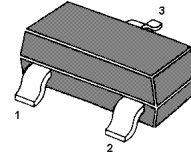


NPN Silicon Epitaxial Planar Transistor

for switching and AF amplifier applications.

The transistor is subdivided into four groups O, Y, G and L, according to its DC current gain.



1.Base 2.Emitter 3.Collector
SOT-23 Plastic Package

Absolute Maximum Ratings ($T_a = 25\text{ }^\circ\text{C}$)

| | Symbol | Value | Unit |
|---------------------------|-----------|-------------|------------------|
| Collector Base Voltage | V_{CBO} | 60 | V |
| Collector Emitter Voltage | V_{CEO} | 50 | V |
| Emitter Base Voltage | V_{EBO} | 5 | V |
| Collector Current | I_C | 150 | mA |
| Base Current | I_B | 30 | mA |
| Power Dissipation | P_{tot} | 200 | mW |
| Junction Temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage Temperature Range | T_s | -55 to +150 | $^\circ\text{C}$ |



Characteristics at $T_{amb}=25\text{ }^{\circ}\text{C}$

| | Symbol | Min. | Typ. | Max. | Unit |
|---|---------------|------|------|------|---------------|
| DC Current Gain at $V_{CE}=6\text{V}$, $I_C=2\text{mA}$ | | | | | |
| Current Gain Group O | h_{FE} | 70 | - | 140 | - |
| Y | h_{FE} | 120 | - | 240 | - |
| G | h_{FE} | 200 | - | 400 | - |
| L | h_{FE} | 300 | - | 700 | - |
| Collector Emitter Saturation Voltage at $I_C=100\text{mA}$, $I_B=10\text{mA}$ | $V_{CE(sat)}$ | - | - | 0.25 | V |
| Collector Cutoff Current at $V_{CB}=60\text{V}$ | I_{CBO} | - | - | 0.1 | μA |
| Emitter Cutoff Current at $V_{EB}=5\text{V}$ | I_{EBO} | - | - | 0.1 | μA |
| Transition Frequency at $V_{CE}=10\text{V}$, $I_C=1\text{mA}$ | f_T | 80 | - | - | MHz |
| Collector Output Capacitance at $V_{CB}=10\text{V}$, $f=1\text{MHz}$ | C_{OB} | - | 2 | 3.5 | pF |
| Noise Figure at $V_{CE}=6\text{V}$, $I_C=0.1\text{mA}$, $f=1\text{KHz}$, $R_G=10\text{K}\Omega$ | NF | - | 1 | 10 | dB |



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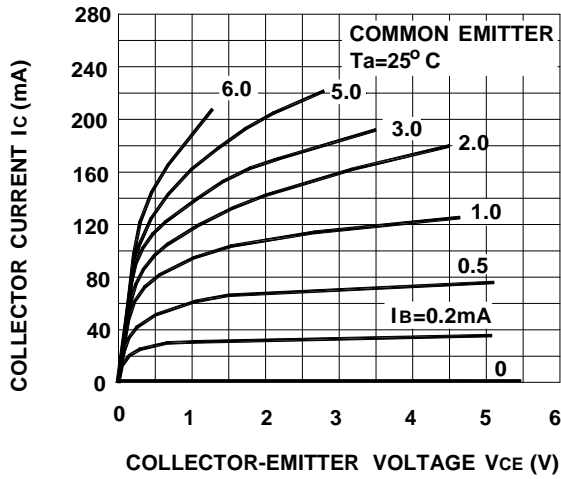
SOT-23

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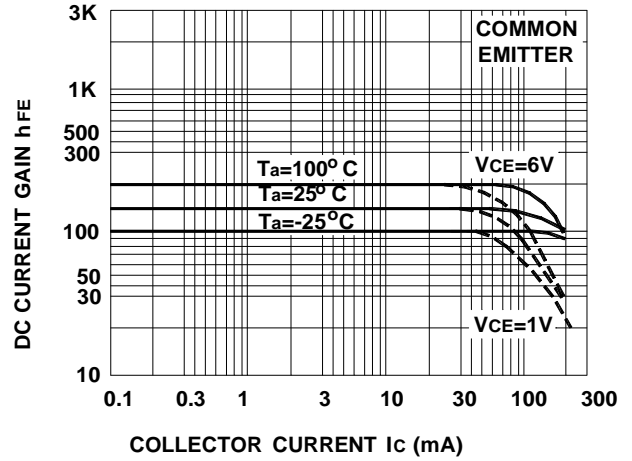


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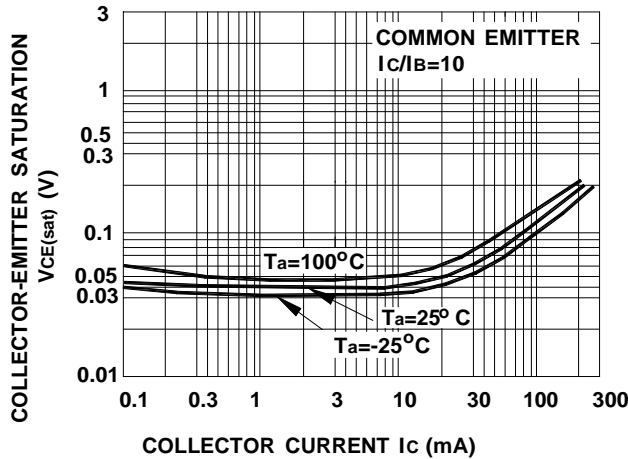
I_C-V_{CE}



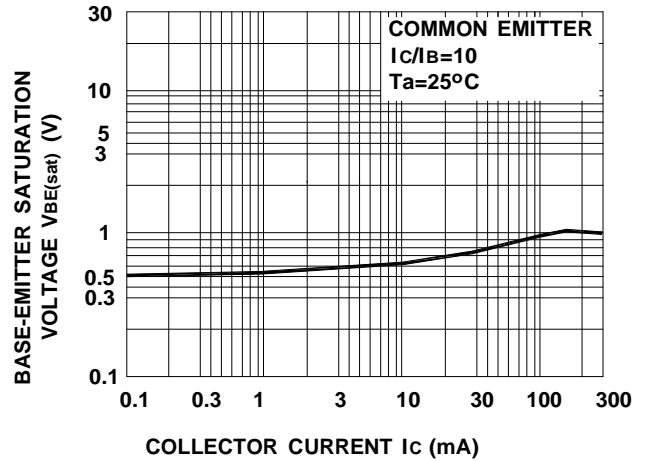
h_{FE}-I_C



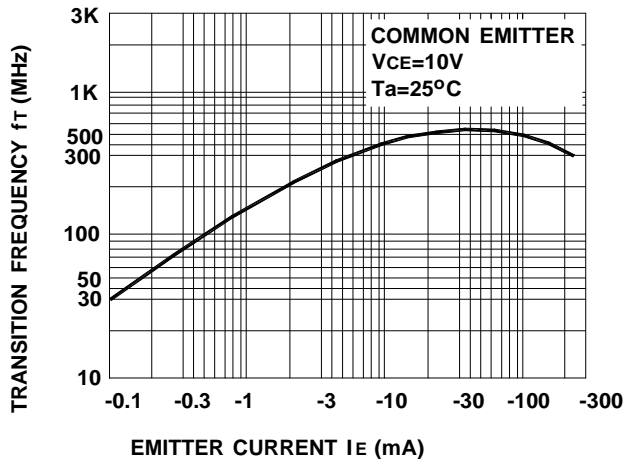
V_{CE(sat)}-I_C



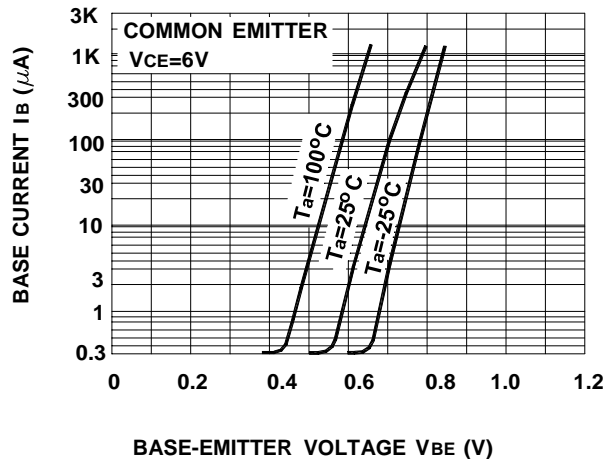
V_{BE(sat)}-I_C



f_T-I_E



I_B-V_{BE}





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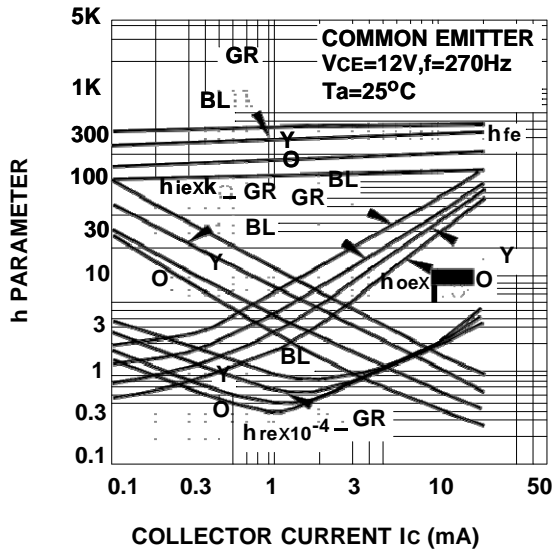
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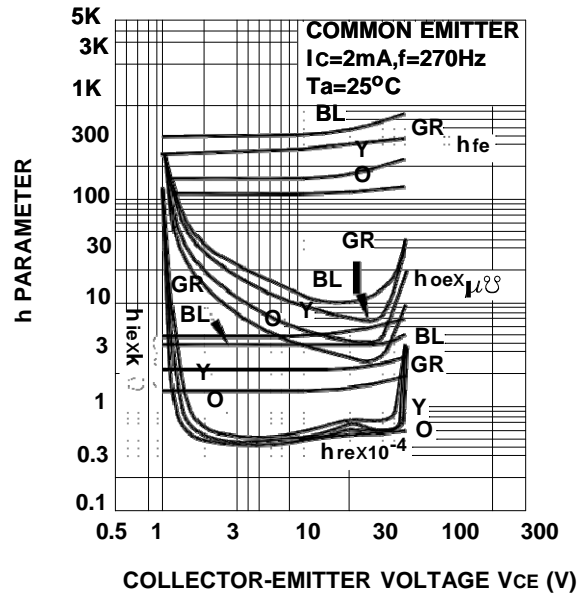
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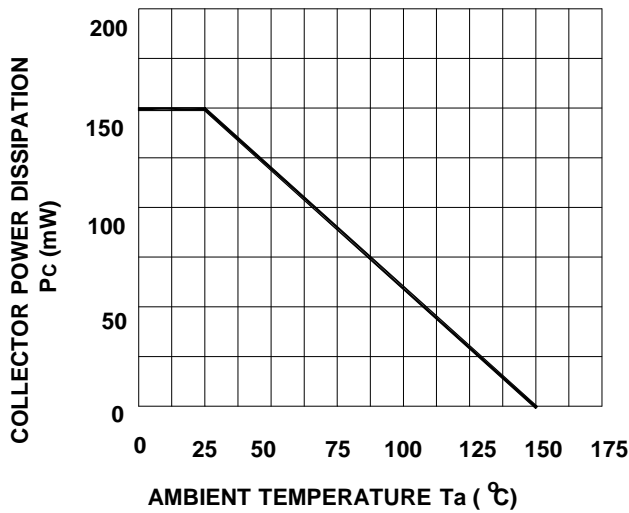
h PARAMETER-Ic



h PARAMETER-Vce



Pc-Ta

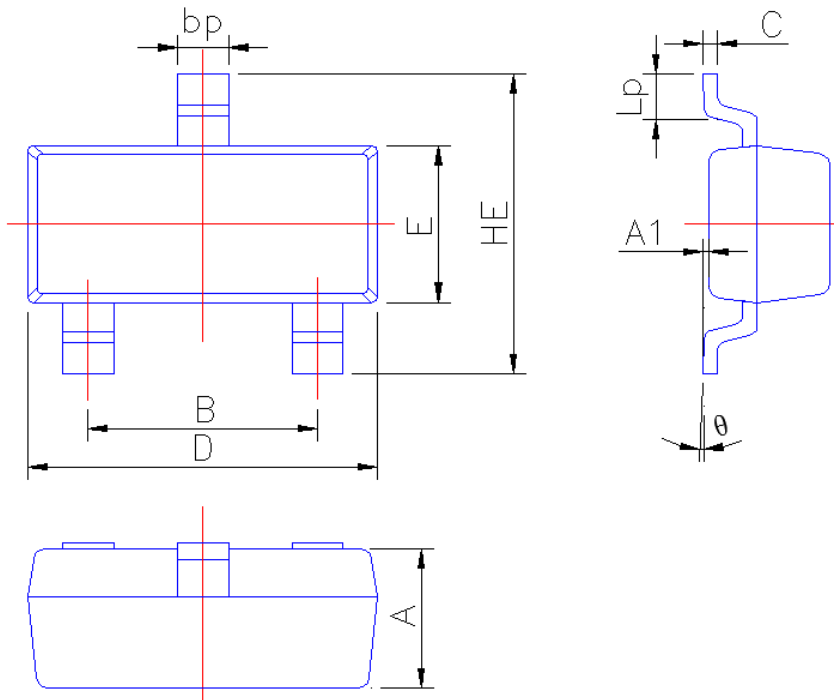




PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



| Symbol | Dimension in Millimeters | |
|----------|--------------------------|-------|
| | Min | Max |
| A | 0.90 | 1.10 |
| A1 | 0.013 | 0.100 |
| B | 1.80 | 2.00 |
| bp | 0.35 | 0.50 |
| C | 0.09 | 0.150 |
| D | 2.80 | 3.00 |
| E | 1.20 | 1.40 |
| HE | 2.20 | 2.80 |
| Lp | 0.20 | 0.50 |
| θ | 0° | 5° |