NPN Small Signal Transistor

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

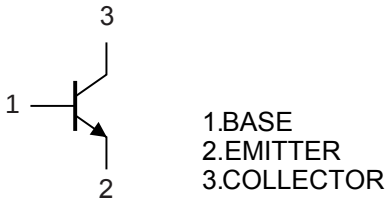
- Operating Junction Temperature Range: -55℃ to +150℃
- Storage Temperature Range: -55℃ to +150℃
- Thermal Resistance: 500℃/W Junction to Ambient(Note 2)

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.

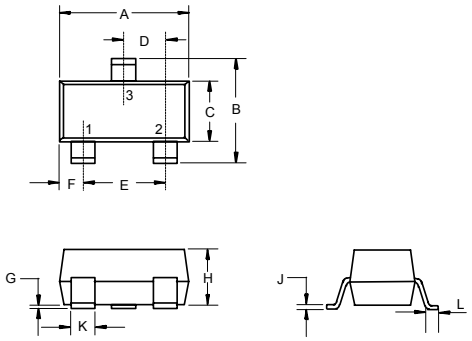
2. Mounted on FR-4 Printed-Circuit Board

Internal Structure



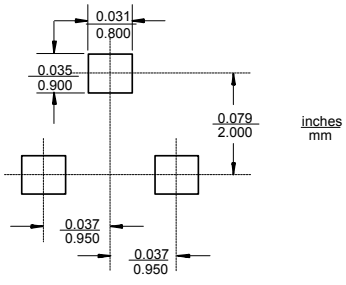
1.BASE
2.EMITTER
3.COLLECTOR

SOT-23



DIMENSIONS					
DIM	INCHES		MM		NOTE
	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,Rs=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

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Micro Commercial Components (MCC):

BCX70J-TP