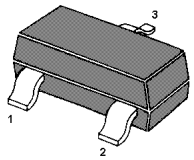
# NPN Silicon Epitaxial Planar Transistor

Low saturation medium current application
Suitable for low voltage large current drivers


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

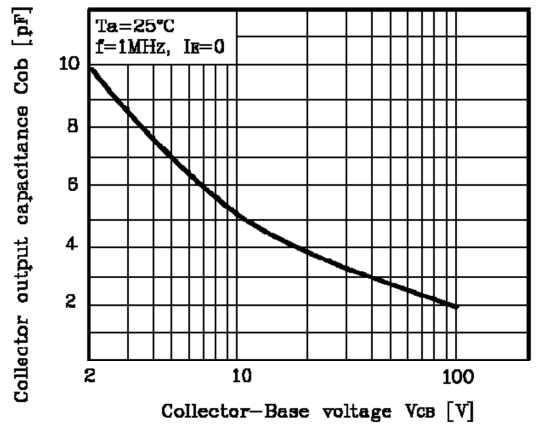
## Absolute Maximum Ratings ($T_a$ = 25 °C)

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Collector Base Voltage | $V_{CBO}$ | 20 | V |
| Collector Emitter Voltage | $V_{CEO}$ | 15 | V |
| Emitter Base Voltage | $V_{EBO}$ | 6.5 | V |
| Collector Current | $I_C$ | 1 | A |
| Power Dissipation | $P_{tot}$ | 200 | mW |
| Junction Temperature | $T_j$ | 150 | °C |
| Storage Temperature Range | $T_S$ | - 55 to + 150 | °C |

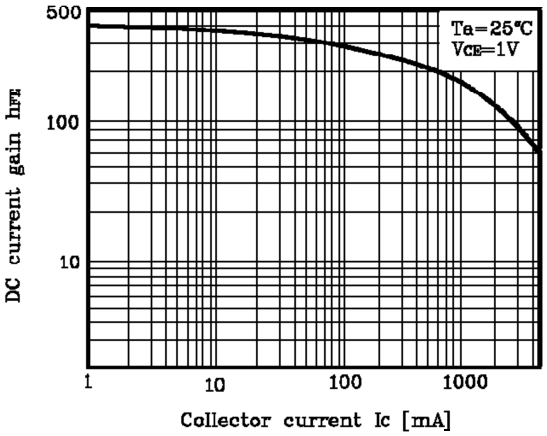
## Characteristics at $T_a$ = 25 °C

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| DC Current Gain at $V_{CE}$ = 1 V, $I_C$ = 100 mA | $h_{FE}$ | 150 | - | - | - |
| Collector Cutoff Current at $V_{CB}$ = 20 V | $I_{CBO}$ | - | - | 100 | nA |
| Emitter Cutoff Current at $V_{EB}$ = 6 V | $I_{EBO}$ | - | - | 100 | nA |
| Collector Base Breakdown Voltage at $I_C$ = 50 µA | $V_{(BR)CBO}$ | 20 | - | - | V |
| Collector Emitter Breakdown Voltage at $I_C$ = 1 mA | $V_{(BR)CEO}$ | 15 | - | - | V |
| Emitter Base Breakdown Voltage at $I_E$ = 50 µA | $V_{(BR)EBO}$ | 6.5 | - | - | V |
| Collector Emitter Saturation Voltage at $I_C$ = 500 mA, $I_B$ = 50 mA | $V_{CE(sat)}$ | - | - | 0.3 | V |
| Transition Frequency at $V_{CE}$ = 5 V, $I_C$ = 50 mA | $f_T$ | - | 260 | - | MHz |
| Output Capacitance at $V_{CB}$ = 10 V, f = 1 MHz | $C_{OB}$ | - | 5 | - | pF |

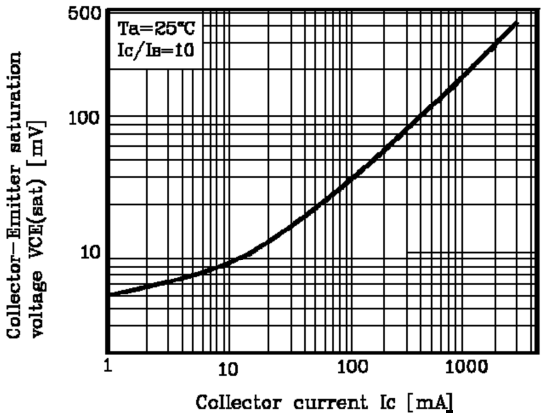
$C_{ob}$-$V_{CB}$



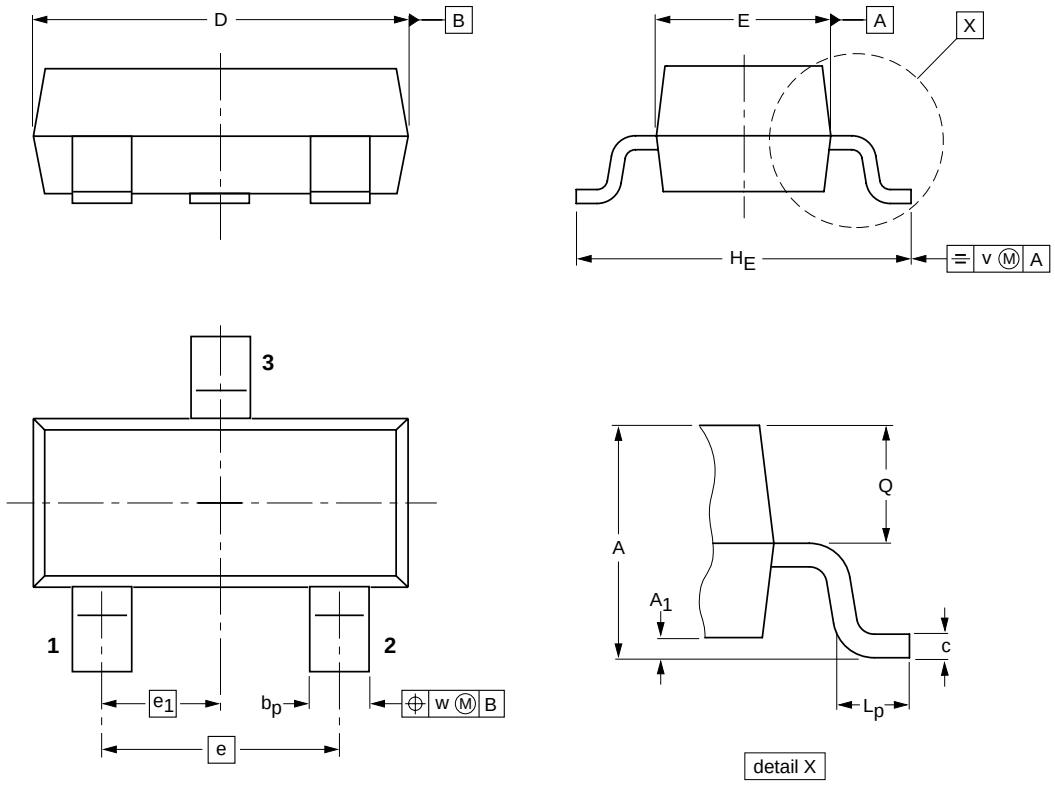

$h_{FE}$-$I_C$




$V_{CE(sat)}$-$I_C$



## Package Outline SOT-23




**DIMENSIONS (mm are the original dimensions)**

| UNIT | A | $A_1$ max. | $b_p$ | c | D | E | e | $e_1$ | $H_E$ | $L_p$ | Q | v | w |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | 1.1<br>0.9 | 0.1 | 0.48<br>0.38 | 0.15<br>0.09 | 3.0<br>2.8 | 1.4<br>1.2 | 1.9 | 0.95 | 2.5<br>2.1 | 0.45<br>0.15 | 0.55<br>0.45 | 0.2 | 0.1 |

## Summary of Packing Options

| Package | Packing Description | Packing Quantity | Industry Standard |
|---|---|---|---|
| SOT-23 | Tape/Reel,7"reel | 3000 | EIA-481-1 |