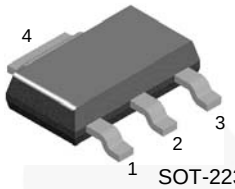
March 2014

BCP52
PNP General-Purpose Amplifier

Description

This device is designed for general-purpose medium-power amplifiers and switching circuits for collector currents to 1.0 A. Sourced from process 78.



SOT-223

1. Base 2,4. Collector 3. Emitter

Ordering Information

Part Number	Marking	Package	Packing Method
BCP52	BCP52	SOT-223 4L	Tape and Reel

Absolute Maximum Ratings(1),(2)

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value	Unit
V_{CEO}	Collector-Emitter Voltage	-60	V
V_{CBO}	Collector-Base Voltage	-60	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current - Continuous	-1.2	A
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	°C

Notes:

1. These ratings are based on a maximum junction temperature of 150°C.
2. These are steady-state limits. Fairchild Semiconductor should be consulted on applications involving pulsed or low-duty-cycle operation.

Thermal Characteristics[3]

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Max.	Unit
P_D	Total Device Dissipation	1.5	W
	Derate Above 25°C	12	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	83.3	°C/W

Note:

3. PCB size: FR-4, 76 mm x 114 mm x 1.57 mm (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

Electrical Characteristics

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Max.	Unit
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = -10 mA, I_B = 0	-60		V
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = -100 µA, I_E = 0	-60		V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = -10 µA, I_C = 0	-5.0		V
I_{CBO}	Collector-Base Cut-Off Current	V_{CB} = -30 V, I_E = 0		-100	nA
		V_{CB} = -30 V, I_E = 0, T_A = 125°C		-10	µA
I_{EBO}	Emitter-Base Cut-Off Current	V_{EB} = -5.0 V, I_C = 0		-10	µA
h_{FE}	DC Current Gain	I_C = -5.0 mA, V_{CE} = -2.0 V	25		
		I_C = -150 mA, V_{CE} = -2.0 V	40	250	
		I_C = -500 mA, V_{CE} = -2.0 V	25		
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C = -500 mA, I_B = -50 mV		-0.5	V
V_{BE}(on)	Base-Emitter On Voltage	I_C = -500 mA, V_{CE} = -2.0 V		-1.0	V

Typical Performance Characteristics

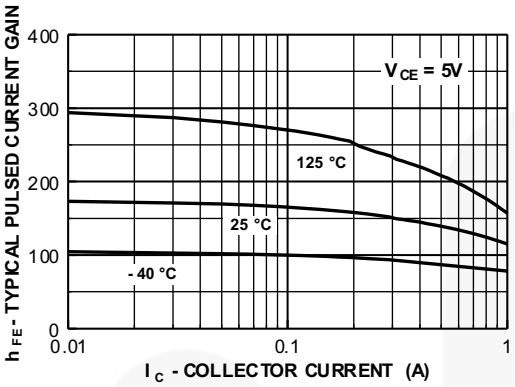


Figure 1. Typical Pulsed Current Gain vs. Collector Current

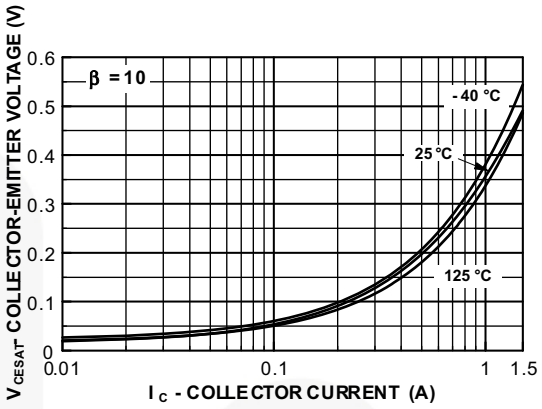


Figure 2. Collector-Emitter Saturation Voltage vs. Collector Current

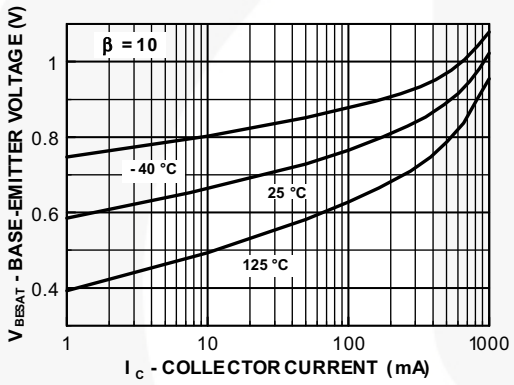


Figure 3. Base-Emitter Saturation Voltage vs. Collector Current

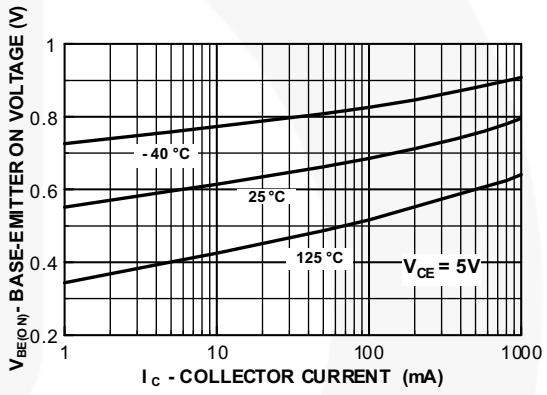


Figure 4. Base-Emitter On Voltage vs. Collector Current

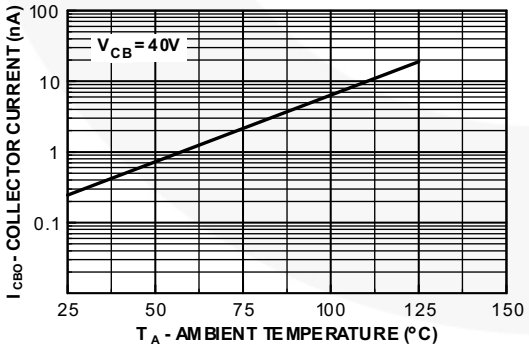


Figure 5. Collector Cut-Off Current vs. Ambient Temperature

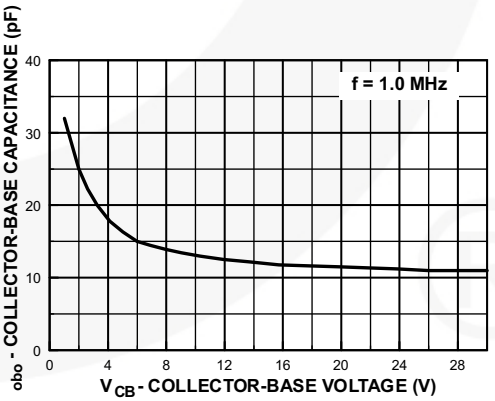


Figure 6. Collector-Base Capacitance vs. Collector-Base Voltage

Typical Performance Characteristics (Continued)

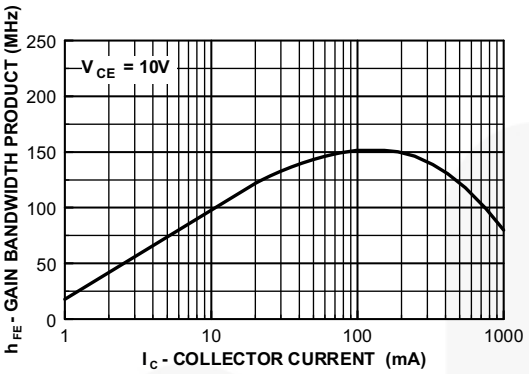


Figure 7. Gain Bandwidth Product vs. Collector Current

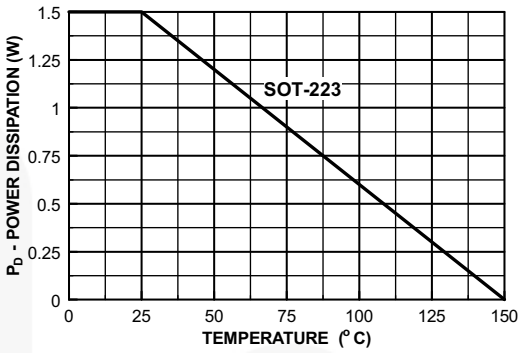


Figure 8. Power Dissipation vs. Ambient Temperature

Physical Dimensions

SOT-223

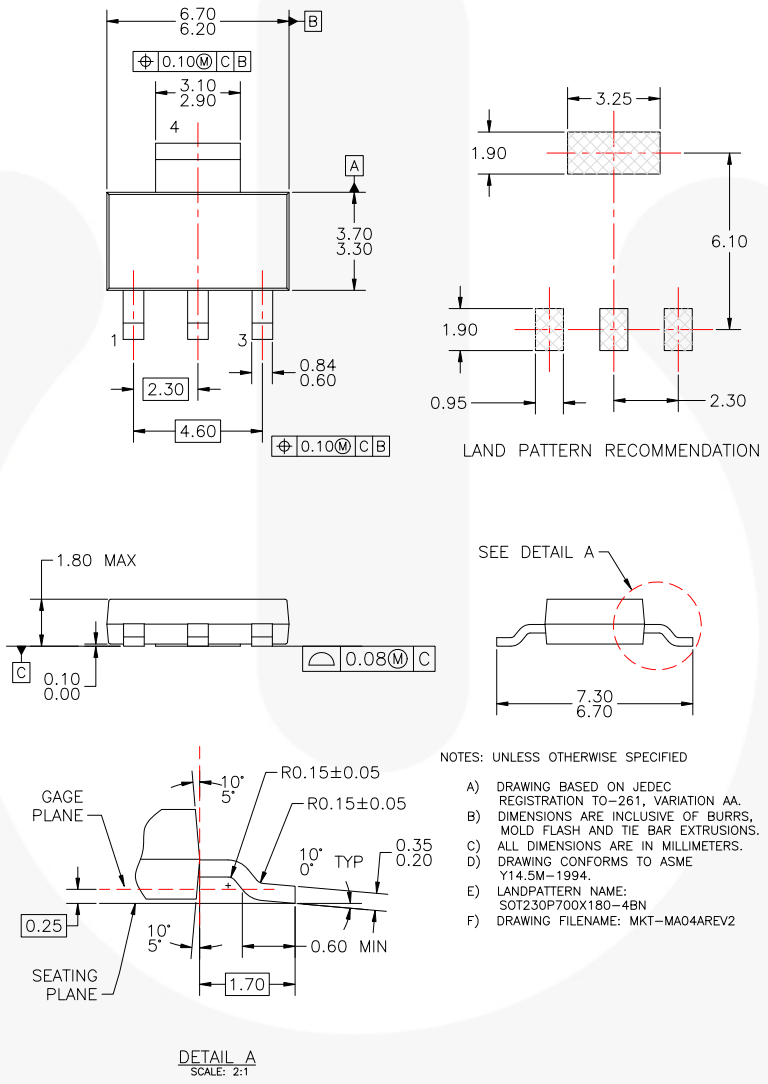


Figure 9. MOLDED PACKAGE, SOT-223, 4 LEAD (ACTIVE)

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