

Features

- Ideally Suited for Automatic Insertion
- Low Current, Low Voltage
- For Switching and AF Amplifier Applications
- Suited for Low Level, Low Noise, Low Frequency Applications in Hybrid Circuits
- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings @ 25°C Unless Otherwise Specified

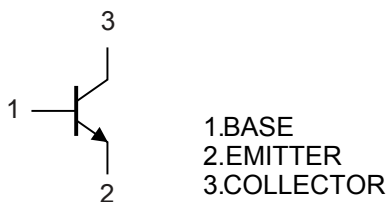
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 500°C/W Junction to Ambient^(Note 2)

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	45	V
Collector-Emitter Voltage	V_{CEO}	45	V
Emitter-Base Voltage	V_{EBO}	5	V
Continuous Collector Current	I_C	200	mA
Continuous Base Current	I_B	50	mA
Power Dissipation	P_D	250	mW

Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

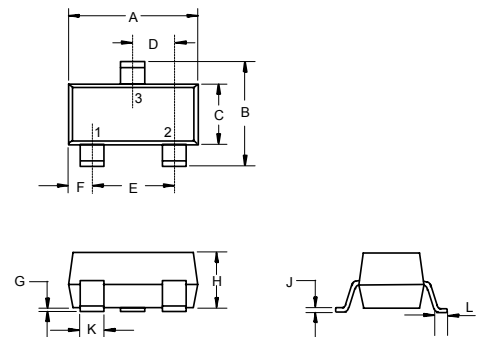
2. Mounted on FR-4 Printed-Circuit Board

Internal Structure



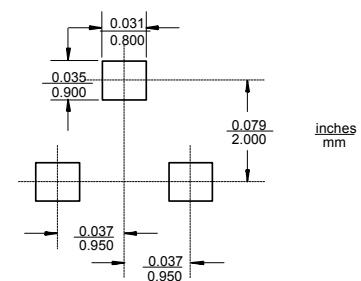
NPN Small Signal Transistor

SOT-23



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.110	0.120	2.80	3.04	
B	0.083	0.104	2.10	2.64	
C	0.047	0.055	1.20	1.40	
D	0.034	0.041	0.85	1.05	
E	0.067	0.083	1.70	2.10	
F	0.018	0.024	0.45	0.60	
G	0.0004	0.006	0.01	0.15	
H	0.035	0.043	0.90	1.10	
J	0.003	0.007	0.08	0.18	
K	0.012	0.020	0.30	0.51	
L	0.007	0.020	0.20	0.50	

Suggested Solder Pad Layout



Electrical Characteristics @ T_A=25°C Unless Otherwise Specified

Parameter		Symbol	Min	Typ	Max	Units	Conditions	
Collector-Base Cutoff Current		I _{CBO}			20	nA	V _{CB} =45V, V _{BE} =0	
					20	μA	V _{CB} =45V, V _{BE} =0, T _A =150°C	
Emitter-Base Cutoff Current		I _{EBO}			20	nA	V _{EB} =4V, I _C =0	
DC Current Gain		h _{FE(1)}	---				V _{CE} =5V, I _C =10μA	
			h _{FE(2)}	120		630		V _{CE} =5V, I _C =2mA
			h _{FE(3)}	50				V _{CE} =1V, I _C =50mA
Collector-Emitter Saturation Voltage		V _{CE(sat)}	50		350	mV	I _C =10mA, I _B =0.25mA	
			100		550	mV	I _C =50mA, I _B =1.25mA	
Base-Emitter Saturation Voltage		V _{BE(sat)}	600		850	mV	I _C =10mA, I _B =0.25mA	
			700		1050	mV	I _C =50mA, I _B =1.25mA	
Base-Emitter Voltage		V _{BE}	550	650	750	mV	V _{CE} =5V, I _C =2mA	
				520			mV	V _{CE} =5V, I _C =10μA
				780			mV	V _{CE} =1V, I _C =50mA
Transition Frequency		f _T	100	250		MHz	V _{CE} =5V, I _C =10mA, f=100MHz	
Collector-Base Capacitance		C _{CB}		2.5		pF	V _{CB} =10V, I _E =0, f=1MHz	
Emitter-Base Capacitance		C _{EB}		8		pF	V _{EB} =0.5V, I _C =0, f=1MHz	
Noise Figure		N _F		2	6	dB	V _{CE} =5V, I _C =0.2mA, f=1KHz, R _s =2KΩ, BW=200Hz	
Small Signal Current Gain	BCX70G	h _{fe}		200			V _{CE} =5V, I _C =2mA, f=1KHz	
	BCX70H			260				
	BCX70J			330				
	BCX70K			520				
Turn-on Time		t _{on}		85	150	ns	V _{CC} =10V, I _C =10mA, R _L =990Ω, I _{B(on)} =-I _{B(off)} =1mA	
Turn-off Time		t _{off}		480	800	ns	V _{CC} =10V, I _C =10mA, R _L =990Ω, I _{B(on)} =-I _{B(off)} =1mA	

Classification of h_{FE}

Rank	BCX70G	BCX70H	BCX70J	BCX70K
Range ₍₁₎	---(min.)	30(min.)	40(min.)	100(min.)
Range ₍₂₎	120-220	180-310	250-460	380-630
Range ₍₃₎	50(min.)	70(min.)	90(min.)	100(min.)
Marking	AG	AH	AJ	AK

Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

*****IMPORTANT NOTICE*****

Micro Commercial Components Corp. reserves the right to make changes without further notice to any product herein to make corrections, modifications, enhancements, improvements, or other changes. *Micro Commercial Components Corp.* does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others. The user of products in such applications shall assume all risks of such use and will agree to hold *Micro Commercial Components Corp.* and all the companies whose products are represented on our website, harmless against all damages. *Micro Commercial Components Corp.* products are sold subject to the general terms and conditions of commercial sale, as published at <https://www.mccsemi.com/Home/TermsAndConditions>.

*****LIFE SUPPORT*****

MCC's products are not authorized for use as critical components in life support devices or systems without the express written approval of Micro Commercial Components Corporation.

*****CUSTOMER AWARENESS*****

Counterfeiting of semiconductor parts is a growing problem in the industry. Micro Commercial Components (MCC) is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. MCC strongly encourages customers to purchase MCC parts either directly from MCC or from Authorized MCC Distributors who are listed by country on our web page cited below. Products customers buy either from MCC directly or from Authorized MCC Distributors are genuine parts, have full traceability, meet MCC's quality standards for handling and storage. **MCC will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources.** MCC is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.