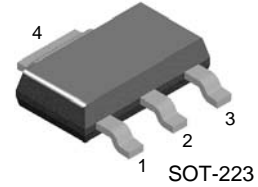


BCP69

PNP General Purpose Amplifier

- This device is designed for general purpose medium power amplifiers and switches requiring collector currents to 1.0A.
- Sourced from Process 77.



1. Base 2. Collector 3. Emitter

Absolute Maximum Ratings* $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Value | Units |
|-----------|--------------------------------|-------------|------------------|
| V_{CEO} | Collector-Emitter Voltage | -20 | V |
| V_{CBO} | Collector-Base Voltage | -30 | V |
| V_{EBO} | Emitter-Base Voltage | -5.0 | V |
| I_C | Collector Current - Continuous | -1.5 | A |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature Range | - 55 ~ +150 | $^\circ\text{C}$ |

* 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°C .
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics* $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Value | Units |
|-----------------|---|-------|----------------------------|
| P_D | Total Device Dissipation | 1.0 | W |
| | Derate above 25°C | 8.0 | $\text{mW}/^\circ\text{C}$ |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 125 | $^\circ\text{C}/\text{W}$ |

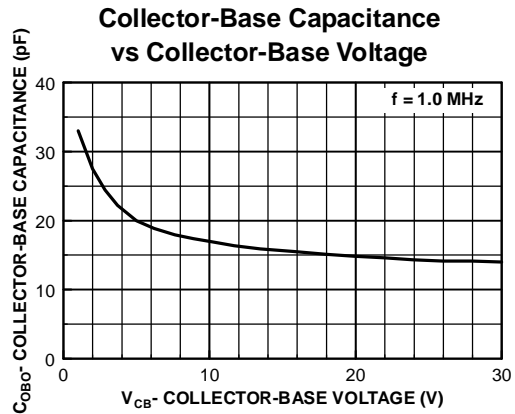
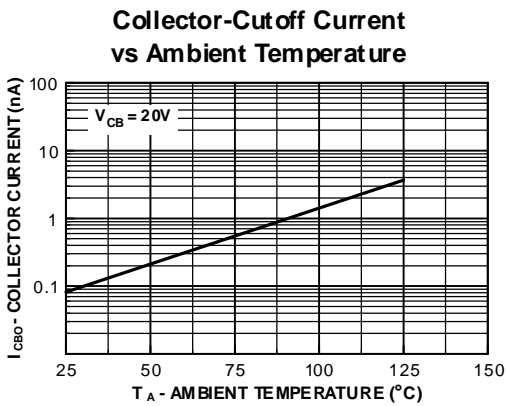
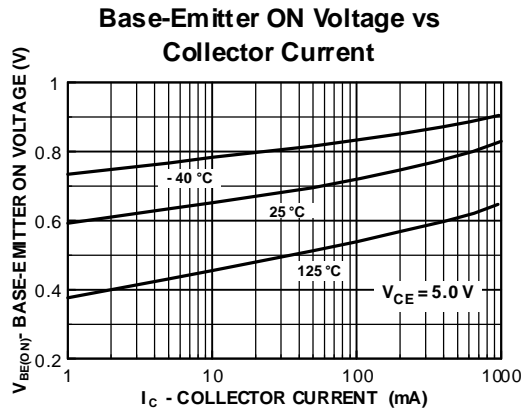
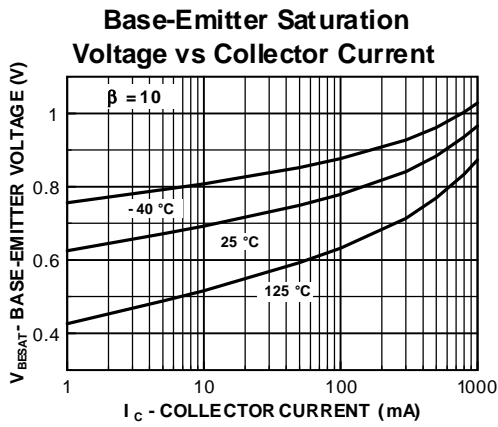
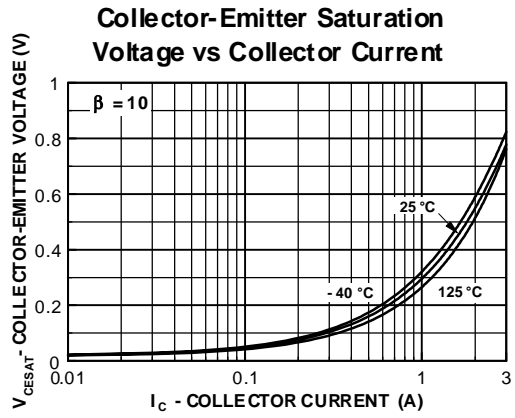
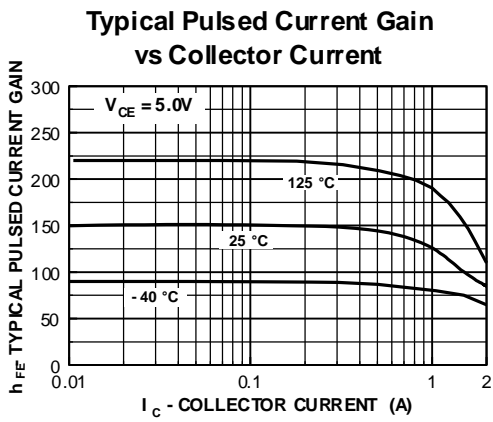
* Device mounted on FR-4 PCB $36\text{mm} \times 18\text{mm} \times 1.5\text{mm}$; mounting pad for the collector lead min. 6cm^2

Electrical Characteristics* $T_a = 25^\circ\text{C}$ unless otherwise noted

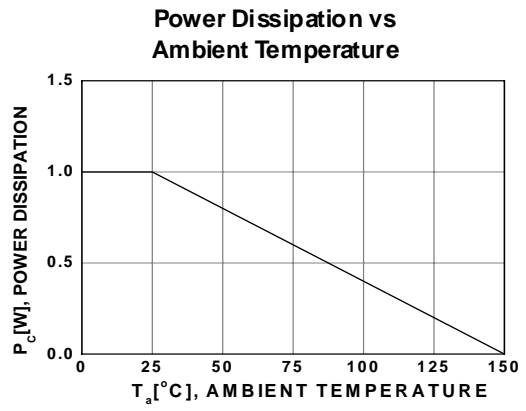
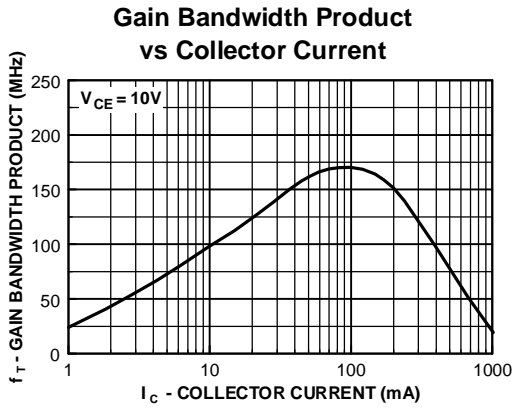
| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Units |
|---------------|--------------------------------------|--|------|------|------|---------------|
| BV_{CEO} | Collector-Emitter Breakdown Voltage | $I_C = -10\text{mA}, I_B = 0$ | -20 | | | V |
| BV_{CBO} | Collector-Base Breakdown Voltage | $I_C = -1.0\text{mA}, I_E = 0$ | -30 | | | V |
| BV_{EBO} | Emitter-Base Breakdown Voltage | $I_E = -100\mu\text{A}, I_C = 0$ | -5.0 | | | V |
| I_{CBO} | Collector-Base Cutoff Current | $V_{CB} = -25\text{V}, I_E = 0$ | | | -100 | nA |
| | | $V_{CB} = -25\text{V}, I_E = 0, T_j = 150^\circ\text{C}$ | | | -10 | μA |
| I_{EBO} | Emitter-Base Cutoff Current | $V_{EB} = -5.0\text{V}, I_C = 0$ | | | -100 | nA |
| h_{FE} | DC Current Gain | $I_C = -5\text{mA}, V_{CE} = -1.0\text{V}$ | 50 | | | |
| | | $I_C = -500\text{mA}, V_{CE} = -1.0\text{V}$ | 85 | | 375 | |
| | | $I_C = -1.0\text{A}, V_{CE} = -1.0\text{V}$ | 60 | | | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = -1.0\text{A}, I_B = -100\text{mA}$ | | | -0.5 | V |
| $V_{BE(on)}$ | Base-Emitter On Voltage | $I_C = -1.0\text{A}, V_{CE} = -1.0\text{V}$ | | | -1.0 | V |
| C_{cb} | Collector-Base Capacitance | $V_{CB} = -10\text{V}, I_E = 0, f = 1.0\text{MHz}$ | | | 30 | pF |
| h_{fe} | Small-Signal Current Gain | $I_C = -50\text{mA}, V_{CE} = -10\text{V}, f = 20\text{MHz}$ | 2.5 | | | |

* Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2.0\%$

Typical Performance Characteristics

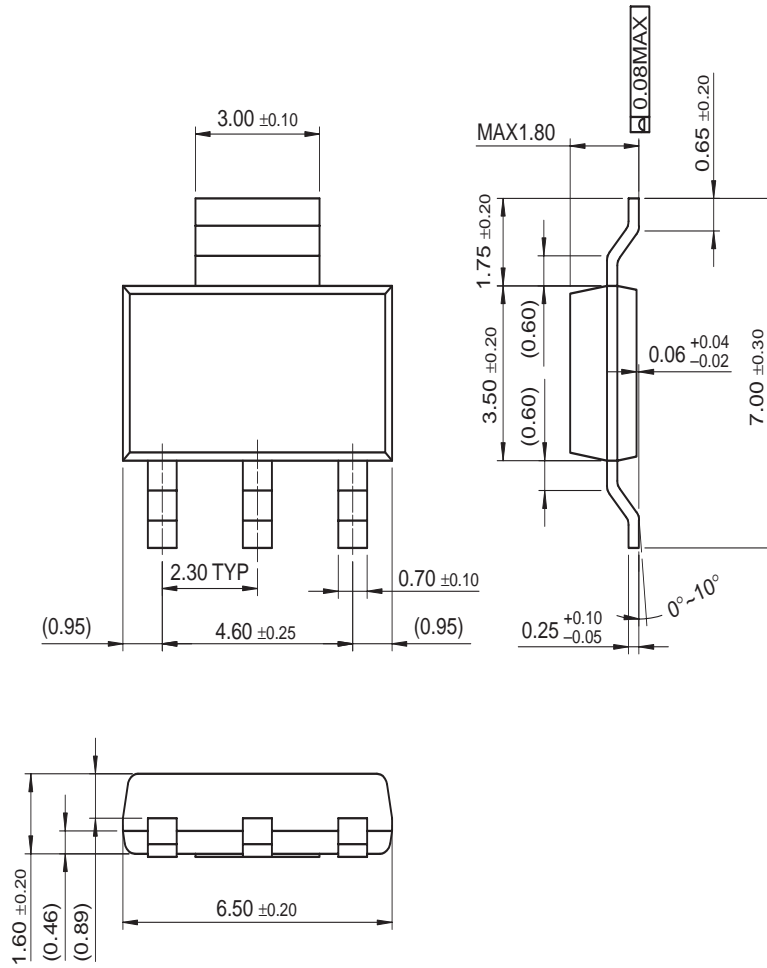


Typical Performance Characteristics



Mechanical Dimensions

SOT-223



Dimensions in Millimeters

FAIRCHILD SEMICONDUCTOR TRADEMARKS

The following are registered and unregistered trademarks Fairchild Semiconductor owns or is authorized to use and is not intended to be an exhaustive list of all such trademarks.

| | | | | |
|--------------------------------------|---------------------|---------------------|------------------|---------|
| ACEx™ | FACT Quiet Series™ | OCX™ | SILENT SWITCHER® | UniFET™ |
| ActiveArray™ | GlobalOptoisolator™ | OCXPro™ | SMART START™ | VCX™ |
| Bottomless™ | GTO™ | OPTOLOGIC® | SPM™ | Wire™ |
| Build it Now™ | HiSeC™ | OPTOPLANAR™ | Stealth™ | |
| CoolFET™ | l ² C™ | PACMAN™ | SuperFET™ | |
| CROSSVOLT™ | i-Lo™ | POPT™ | SuperSOT™-3 | |
| DOME™ | ImpliedDisconnect™ | Power247™ | SuperSOT™-6 | |
| EcoSPARK™ | IntelliMAX™ | PowerEdge™ | SuperSOT™-8 | |
| E ² CMOS™ | ISOPLANAR™ | PowerSaver™ | SyncFET™ | |
| EnSigna™ | LittleFET™ | PowerTrench® | TCM™ | |
| FACT® | MICROCOUPLER™ | QFET® | TinyBoost™ | |
| FAST® | MicroFET™ | QS™ | TinyBuck™ | |
| FASTr™ | MicroPak™ | QT Optoelectronics™ | TinyPWM™ | |
| FPS™ | MICROWIRE™ | Quiet Series™ | TinyPower™ | |
| FRFET™ | MSX™ | RapidConfigure™ | TinyLogic® | |
| | MSXPro™ | RapidConnect™ | TINYOPTO™ | |
| Across the board. Around the world.™ | | μSerDes™ | TruTranslation™ | |
| The Power Franchise® | | ScalarPump™ | UHC® | |
| Programmable Active Droop™ | | | | |

DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS. THESE SPECIFICATIONS DO NOT EXPAND THE TERMS OF FAIRCHILD'S WORLDWIDE TERMS AND CONDITIONS, SPECIFICALLY THE WARRANTY THEREIN, WHICH COVERS THESE PRODUCTS.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION.

As used herein:

- Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.
- A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

PRODUCT STATUS DEFINITIONS

Definition of Terms

| Datasheet Identification | Product Status | Definition |
|--------------------------|------------------------|---|
| Advance Information | Formative or In Design | This datasheet contains the design specifications for product development. Specifications may change in any manner without notice. |
| Preliminary | First Production | This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design. |
| No Identification Needed | Full Production | This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design. |
| Obsolete | Not In Production | This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only. |

Rev. I22