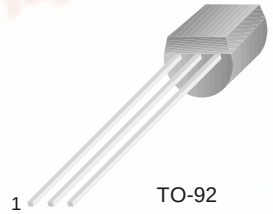
FAIRCHILD SEMICONDUCTOR®

# BC183LC

## NPN General purpose Amplifier.



TO-92

1. Emitter 2. Collector 3. Base

## Absolute Maximum Ratings $T_C$=25°C unless otherwise noted

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 45 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 30 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 5 | V |
| $I_C$ | Collector Current (DC) | 100 | mA |
| $P_C$ | Collector Dissipation ($T_a$=25°C) | 350 | mW |
| $T_J$ | Junction Temperature | 150 | °C |
| $T_{STG}$ | Storage Temperature | - 55 ~ 150 | °C |

## Electrical Characteristics $T_C$=25°C unless otherwise noted

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| $BV_{CBO}$ | Collector-Base Voltage | $I_C$ = 10μA | 45 | | | V |
| $BV_{CEO}$ | Collector-Emitter Voltage | $I_C$ = 2mA | 30 | | | V |
| $BV_{EBO}$ | Emitter-Base Voltage | $I_E$ = 10μA | 5 | | | V |
| $I_{CBO}$ | Collector Cut-off Current | $V_{CB}$ = 30V | | | 15 | nA |
| $I_{EBO}$ | Emitter Cut-off Current | $V_{EB}$ = 3V | | | 15 | nA |
| $h_{FE}$ | DC Current Gain | $V_{CE}$ = 5V, $I_C$ = 10μA<br>$V_{CE}$ = 5V, $I_C$ = 2mA<br>$V_{CE}$ = 5V, $I_C$ = 100mA | 40<br>100<br>80 | | 850 | |
| $V_{CE}$(sat) | Collector-Emitter Saturation Voltage | $I_C$ = 10mA, $I_B$ = 0.5mA<br>$I_C$ = 100mA, $I_B$ = 5mA | | | 0.25<br>0.6 | V |
| $V_{BE}$(sat) | Base-Emitter Saturation Voltage | $I_C$ = 100mA, $I_B$ = 5mA | | | 1.2 | V |
| $V_{BE}$(on) | Base-Emitter On Voltage | $V_{CE}$ = 5V, $I_C$ = 2mA | 0.55 | | 0.7 | V |
| $C_{OB}$ | Output Capacitance | $V_{CE}$ = 10V, f = 1MHz | | | 5 | pF |
| $f_T$ | Current gain Bandwidth Product | $V_{CE}$ = 5V, $I_C$ = 10mA | 150 | | | MHz |
| $h_{fe}$ | Small Signal Current Gain | $V_{CE}$ = 5V, $I_C$ = 2mA<br>f = 1KHz | 450 | | 900 | |
| NF | Noise Figure | $V_{CE}$ = 5V, $I_C$ = 200mA<br>$R_G$ = 2KΩ, f = 1KHz | | | 10 | dB |

# Typical Characteristics

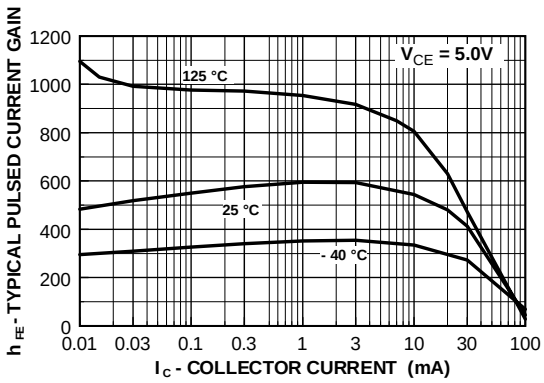



**Figure 1. Typical Pulsed Current Gain vs Collector Current**

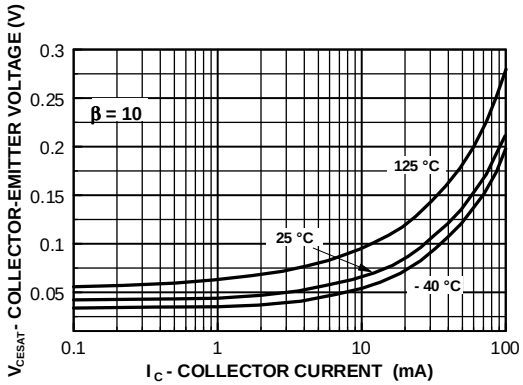



**Figure 2. Collector-Emitter Saturation Voltage vs Collector Current**

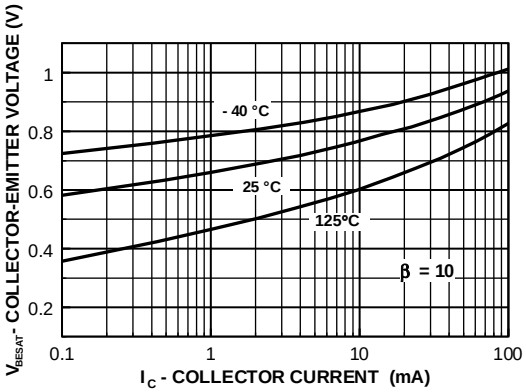



**Figure 3. Base-Emitter Saturation Voltage vs Collector Curent**

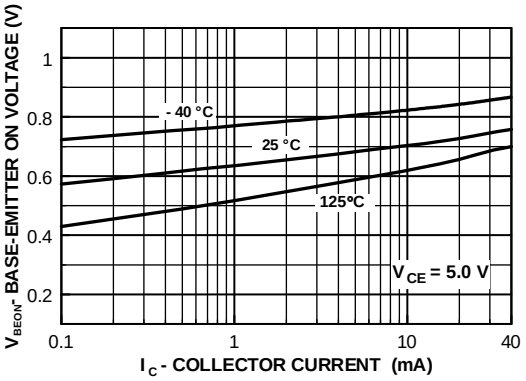



**Figure 4. Base-Emitter ON Voltage vs Collector Current**

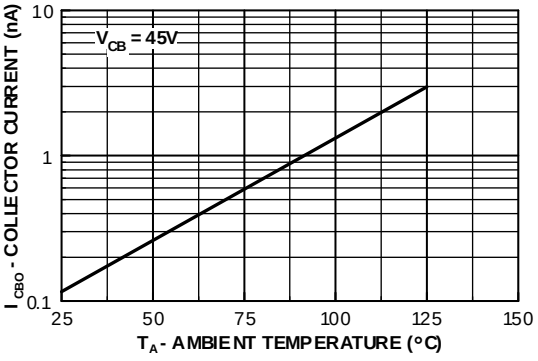



**Figure 5. Collector-Cutoff Current vs Ambient Temperature**

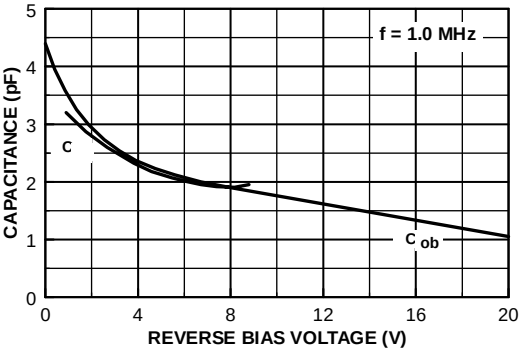



**Figure 6. Input and Output Capacitance vs Reverse Bias Voltage**

## Typical Characteristics (Continued)

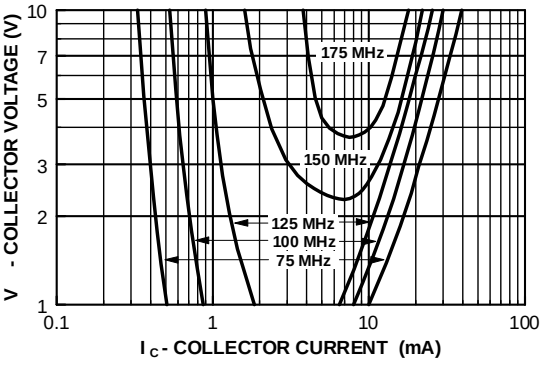



**Figure 7. Contours of Constant Gain Bandwidth Product ($f_T$)**

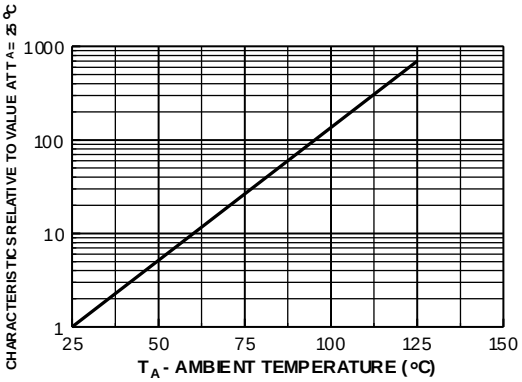



**Figure 8. Normalized Collector-Cutoff Current vs Ambient Temperaure**

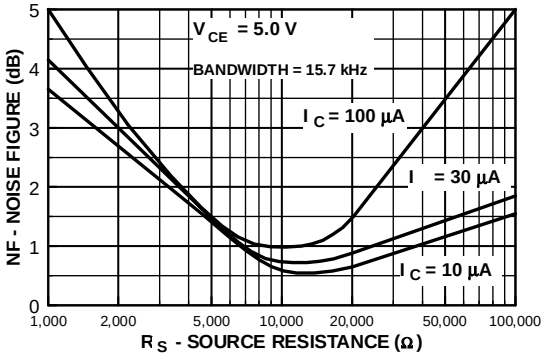



**Figure 9. Wideband Noise Frequency vs Source Resistance**

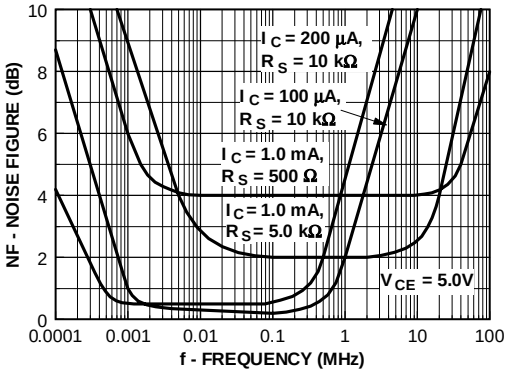



**Figure 10. Noise Figure vs Frequency**

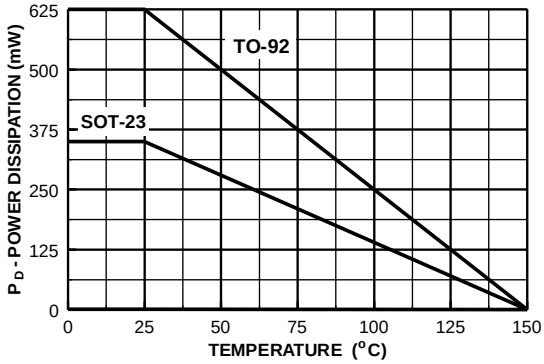



**Figure 11. Collector-Cutoff Current vs Ambient Temperature**

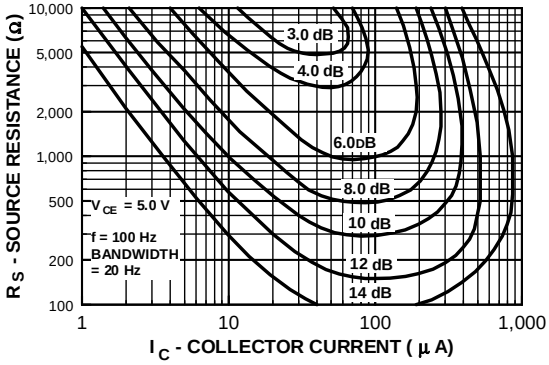



**Figure 12. Contours of Constant Narrow Band Noise Figure**

## Typical Characteristics (Continued)

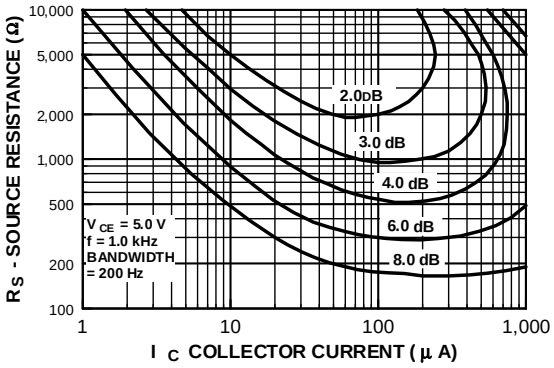



**Figure 13. Contours of Constant Narrow Band Noise Figure**

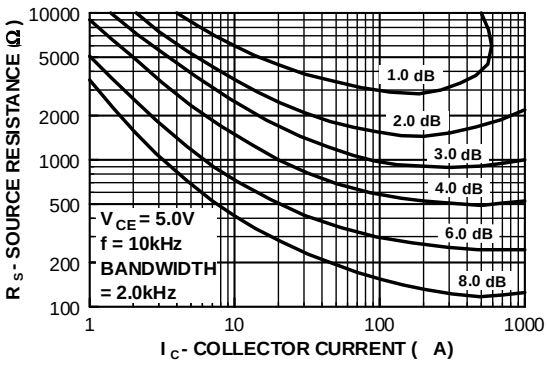



**Figure 14. Contours of Constant Narrow Band Noise Figure**

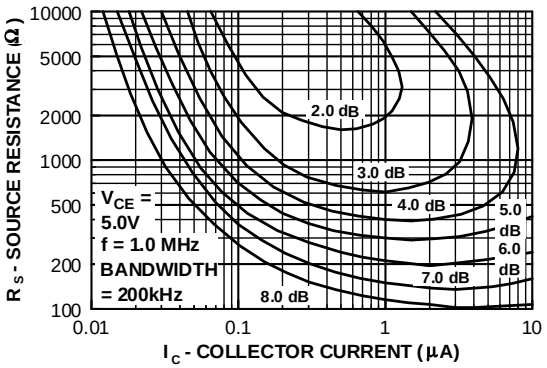



**Figure 15. Contours of Constant Narrow Band Noise Figure**

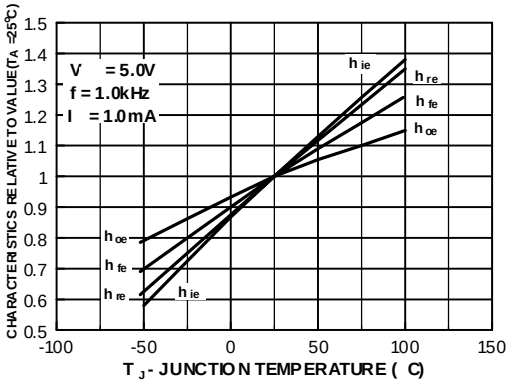



**Figure 16. Typical Common Emitter Characteristics**

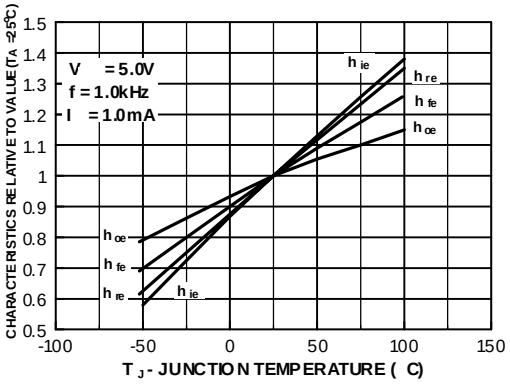



**Figure 17. Typical Common Eimtter Characteristics**

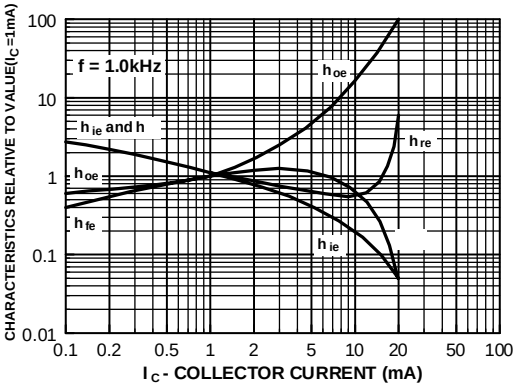
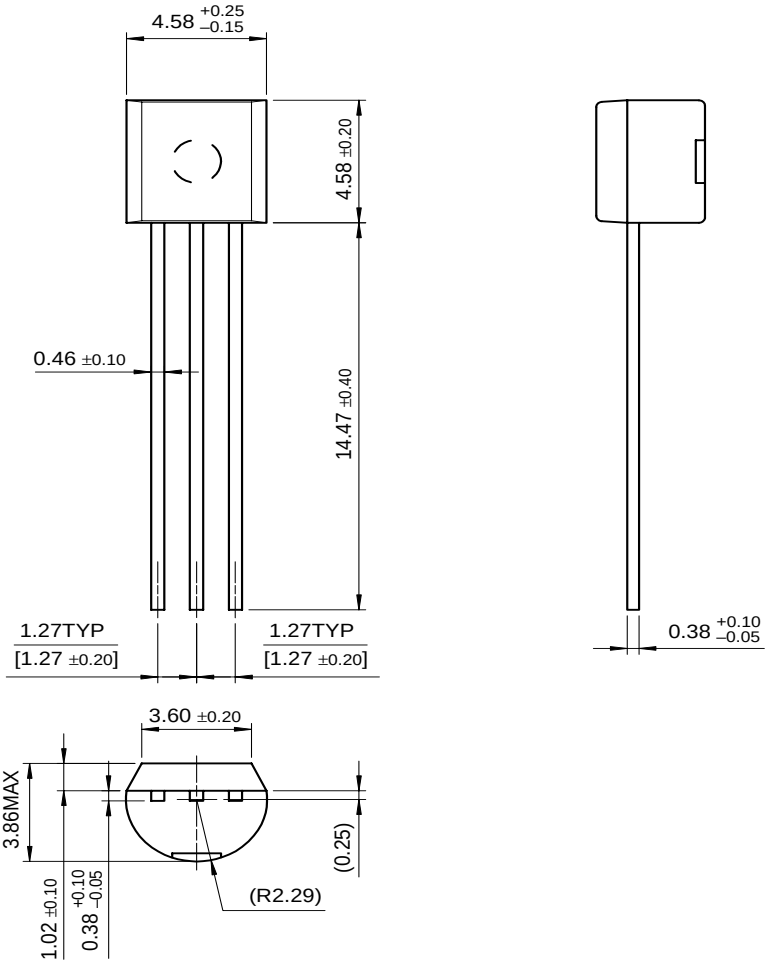



**Figure 18. Typical Common Emitter Characteristics**

## Package Dimensions

TO-92




Dimensions in Millimeters

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