



New Product

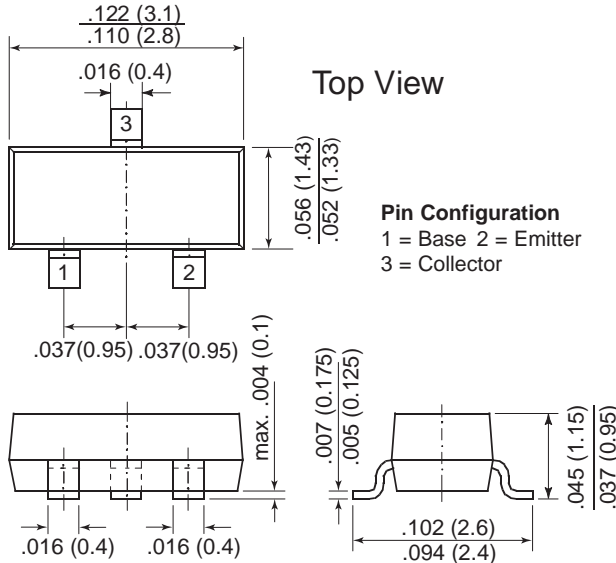
BCX71 Series

Vishay Semiconductors
formerly General Semiconductor

Small Signal Transistors (PNP)

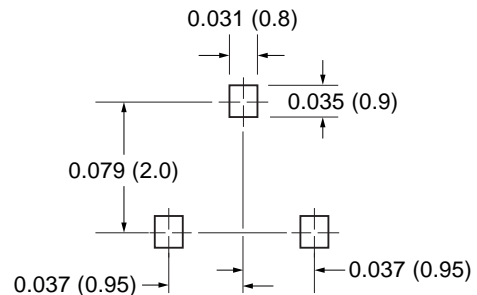


TO-236AB (SOT-23)



Dimensions in inches and (millimeters)

Mounting Pad Layout



Features

- PNP 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, BCX70 Series NPN transistors are recommended.

Mechanical Data

Case: SOT-23 Plastic Package

Weight: approx. 0.008g

Marking BCX71G = BG

Code: BCX71H = BH

BCX71J = BJ

BCX71K = BK

Packaging Codes/Options:

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

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

Maximum Ratings & Thermal Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Collector-Base Voltage	$-V_{CB0}$	45	V
Collector-Emitter Voltage	$-V_{CEO}$	45	V
Emitter-Base Voltage	$-V_{EB0}$	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	$R_{\theta JA}$	500 ⁽¹⁾	°C/W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{STG}	-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	BCX71G	$-V_{CE} = 5\text{ V}, -I_C = 10\ \mu\text{A}$	—	—	—	—
	BCX71H	$-V_{CE} = 5\text{ V}, -I_C = 10\ \mu\text{A}$	30	—	—	
	BCX71J	$-V_{CE} = 5\text{ V}, -I_C = 10\ \mu\text{A}$	40	—	—	
	BCX71K	$-V_{CE} = 5\text{ V}, -I_C = 10\ \mu\text{A}$	100	—	—	
	BCX71G	$-V_{CE} = 5\text{ V}, -I_C = 2\text{ mA}$	120	—	220	
	BCX71H	$-V_{CE} = 5\text{ V}, -I_C = 2\text{ mA}$	180	—	310	
	BCX71J	$-V_{CE} = 5\text{ V}, -I_C = 2\text{ mA}$	250	—	460	
	BCX71K	$-V_{CE} = 5\text{ V}, -I_C = 2\text{ mA}$	380	—	630	
	BCX71G	$-V_{CE} = 1\text{ V}, -I_C = 50\text{ mA}$	60	—	—	
	BCX71H	$-V_{CE} = 1\text{ V}, -I_C = 50\text{ mA}$	80	—	—	
	BCX71J	$-V_{CE} = 1\text{ V}, -I_C = 50\text{ mA}$	100	—	—	
	BCX71K	$-V_{CE} = 1\text{ V}, -I_C = 50\text{ mA}$	110	—	—	
Collector-Emitter Saturation Voltage	$-V_{CEsat}$	$-I_C = 10\text{ mA}, -I_B = 0.25\text{ mA}$ $-I_C = 50\text{ mA}, -I_B = 1.25\text{ mA}$	60 120	— —	250 550	mV
Base-Emitter Saturation Voltage	$-V_{BEsat}$	$-I_C = 10\text{ mA}, -I_B = 0.25\text{ mA}$ $-I_C = 50\text{ mA}, -I_B = 1.25\text{ mA}$	600 680	— —	850 1050	mV
Base-Emitter Voltage	$-V_{BE}$	$-V_{CE} = 5\text{ V}, -I_C = 2\text{ mA}$ $-V_{CE} = 5\text{ V}, -I_C = 10\ \mu\text{A}$ $-V_{CE} = 1\text{ V}, -I_C = 50\text{ mA}$	600 — —	650 550 720	750 — —	mV
Collector Cut-off Current	$-I_{CBO}$	$-V_{CB} = 45\text{ V}, V_{EB} = 0$ $-V_{CB} = 45\text{ V}, V_{EB} = 0$ $T_A = 150^\circ\text{C}$	— —	— —	20 20	nA μA
Emitter Cut-off Current	$-I_{EBO}$	$-V_{EB} = 4\text{ V}, I_C = 0$	—	—	20	nA
Gain-Bandwidth Product	f_T	$-V_{CE} = 5\text{ V}, -I_C = 10\text{ mA}$ $f = 100\text{ MHz}$	100	—	—	MHz
Collector-Base Capacitance	C_{CBO}	$-V_{CB} = 10\text{ V}, f = 1\text{ MHz}, I_E = 0$	—	4.5	—	pF
Emitter-Base Capacitance	C_{EBO}	$-V_{CB} = 0.5\text{ V}, f = 1\text{ MHz}, I_C = 0$	—	11	—	pF
Noise Figure	F	$-V_{CE} = 5\text{ V}, -I_C = 200\ \mu\text{A}$, $R_S = 2\text{ k}\Omega, f = 100\text{ kHz}$, $B = 200\text{ Hz}$	—	2	6	dB
Small Signal Current Gain	BCX71G BCX71H BCX71J BCX71K	$-V_{CE} = 5\text{ V}, -I_C = 2\text{ mA}$, $f = 1.0\text{ kHz}$	— — — —	200 260 330 520		
Turn-on Time at $R_L = 990\ \Omega$ (see fig. 1)	t_{on}	$-V_{CC} = 10\text{ V}, -I_C = 10\text{ mA}$, $-I_{B(on)} = I_{B(off)} = 1\text{ mA}$	—	85	150	ns
Turn-off Time at $R_L = 990\ \Omega$ (see fig. 1)	t_{off}	$-V_{CC} = 10\text{ V}, -I_C = 10\text{ mA}$, $-I_{B(on)} = I_{B(off)} = 1\text{ mA}$	—	480	800	ns

Ratings and Characteristic Curves

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig. 1 Switching Waveforms
