC847A/B/C-6AF                               |               | 50         |             |            |            |
|                                                                                                 | BC848A/B/C-6AF                               |               | 30         |             |            |            |
| Collector-Emitter Breakdown Voltage<br>集电极发射极击穿电压<br>( $I_C=10\text{mA}$ , $I_B=0$ )            | BC846A/B/C-6AF                               | $BV_{CEO}$    | 65         | —           | —          | V          |
|                                                                                                 | BC847A/B/C-6AF                               |               | 45         |             |            |            |
|                                                                                                 | BC848A/B/C-6AF                               |               | 30         |             |            |            |
| Emitter-Base Breakdown Voltage<br>发射极基极击穿电压<br>( $I_E=10\mu\text{A}$ , $I_C=0$ )                |                                              | $BV_{EBO}$    | 5          | —           | —          | V          |
| Collector-Base<br>Leakage Current<br>集电极基极漏电流                                                   | BC846A/B/C-6AF( $V_{CB}=70\text{V}, I_E=0$ ) | $I_{CBO}$     | —          | —           | 100        | nA         |
|                                                                                                 | BC847A/B/C-6AF( $V_{CB}=50\text{V}, I_E=0$ ) |               |            |             |            |            |
|                                                                                                 | BC848A/B/C-6AF( $V_{CB}=30\text{V}, I_E=0$ ) |               |            |             |            |            |
| 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>( $V_{CE}=5\text{V}, I_C=2\text{mA}$ )                             | BC846A/BC847A/BC848A-6AF                     | $H_{FE}$      | 110        | 180         | 220        |            |
|                                                                                                 | BC846B/BC847B/BC848B-6AF                     |               | 200        | 290         | 450        |            |
|                                                                                                 | BC846C/BC847C/BC848C-6AF                     |               | 420        | 520         | 800        |            |
| Collector-Emitter Saturation Voltage<br>集电极发射极饱和压降<br>( $I_C=100\text{mA}$ , $I_B=5\text{mA}$ ) |                                              | $V_{CE(sat)}$ | —          | —           | 0.5        | V          |
| Base-Emitter Saturation Voltage<br>基极发射极饱和压降<br>( $I_C=100\text{mA}$ , $I_B=5\text{mA}$ )       |                                              | $V_{BE(sat)}$ | —          | —           | 1.1        | V          |
| Transition Frequency<br>特征频率<br>( $V_{CE}=5\text{V}$ , $I_C=10\text{mA}$ )                      |                                              | $f_T$         | 100        | —           | —          | MHz        |
| Output Capacitance<br>输出电容<br>( $V_{CB}=10\text{V}$ , $I_E=0$ , $f=1\text{MHz}$ )               |                                              | $C_{ob}$      | —          | 4.5         | —          | 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      | 0.900                     | 1.150 | 0.035                | 0.045 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 0.900                     | 1.050 | 0.035                | 0.041 |
| b      | 0.300                     | 0.500 | 0.012                | 0.020 |
| c      | 0.080                     | 0.150 | 0.003                | 0.006 |
| D      | 2.800                     | 3.000 | 0.110                | 0.118 |
| E      | 1.200                     | 1.400 | 0.050                | 0.055 |
| E1     | 2.250                     | 2.550 | 0.089                | 0.100 |
| e      | 0.900                     | 1.00  | 0.035                | 0.039 |
| e1     | 1.800                     | 2.000 | 0.071                | 0.079 |
| L      | 0.500                     | 0.600 | 0.020                | 0.024 |
| L1     | 0.300                     | 0.500 | 0.012                | 0.020 |
| θ      | 0°                        | 8°    | 0°                   | 8°    |