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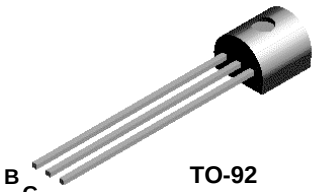
FAIRCHILD
SEMICONDUCTOR TM

# BC369




TO-92

## PNP General Purpose Amplifier

This device is designed for general purpose medium power amplifiers and switches requiring collector currents to 1.2 A. Sourced from Process 77.

## Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $V_{CEO}$ | Collector-Emitter Voltage | 20 | V |
| $V_{CES}$ | Collector-Base Voltage | 25 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 5.0 | V |
| $I_C$ | Collector Current - Continuous | 1.5 | A |
| $T_J$, $T_{stg}$ | Operating and Storage Junction Temperature Range | -55 to +150 | °C |

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

**NOTES:**
**1)** These ratings are based on a maximum junction temperature of 150 degrees C.
**2)** These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
**3)** All voltages (V) and currents (A) are negative polarity for PNP transistors.

## Thermal Characteristics

TA = 25°C unless otherwise noted

| Symbol | Characteristic | Max | Units |
|---|---|---|---|
| | | BC369 | |
| $P_D$ | Total Device Dissipation<br>Derate above 25°C | 625<br>5.0 | mW<br>mW/°C |
| $R_{\theta JC}$ | Thermal Resistance, Junction to Case | 83.3 | °C/W |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 200 | °C/W |

## PNP General Purpose Amplifier
(continued)

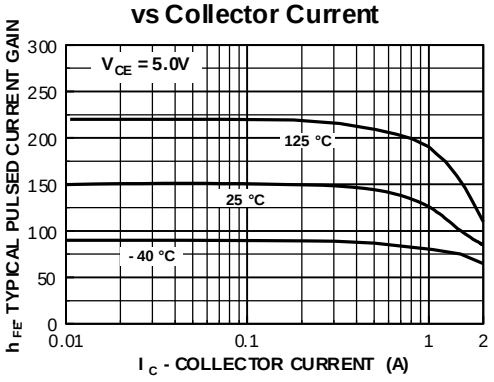
### Electrical Characteristics
TA = 25°C unless otherwise noted

| Symbol | Parameter | Test Conditions | Min | Max | Units |
|---|---|---|---|---|---|
| **OFF CHARACTERISTICS** | | | | | |
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage | $I_C$ = 10 mA, $I_B$ = 0 | 20 | | V |
| $V_{(BR)CES}$ | Collector-Base Breakdown Voltage | $I_C$ = 100 µA, $I_E$ = 0 | 25 | | V |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage | $I_E$ = 10 µA, $I_C$ = 0 | 5.0 | | V |
| $I_{CBO}$ | Collector-Cutoff Current | $V_{CB}$ = 25 V, $I_E$ = 0<br>$V_{CB}$ = 25 V, $I_E$ = 0, $T_A$ = 150°C | | 10<br>1.0 | µA<br>mA |
| $I_{EBO}$ | Emitter-Cutoff Current | $V_{EB}$ = 5.0 V, $I_C$ = 0 | | 10 | µA |
| **ON CHARACTERISTICS** | | | | | |
| $h_{FE}$ | DC Current Gain | $I_C$ = 5.0 mA, $V_{CE}$ = 10 V<br>$I_C$ = 0.5 A, $V_{CE}$ = 1.0 V<br>$I_C$ = 1.0 A, $V_{CE}$ = 1.0 V | 50<br>85<br>60 | <br>375<br> | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C$ = 1.0 A, $I_B$ = 100 mA | | 0.5 | V |
| $V_{BE(on)}$ | Base-Emitter On Voltage | $I_C$ = 1.0 A, $V_{CE}$ = 1.0 V | | 1.0 | V |
| **SMALL SIGNAL CHARACTERISTICS** | | | | | |
| $f_T$ | Current Gain - Bandwidth Product | $I_C$ = 10 mA, $V_{CE}$ = 5.0 V,<br>f = 35 MHz | 45 | | MHz |

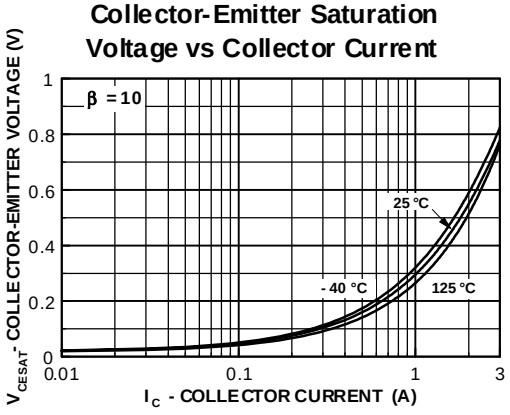
**NOTE:** All voltages (V) and currents (A) are negative polarity for PNP transistors.

### Typical Characteristics

**Typical Pulsed Current Gain vs Collector Current**

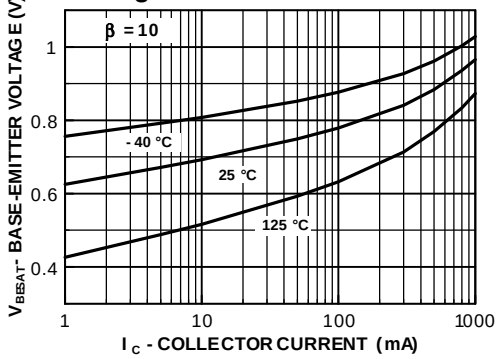



**Collector-Emitter Saturation Voltage vs Collector Current**

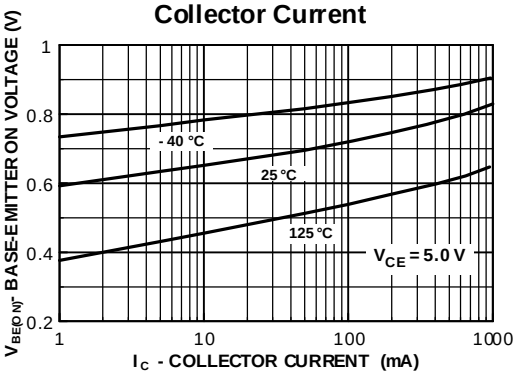


## Typical Characteristics (continued)

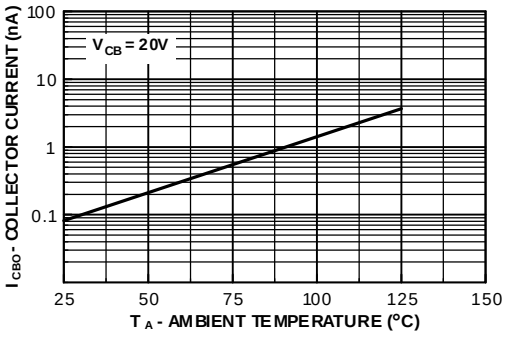
**Base-Emitter Saturation Voltage vs Collector Current**



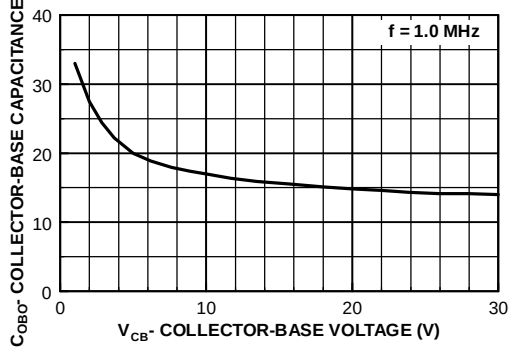

**Base-Emitter ON Voltage vs Collector Current**



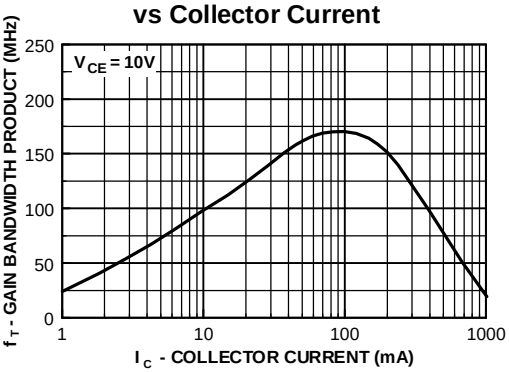

**Collector-Cutoff Current vs Ambient Temperature**



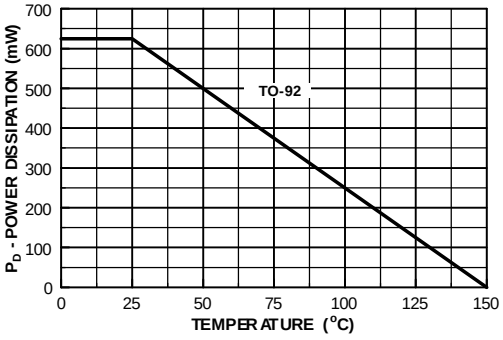

**Collector-Base Capacitance vs Collector-Base Voltage**




**Gain Bandwidth Product vs Collector Current**




**Power Dissipation vs Ambient Temperature**



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