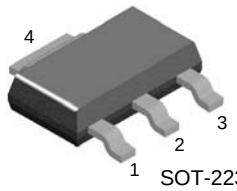
FAIRCHILD SEMICONDUCTOR®

January 2007

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.



SOT-223

1. Base 2. Collector 3. Emitter

Absolute Maximum Ratings* T_a=25°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	°C
T_{STG}	Storage Temperature Range	- 55 ~ +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°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°C unless otherwise noted

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

* Device mounted on FR-4 PCB 36mm × 18mm × 1.5mm; mounting pad for the collector lead min. 6cm^2

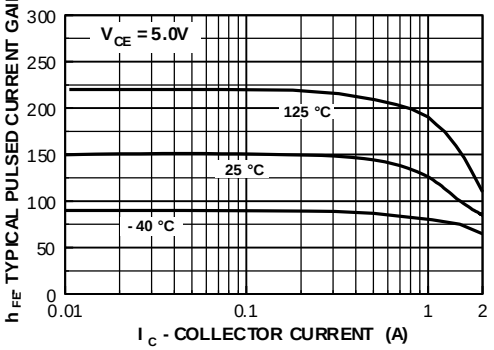
Electrical Characteristics* T_a = 25°C unless otherwise noted

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

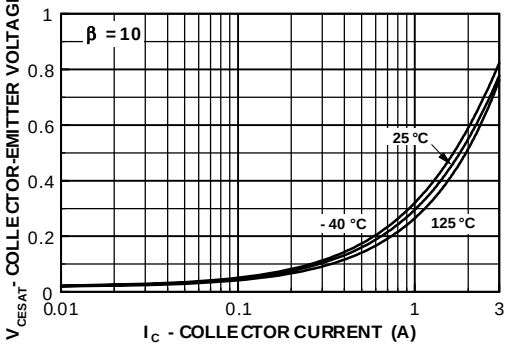
* Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2.0%

Typical Performance Characteristics

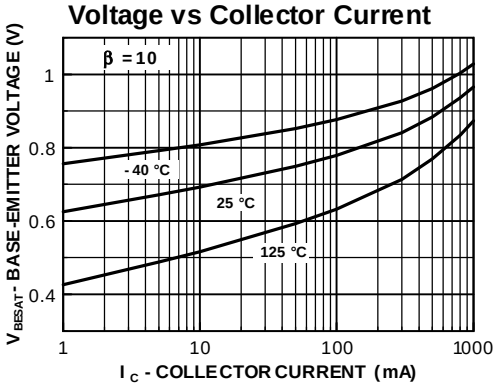
Typical Pulsed Current Gain vs Collector Current



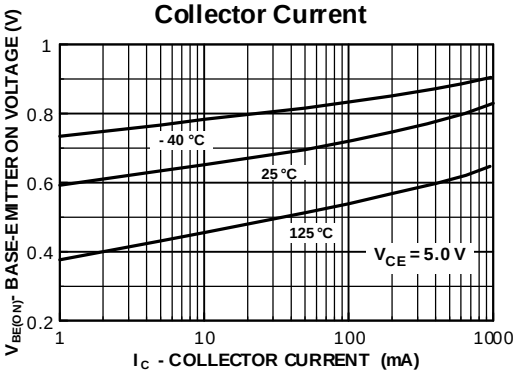
Collector-Emitter Saturation Voltage vs Collector Current



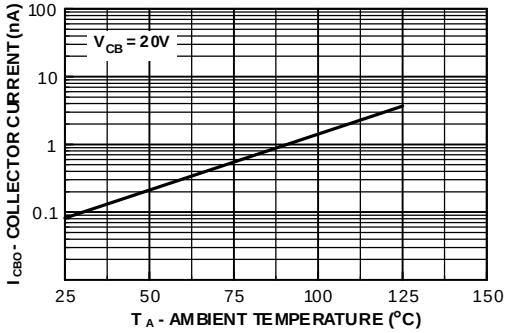
Base-Emitter Saturation Voltage vs Collector Current



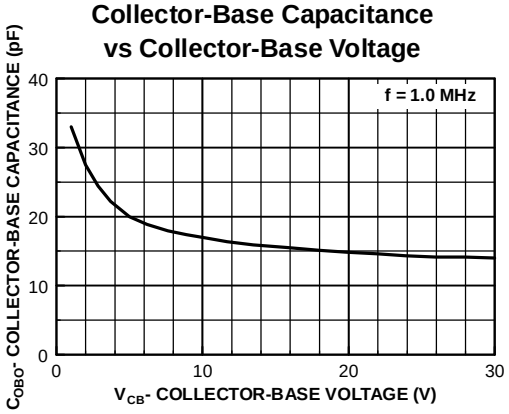
Base-Emitter ON Voltage vs Collector Current



Collector-Cutoff Current vs Ambient Temperature

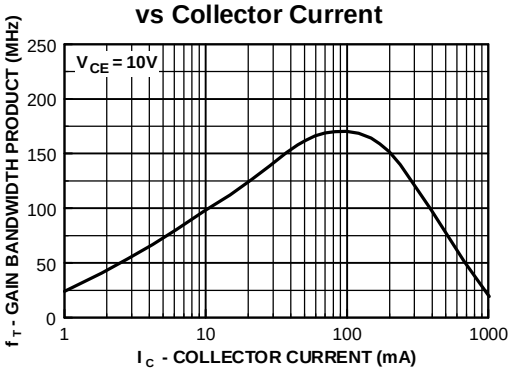


Collector-Base Capacitance vs Collector-Base Voltage

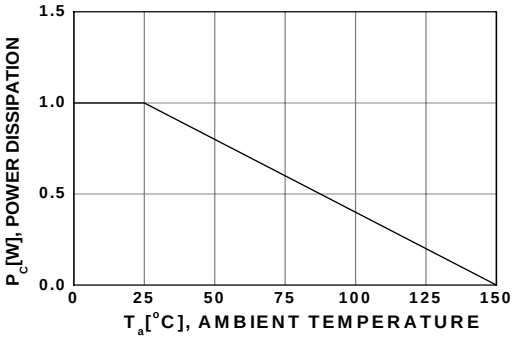


Typical Performance Characteristics

Gain Bandwidth Product vs Collector Current

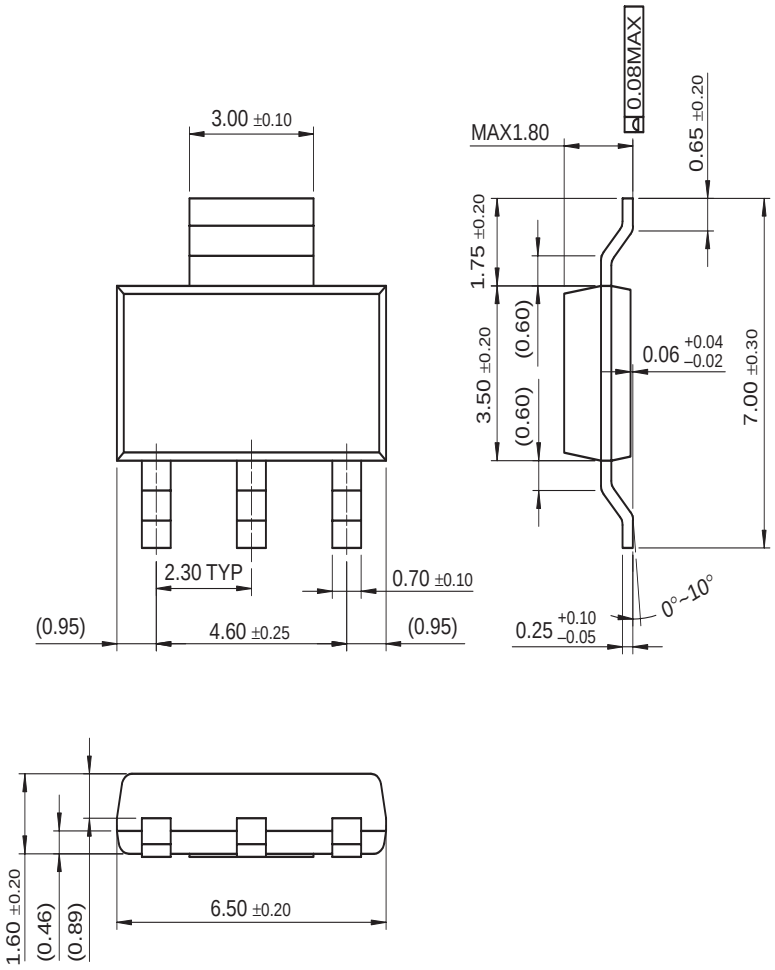


Power Dissipation vs Ambient Temperature



Mechanical Dimensions

SOT-223



Dimensions in Millimeters

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