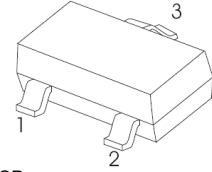


## TRANSISTOR (NPN)

## SOT-23

1. BASE  
2. EMITTER  
3. COLLECTOR



## FEATURES

- ✧ Complementary to S9015

## MARKING: J6

MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$  unless otherwise noted)

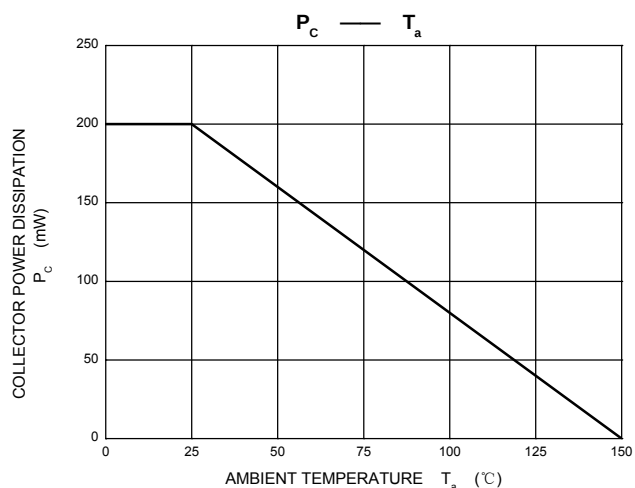
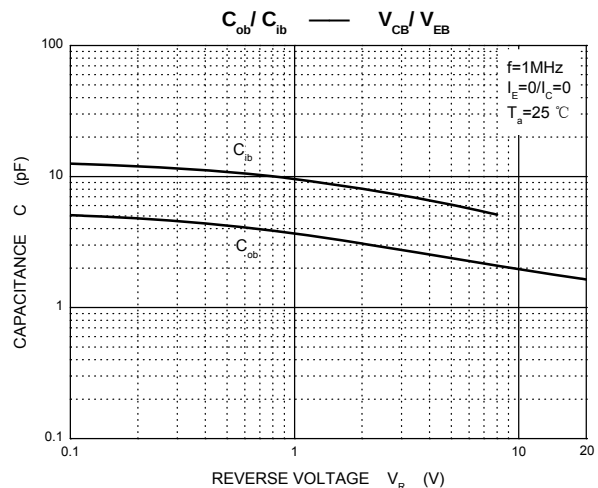
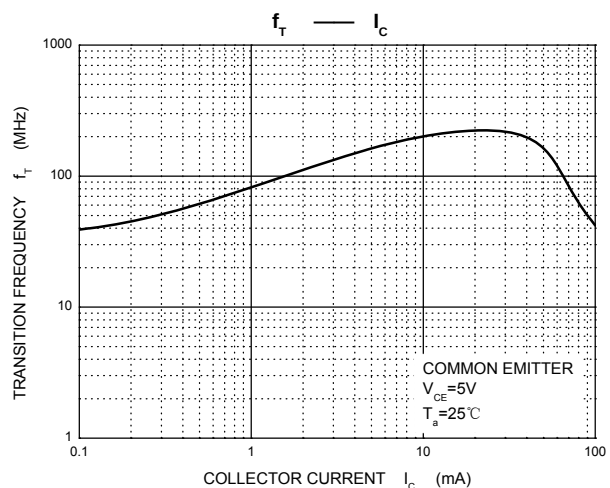
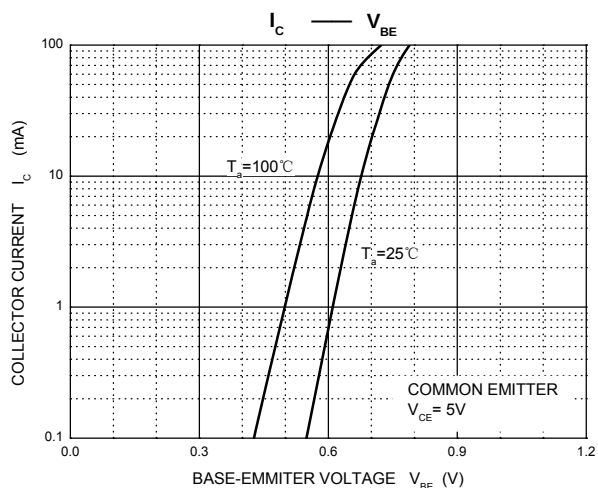
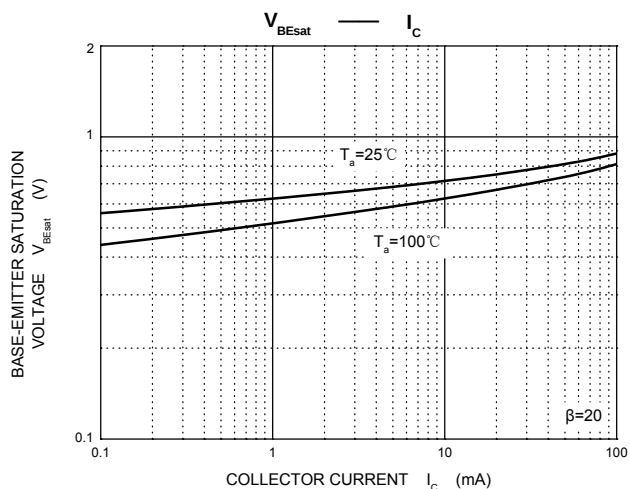
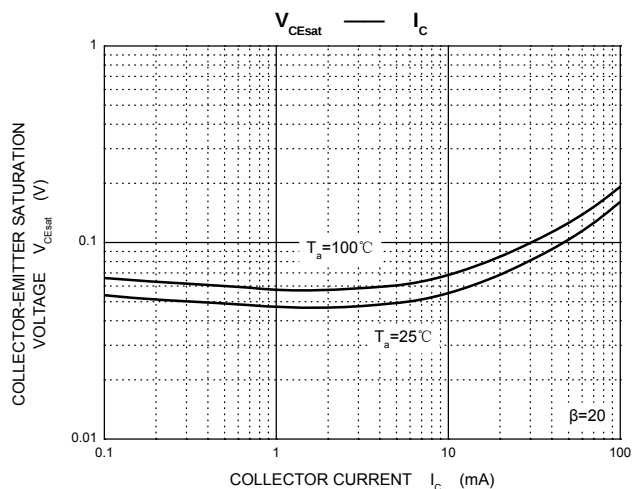
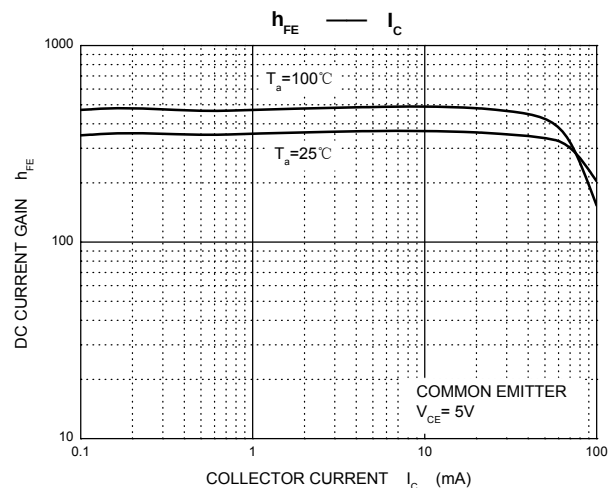
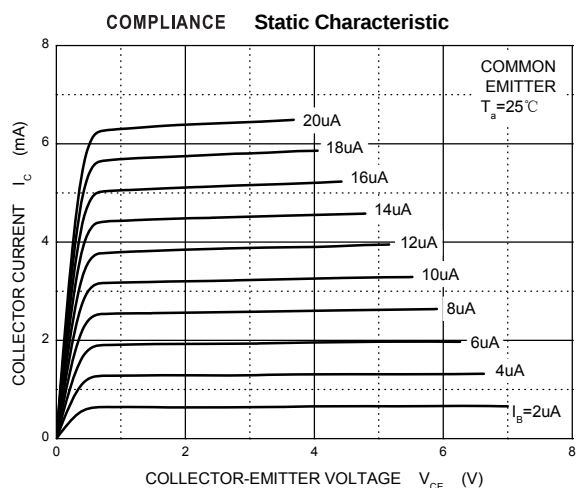
| Symbol          | Parameter                                   | Value    | Unit                      |
|-----------------|---------------------------------------------|----------|---------------------------|
| $V_{CBO}$       | Collector-Base Voltage                      | 50       | V                         |
| $V_{CEO}$       | Collector-Emitter Voltage                   | 45       | V                         |
| $V_{EBO}$       | Emitter-Base Voltage                        | 5        | V                         |
| $I_C$           | Collector Current                           | 100      | mA                        |
| $P_C$           | Collector Power Dissipation                 | 200      | mW                        |
| $R_{\theta JA}$ | Thermal Resistance From Junction To Ambient | 625      | $^\circ\text{C}/\text{W}$ |
| $T_j$           | Junction Temperature                        | 150      | $^\circ\text{C}$          |
| $T_{stg}$       | Storage Temperature                         | -55~+150 | $^\circ\text{C}$          |

ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$  unless otherwise specified)

| Parameter                            | Symbol        | Test conditions                                            | Min | Typ | Max  | Unit          |
|--------------------------------------|---------------|------------------------------------------------------------|-----|-----|------|---------------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$ | $I_C=100\mu\text{A}$ , $I_E=0$                             | 50  |     |      | V             |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$ | $I_C=0.1\text{mA}$ , $I_B=0$                               | 45  |     |      | V             |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$ | $I_E=100\mu\text{A}$ , $I_C=0$                             | 5   |     |      | V             |
| Collector cut-off current            | $I_{CBO}$     | $V_{CB}=50\text{V}$ , $I_E=0$                              |     |     | 0.1  | $\mu\text{A}$ |
| Collector cut-off current            | $I_{CEO}$     | $V_{CE}=35\text{V}$ , $I_B=0$                              |     |     | 1    | $\mu\text{A}$ |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB}=3\text{V}$ , $I_C=0$                               |     |     | 0.1  | $\mu\text{A}$ |
| DC current gain                      | $h_{FE}$      | $V_{CE}=5\text{V}$ , $I_C=1\text{mA}$                      | 200 |     | 1000 |               |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=100\text{mA}$ , $I_B=5\text{mA}$                      |     |     | 0.3  | V             |
| Base-emitter saturation voltage      | $V_{BE(sat)}$ | $I_C=100\text{mA}$ , $I_B=5\text{mA}$                      |     |     | 1    | V             |
| Transition frequency                 | $f_T$         | $V_{CE}=5\text{V}$ , $I_C=10\text{mA}$<br>$f=30\text{MHz}$ | 150 |     |      | MHz           |

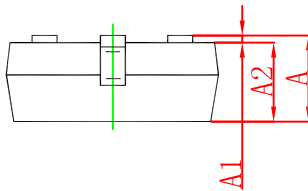
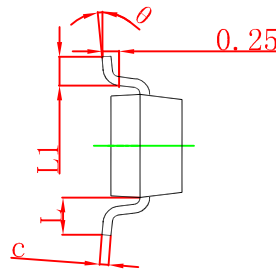
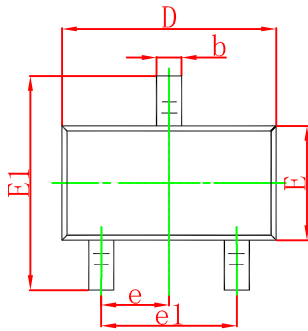
CLASSIFICATION OF  $h_{FE}$ 

| Rank  | L       | H        |
|-------|---------|----------|
| Range | 200-450 | 450-1000 |



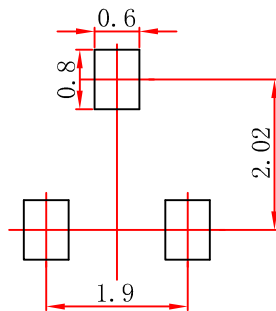


**SOT-23 Plastic-Encapsulate Transistors**



| 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 | 0.047                | 0.055 |
| E1     | 2.250                     | 2.550 | 0.089                | 0.100 |
| e      | 0.950 TYP                 |       | 0.037 TYP            |       |
| e1     | 1.800                     | 2.000 | 0.071                | 0.079 |
| L      | 0.550 REF                 |       | 0.022 REF            |       |
| L1     | 0.300                     | 0.500 | 0.012                | 0.020 |
| θ      | 0°                        | 8°    | 0°                   | 8°    |

**SOT-23 Package Outline Dimensions**



**Note:**

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.