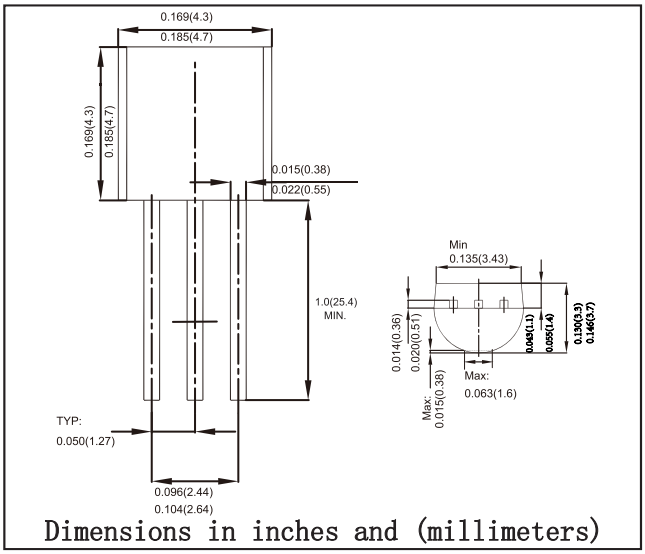
## TO-92 Plastic-Encapsulate Transistors

### FEATURES

- Power dissipation
- TRANSISTOR (NPN)

### MECHANICAL DATA

- Case style:TO-92 molded plastic
- Mounting position:any



Dimensions in inches and (millimeters)

## MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 40 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 30 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 6 | V |
| $I_C$ | Collector Current -Continuous | 3 | A |
| $P_C$ | Collector Power Dissipation | 625 | mW |
| $R_{\Theta JA}$ | Thermal Resistance from Junction to Ambient | 200 | ℃ /W |
| $T_J$ | Junction Temperature | 150 | ℃ |
| $T_{stg}$ | Storage Temperature | -55~+150 | ℃ |

## ELECTRICAL CHARACTERISTICS Ta =25 ℃ unless otherwise specified

| Parameter | Symbol | Test conditions | Min r | T#: | Max | Unit |
|---|---|---|---|---|---|---|
| **Collector-base breakdown voltage** | $V_{(BR)CBO}$ | $I_C$ = 100μA, $I_E$=0 | 40 | | | V |
| **Collector-emitter breakdown voltage** | $V_{(BR)CEO}$ | $I_C$ = 10mA, $I_B$=0 | 30 | | | V |
| **Emitter-base breakdown voltage** | $V_{(BR)EBO}$ | $I_E$= 100μA, $I_C$=0 | 6 | | | V |
| **Collector cut-off current** | $I_{CBO}$ | $V_{CB}$= 40V, $I_E$=0 | | | 1 | μA |
| **Collector cut-off current** | $I_{CEO}$ | $V_{CE}$= 30V, $I_B$=0 | | | 10 | μA |
| **Emitter cut-off current** | $I_{EBO}$ | $V_{EB}$= 6V, $I_C$=0 | | | 1 | μA |
| **DC current gain** | $h_{FE}$ | $V_{CE}$=2V, $I_C$= 1A | 60 | | 400 | |
| **Collector-emitter saturation voltage** | $V_{CE(sat)}$ | $I_C$= 2A, $I_B$= 0.2 A | | | 0.5 | V |
| **Base-emitter saturation voltage** | $V_{BE(sat)}$ | $I_C$= 2A, $I_B$= 0.2 A | | | 1.5 | V |
| **Transition frequency** | $f_T$ | $V_{CE}$= 5V , Ic=0.1A f =10MHz | 50 | 80 | | MHz |

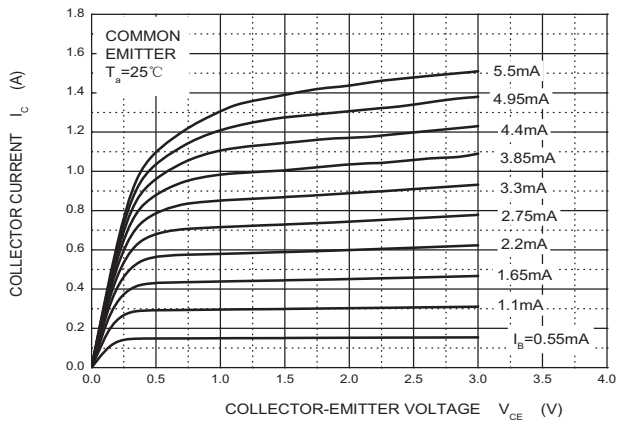
### CLASSIFICATION OF $h_{FE}$

| Rank | R | O | Y | GR |
|---|---|---|---|---|
| Range | 60-120 | 100-200 | 160-320 | 200-400 |

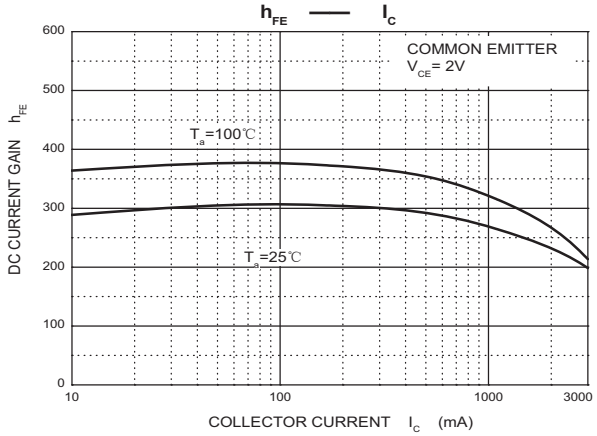
# RATINGS AND CHARACTERISTIC CURVES

## Typical Characteristics

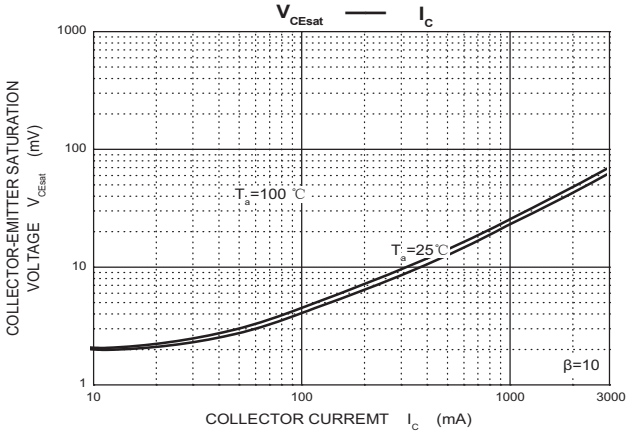
**Static Characteristic**



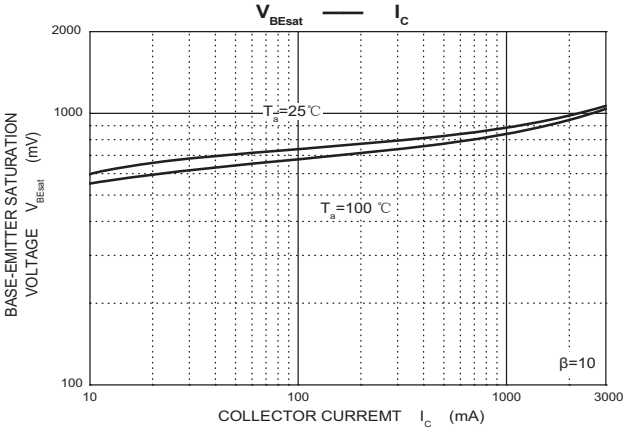

**$h_{FE}$ — $I_C$**



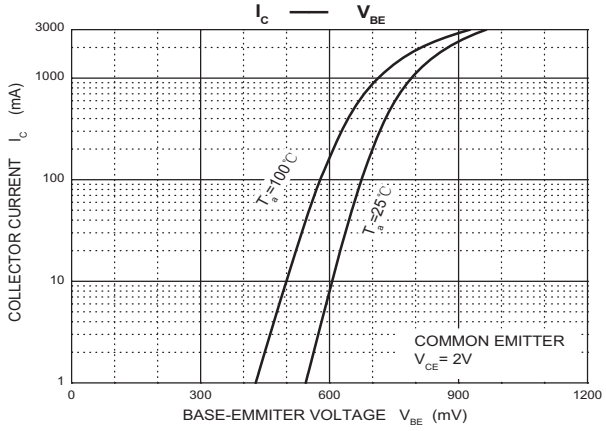

**$V_{CEsat}$ — $I_C$**



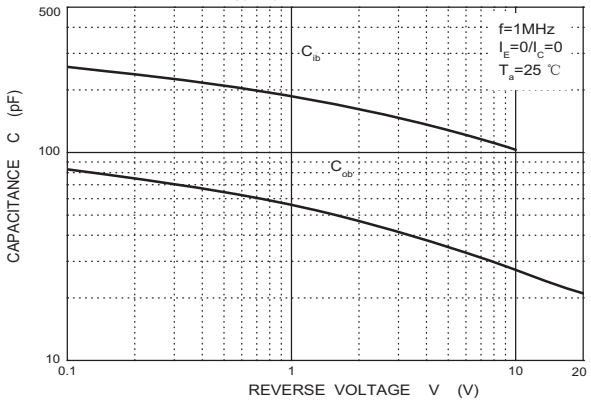

**$V_{BEsat}$ — $I_C$**



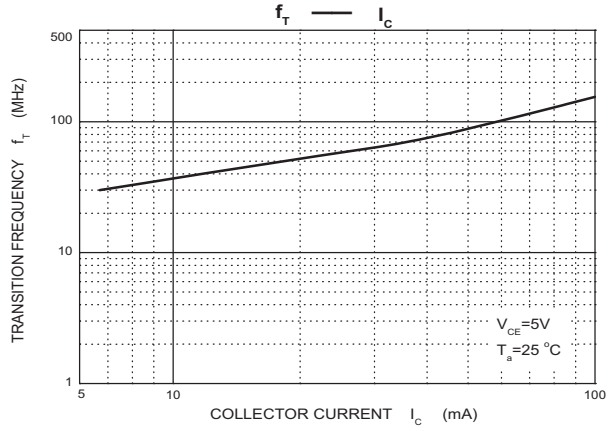

**$I_C$ — $V_{BE}$**




**$C_{ob}/C_{ib}$ — $V_{CB}/V_{EB}$**




**$f_T$ — $I_C$**




**$P_C$ — $T_a$**