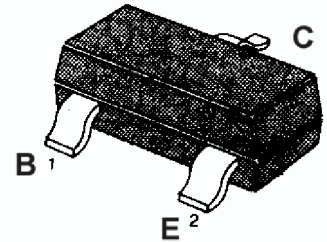


**APPLICATION:**General purpose application. Switching application.

**MAXIMUM RATINGS** (Ta=25°C)

| PARAMETER                   | SYMBOL           | RATING   | UNIT |
|-----------------------------|------------------|----------|------|
| Collector-base voltage      | V <sub>CB0</sub> | 50       | V    |
| Collector-emitter voltage   | V <sub>CEO</sub> | 45       | V    |
| Emitter-base voltage        | V <sub>EBO</sub> | 5        | V    |
| Collector current           | I <sub>c</sub>   | 100      | mA   |
| Collector Power Dissipation | P <sub>c</sub>   | 150      | mW   |
| Junction Temperature        | T <sub>J</sub>   | 150      | °C   |
| Storage Temperature Range   | T <sub>stg</sub> | - 55~150 | °C   |

**SOT-23**



1.Base 2 .Emitter 3 .Collector

**ELECTRICAL CHARACTERISTICS** (Ta=25°C)

| PARAMETER                            | SYMBOL               | MIN. | TYP. | MAX. | UNIT | TEST CONDITION                                                              |
|--------------------------------------|----------------------|------|------|------|------|-----------------------------------------------------------------------------|
| DC Current Gain                      | h <sub>FE</sub>      | 60   |      | 1000 |      | V <sub>CE</sub> = 5 V, I <sub>c</sub> = 1 mA                                |
| Collector Cut-off Current            | I <sub>CB0</sub>     |      |      | 0.1  | μA   | V <sub>CB</sub> = 50V, I <sub>E</sub> =0                                    |
| Emitter Cut-off Current              | I <sub>EBO</sub>     |      |      | 0.1  | μA   | V <sub>EB</sub> = 5 V, I <sub>c</sub> =0                                    |
| Collector-Base Breakdown Voltage     | BV <sub>CB0</sub>    | 50   |      |      | V    | I <sub>c</sub> = 0.1mA, I <sub>E</sub> =0                                   |
| Collector-Emitter Breakdown Voltage  | BV <sub>CEO</sub>    | 45   |      |      | V    | I <sub>c</sub> = 1 mA, I <sub>B</sub> =0                                    |
| Emitter-Base Breakdown Voltage       | BV <sub>EBO</sub>    | 5    |      |      | V    | I <sub>E</sub> = 0.1mA, I <sub>c</sub> =0                                   |
| Base-Emitter Voltage                 | V <sub>BE</sub>      | 0.58 | 0.63 | 0.7  | V    | V <sub>CE</sub> = 5V, I <sub>c</sub> = 2mA                                  |
| Collector-Emitter Saturation Voltage | V <sub>CE(sat)</sub> |      | 0.14 | 0.3  | V    | I <sub>c</sub> = 100mA, I <sub>B</sub> = 10mA                               |
| Base-Emitter Saturation Voltage      | V <sub>BE(sat)</sub> |      | 0.84 | 1    | V    | I <sub>c</sub> = 100mA, I <sub>B</sub> = 10mA                               |
| Gain bandwidth product               | f <sub>T</sub>       | 150  | 270  |      | MHz  | I <sub>c</sub> = 10mA, V <sub>CE</sub> = 5V                                 |
| Common Base Output Capacitance       | C <sub>ob</sub>      |      | 2.2  | 3.5  | PF   | V <sub>CB</sub> = 10V, I <sub>E</sub> =0, f = 1 MHz                         |
| Noise Figure                         | N <sub>F</sub>       |      | 0.9  | 10   | dB   | V <sub>CE</sub> = 5V, I <sub>c</sub> = 0.2mA, f= 1KHz, R <sub>g</sub> = 2KΩ |

**h<sub>FE</sub> Classification And Marking**

| Print Mark      |        |         |         |          |
|-----------------|--------|---------|---------|----------|
| Classification  | A      | B       | C       | D        |
| h <sub>FE</sub> | 60~150 | 100~300 | 200~400 | 400~1000 |

# Electrical Characteristic Curves

Fig. 1  $P_C - T_a$

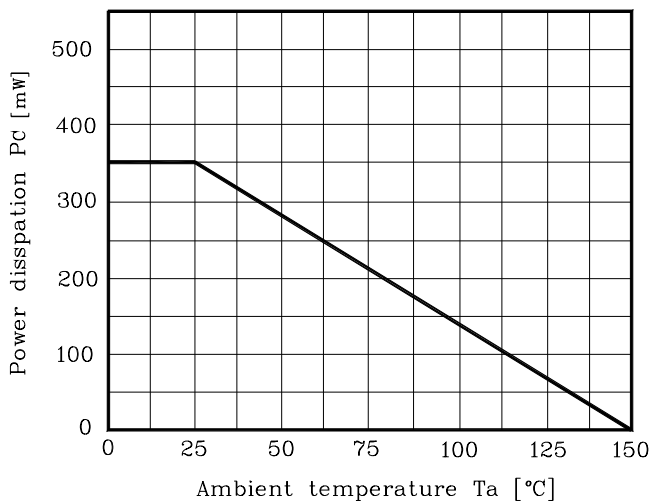


Fig. 2  $I_C - V_{BE}$

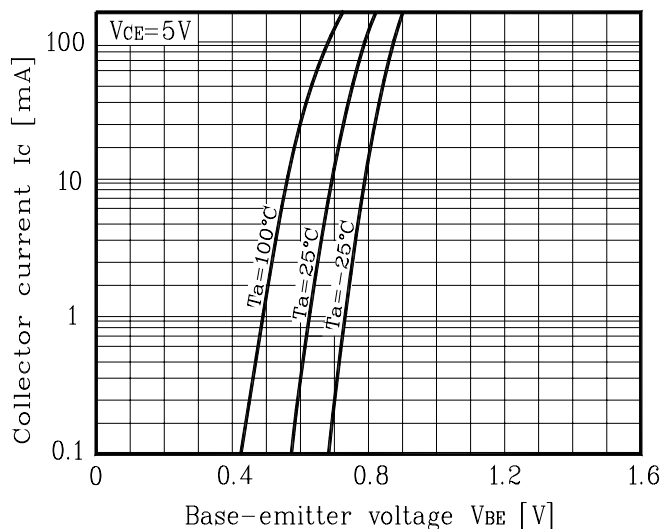


Fig. 3  $I_C - V_{CE}$

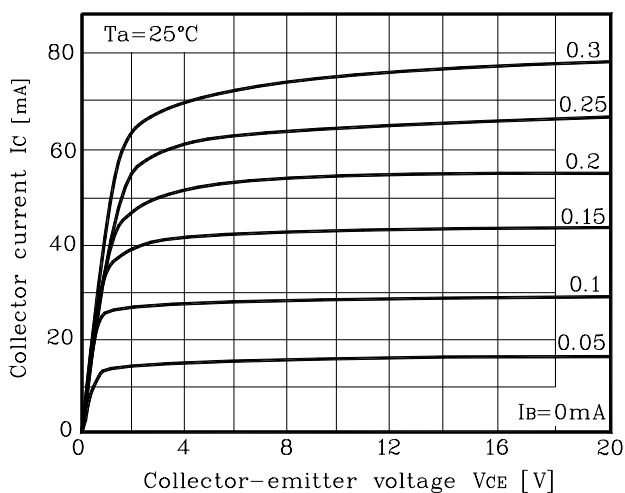


Fig. 4  $V_{CE(sat)} - I_C$

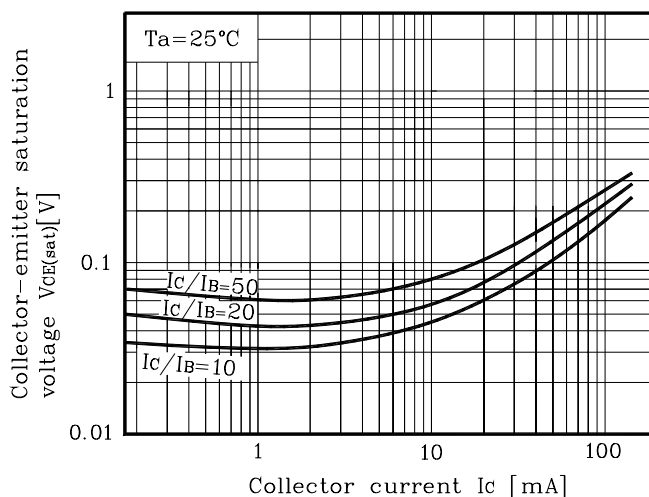


Fig. 5  $h_{FE} - I_C$

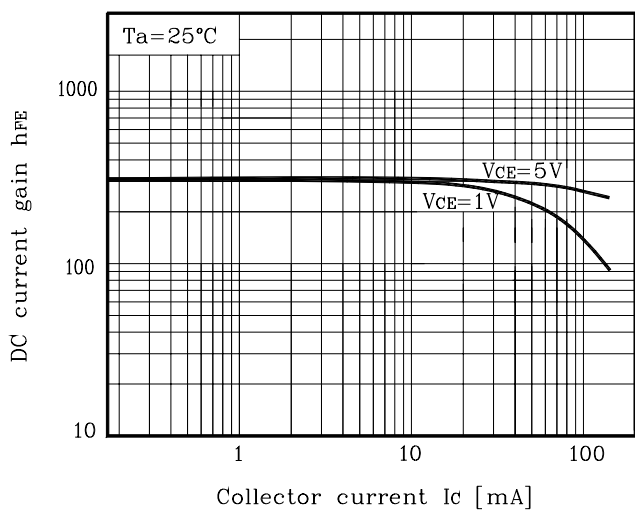


Fig. 6  $h_{FE} - I_C$

