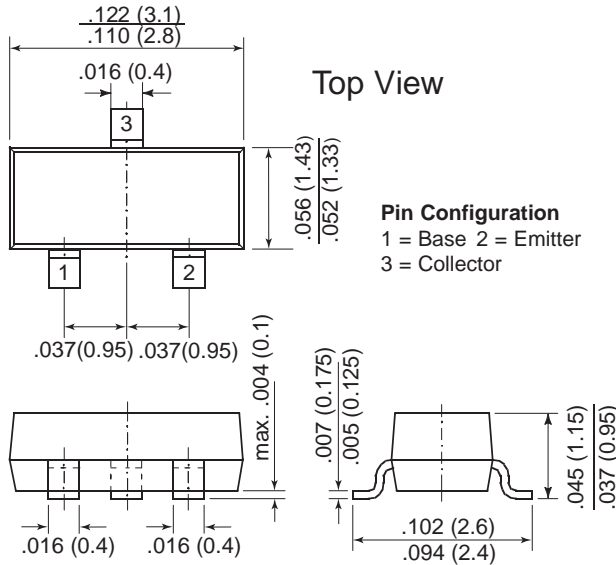




Small Signal Transistor (NPN)



TO-236AB (SOT-23)

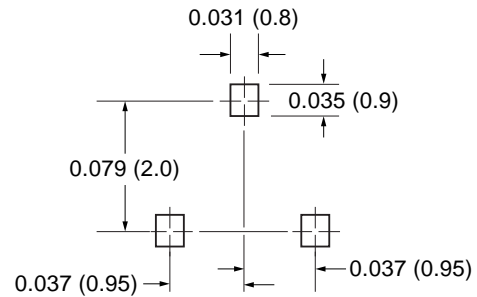


Top View

Pin Configuration
 1 = Base 2 = Emitter
 3 = Collector

Dimensions in inches and (millimeters)

Mounting Pad Layout



Mechanical Data

Case: SOT-23 Plastic Package

Weight: approx. 0.008g

Marking BCX70G = AG

Code: BCX70H = AH

BCX70J = AJ

BCX70K = AK

Packaging Codes/Options:

E8/10K per 13" reel (8mm tape), 30K/box

E9/3K per 7" reel (8mm tape), 30K/box

Features

- NPN Silicon Epitaxial Planar Transistors for switching and AF amplifier applications.
- Suited for low level, low noise, low frequency applications in hybrid circuits.
- Low current, low voltage.
- As complementary types, BCX71 Series PNP transistors are recommended.

Maximum Ratings & Thermal Characteristics Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	45	V
Collector-Emitter Voltage	V _{CEO}	45	V
Emitter-Base Voltage	V _{EBO}	5.0	V
Collector Current	I _C	200	mA
Peak Base Current	I _B	50	mA
Power Dissipation	P _{tot}	250	mW
Thermal Resistance Junction to Ambient Air	R _{θJA}	500 ⁽¹⁾	°C/W
Junction Temperature	T _j	150	°C
Storage Temperature Range	T _S	-65 to +150	°C

Note: (1) Mounted on FR-4 printed-circuit board.

Electrical Characteristics (T_J = 25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
DC Current Gain	BCX70G	V _{CE} = 5 V, I _C = 10 μA	—	—	—	—
	BCX70H	V _{CE} = 5 V, I _C = 10 μA	30	—	—	
	BCX70J	V _{CE} = 5 V, I _C = 10 μA	40	—	—	
	BCX70K	V _{CE} = 5 V, I _C = 10 μA	100	—	—	
	BCX70G	V _{CE} = 5 V, I _C = 2 mA	120	—	220	
	BCX70H	V _{CE} = 5 V, I _C = 2 mA	180	—	310	
	BCX70J	V _{CE} = 5 V, I _C = 2 mA	250	—	460	
	BCX70K	V _{CE} = 5 V, I _C = 2 mA	380	—	630	
	BCX70G	V _{CE} = 1 V, I _C = 50 mA	50	—	—	
	BCX70H	V _{CE} = 1 V, I _C = 50 mA	70	—	—	
	BCX70J	V _{CE} = 1 V, I _C = 50 mA	90	—	—	
	BCX70K	V _{CE} = 1 V, I _C = 50 mA	100	—	—	
	Collector-Emitter Saturation Voltage	V _{CEsat}	I _C = 10 mA, I _B = 0.25 mA I _C = 50 mA, I _B = 1.25 mA	50 100	— —	
Base-Emitter Saturation Voltage	V _{BEsat}	I _C = 10 mA, I _B = 0.25 mA I _C = 50 mA, I _B = 1.25 mA	600 700	— —	850 1050	mV
Base-Emitter Voltage	V _{BE}	V _{CE} = 5 V, I _C = 2 mA V _{CE} = 5 V, I _C = 10 μA V _{CE} = 1 V, I _C = 50 mA	550 — —	650 520 780	750 — —	mV
Collector Cut-off Current	I _{CBO}	V _{CB} = 45 V, V _{BE} = 0 V V _{CB} = 45 V, V _{BE} = 0 V T _A = 150°C	— —	— —	20 20	nA μA
Emitter Cut-off Current	I _{EBO}	V _{EB} = 4 V, I _C = 0	—	—	20	nA
Gain-Bandwidth Product	f _T	V _{CE} = 5 V, I _C = 10 mA f = 100 MHz	100	250	—	MHz
Collector-Base Capacitance	C _{CBO}	V _{CB} = 10 V, f = 1 MHz, I _E = 0	—	2.5	—	pF
Emitter-Base Capacitance	C _{EBO}	V _{EB} = 0.5 V, f = 1 MHz, I _C = 0	—	8	—	pF
Noise Figure	F	V _{CE} = 5 V, I _C = 200 μA, R _S = 2 kΩ, f = 1 kHz, B = 200 Hz	—	2	6	dB
Small Signal Current Gain	h _{fe}	V _{CE} = 5 V, I _C = 2 mA, f = 1.0 kHz	— — — —	200 260 330 520		
Turn-on Time at R _L = 990Ω (see fig. 1)	t _{on}	V _{CC} = 10 V, I _C = 10 mA, I _{B(on)} = -I _{B(off)} = 1 mA	—	85	150	ns
Turn-off Time at R _L = 990Ω (see fig. 1)	t _{off}	V _{CC} = 10 V, I _C = 10 mA, I _{B(on)} = -I _{B(off)} = 1 mA	—	480	800	ns

Ratings and Characteristic Curves

Fig. 1 Switching Waveforms
