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BCX70G THRU BCX70K

NPN Small Signal Transistor 250mW

Features

- Ideally Suited for Automatic Insertion
- 150°C Junction Temperature
- Low Current, Low Voltage
- For Switching and AF Amplifier applications.
- Suited for low level, low noise, low frequency Applications in hybrid circuits

Mechanical Data

- Case: SOT-23, Molded Plastic
- Terminals: Solderable per MIL-STD-202, Method 208
- Weight: 0.008 grams (approx.)
- Marking Code:

P/N	Marking	P/N	Marking
BCX70G	AG	BCX70J	AJ
BCX70H	AH	BCX70K	AK

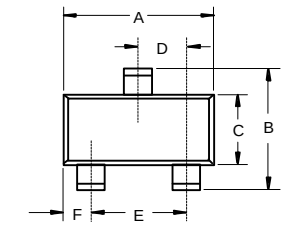
Maximum Ratings @ 25°C Unless Otherwise Specified

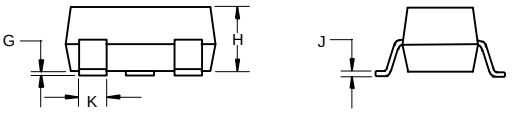
Charateristic	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	45	V
Collector-Base Voltage	V_{CBO}	45	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current(DC)	I_C	200	mA
Base Current(DC)	I_B	50	mA
Power Dissipation@T_s=79°C	P_d	250	mW
Thermal Resistance, Junction to Ambient Air	$R_{\theta JA}$	500(1)	°C/W
Operating & Storage Temperature	T_j, T_{STG}	-55~150	°C

Notes:

(1) Mounted on FR-4 printed-circuit board

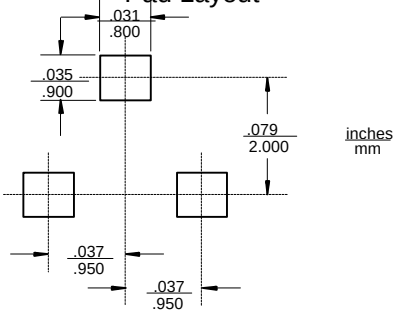
SOT-23





DIMENSIONS					
	INCHES		MM		
DIM	MIN	MAX	MIN	MAX	NOTE
A	.110	.120	2.80	3.04	
B	.083	.098	2.10	2.64	
C	.047	.055	1.20	1.40	
D	.035	.041	.89	1.03	
E	.070	.081	1.78	2.05	
F	.018	.024	.45	.60	
G	.0005	.0039	.013	.100	
H	.035	.044	.89	1.12	
J	.003	.007	.085	.180	
K	.015	.020	.37	.51	

Suggested Solder Pad Layout



BCX70 Series

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

Parameter		Symbol	Test Condition	Min	Typ	Max	Unit
DC Current Gain	BCX70G	h_{FE}	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	50	—	350	mV
			I_C = 50 mA, I_B = 1.25 mA	100	—	550	
Base-Emitter Saturation Voltage		V_{BEsat}	I_C = 10 mA, I_B = 0.25 mA	600	—	850	mV
			I_C = 50 mA, I_B = 1.25 mA	700	—	1050	
Base-Emitter Voltage		V_{BE}	V_{CE} = 5 V, I_C = 2 mA	550	650	750	mV
			V_{CE} = 5 V, I_C = 10 µA	—	520	—	
			V_{CE} = 1 V, I_C = 50 mA	—	780	—	
Collector Cut-off Current		I_{CBO}	V_{CB} = 45 V, V_{BE} = 0 V	—	—	20	nA
			V_{CB} = 45 V, V_{BE} = 0 V T_A = 150°C	—	—	20	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	BCX70G	h_{fe}	V_{CE} = 5 V, I_C = 2 mA, f = 1.0 kHZ	—	200		
	BCX70H			—	260		
	BCX70J			—	330		
	BCX70K			—	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