

**SOT-23 Formed SMD Package**

**BCX70G BCX70H  
BCX70J BCX70K**

*SILICON PLANAR EPITAXIAL TRANSISTORS*

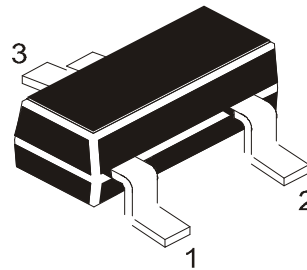
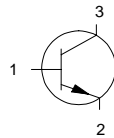
*N-P-N silicon transistors*

**Marking**

- BCX70G = AG
- BCX70H = AH
- BCX70J = AJ
- BCX70K = AK

**Pin configuration**

- 1 = BASE
- 2 = EMITTER
- 3 = COLLECTOR



**ABSOLUTE MAXIMUM RATINGS**

Collector-emitter voltage ( $V_{BE} = 0$ )	$V_{CES}$	max.	45 V
Collector-emitter voltage (open base)	$V_{CE0}$	max.	45 V
Collector current (d.c.)	$I_C$	max.	200 mA
Total power dissipation at $T_{amb} = 25\text{ }^\circ\text{C}$	$P_{tot}$	max.	250 mW
Junction temperature	$T_j$	max.	150 $^\circ\text{C}$
Transition frequency at $f = 100\text{ MHz}$ $V_{CE} = 5\text{ V}; I_C = 10\text{ mA}$	$f_T$	typ.	250 MHz
Noise figure at $f = 1\text{ kHz}$ $V_{CE} = 5\text{ V}; I_C = 200\text{ mA}; B = 200\text{ Hz}$	$F$	typ.	2 dB

**RATINGS** (at  $T_A = 25^\circ\text{C}$  unless otherwise specified)

*Limiting values*

Collector-emitter voltage ( $V_{BE} = 0$ )	$V_{CES}$	max.	45 V
Collector-emitter voltage (open base)	$V_{CE0}$	max.	45 V
Emitter-base voltage (open collector)	$V_{EB0}$	max.	5 V

**BCX70G BCX70H  
BCX70J BCX70K**

Collector current (d.c.)	$I_C$	max.	200 mA
Base current	$I_B$	max.	50 mA
Total power dissipation up to $T_{amb} = 25\text{ }^\circ\text{C}$	$P_{tot}$	max.	250 mW
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$
Junction temperature	$T_j$	max.	150 $^\circ\text{C}$

**THERMAL RESISTANCE**

From junction to ambient	$R_{th\ j-a}$	=	500 kW
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**CHARACTERISTICS**

$T_{amb}$ : 25  $^\circ\text{C}$  unless otherwise specified

Collector-emitter cut-off current

$V_{BE} = 0$ ; $V_{CE} = 45\text{ V}$	$I_{CES}$	<	20 nA
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$V_{BE} = 0$ ; $V_{CE} = 45\text{ V}$ ; $T_{amb} = 150\text{ }^\circ\text{C}$	$I_{CES}$	<	20 $\mu\text{A}$
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Emitter-base cut-off current

$I_C = 0$ ; $V_{EB} = 4\text{ V}$	$I_{EB0}$	<	20 nA
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Saturation voltages

at $I_C = 10\text{ mA}$ ; $I_B = 0,25\text{ mA}$	$V_{CEsat}$	0,05 to 0,35 V
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$V_{BEsat}$	0,6 to 0,85 V
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at $I_C = 50\text{ mA}$ ; $I_B = 1,25\text{ mA}$	$V_{CEsat}$	0,1 to 0,55 V
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$V_{BEsat}$	0,7 to 1,05 V
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	>	125 MHz
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Transition frequency at  $f = 100\text{ MHz}$

$I_C = 10\text{ mA}$ ; $V_{CE} = 5\text{ V}$	$f_T$	typ.	250 MHz
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Collector capacitance at  $f = 1\text{ MHz}$

$I_E = I_e = 0$ ; $V_{CB} = 10\text{ V}$	$C_c$	typ.	2,5 pF
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Emitter capacitance at  $f = 1\text{ MHz}$

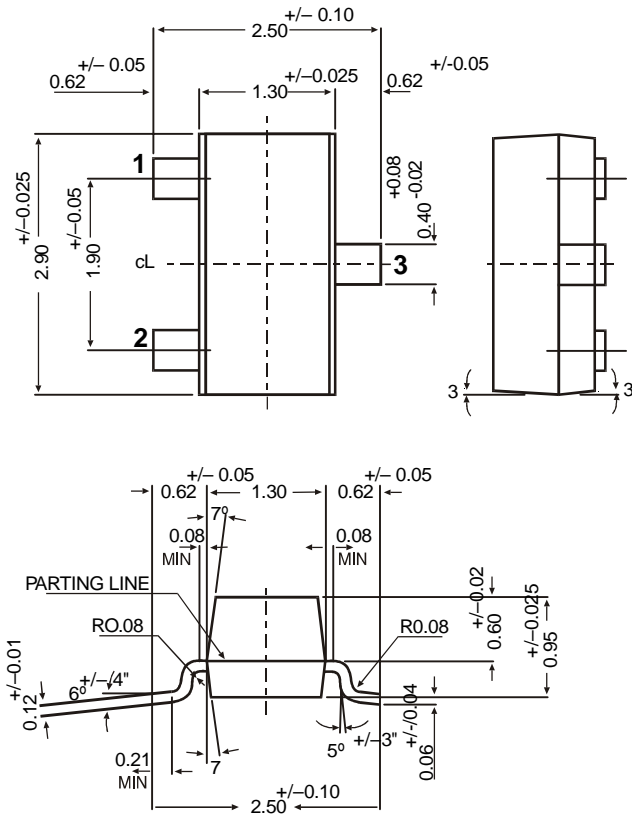
$I_C = I_c = 0$ ; $V_{EB} = 0,5\text{ V}$	$C_e$	typ.	8 pF
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Noise figure at  $R_S = 2\text{ k}\Omega$ ,

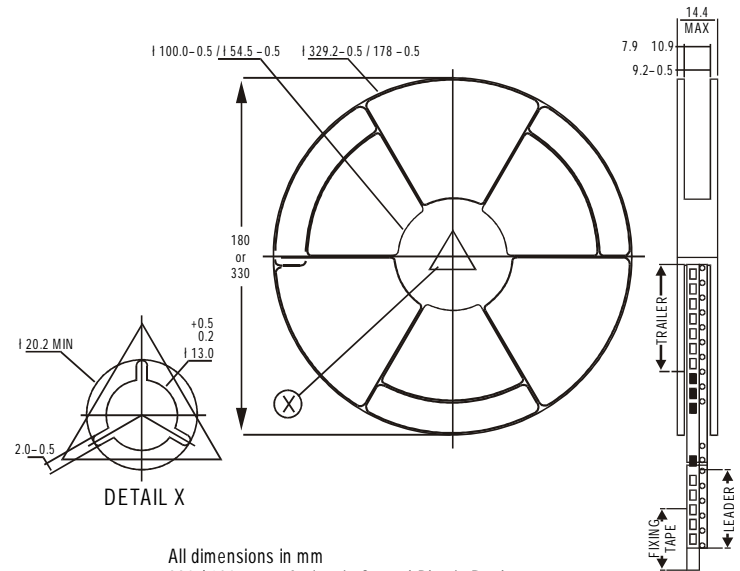
$I_C = 200\text{ }\mu\text{A}$ ; $V_{CE} = 5\text{ V}$ ; $f = 1\text{ kHz}$ ; $B = 200\text{ Hz}$	$F$	<	6 dB
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		<b>BCX70G</b>	<b>70H</b>	<b>70J</b>	<b>70K</b>	
<b>D.C. current gain</b>						
$V_{CE} = 5\text{ V}$ ; $I_C = 10\text{ }\mu\text{A}$	$h_{FE}$	>	—	40	30	100
$V_{CE} = 5\text{ V}$ ; $I_C = 2\text{ mA}$	$h_{FE}$	>	120	180	250	380
		<	220	310	460	630
$V_{CE} = 1\text{ V}$ ; $I_C = 50\text{ mA}$	$h_{FE}$	>	50	70	90	100
<b>Small-signal current gain</b>						
$V_{CE} = 5\text{ V}$ ; $I_C = 2\text{ mA}$ ; $f = 1\text{ kHz}$	$h_{fe}$	>	125	175	250	350
		<	250	350	500	700
<b>Output admittance</b>						
$V_{CE} = 5\text{ V}$ ; $I_C = 2\text{ mA}$ ; $f = 1\text{ kHz}$	$h_{oe}$	typ.	18	24	30	50 $\mu\text{S}$
<b>Base-emitter voltage</b>						
$V_{CE} = 5\text{ V}$ ; $I_C = 2\text{ mA}$	$V_{BE}$		0,55 to 0,75		V	
		typ.	0,65		V	
$V_{CE} = 5\text{ V}$ ; $I_C = 10\text{ }\mu\text{A}$	$V_{BE}$	typ.	0,52		V	
$V_{CE} = 1\text{ V}$ ; $I_C = 50\text{ mA}$	$V_{BE}$	typ.	0,78		V	

SOT-23 Formed SMD Package



SOT-23 Package Reel Information  
Reel specifications for Packing (13"/7" reels)



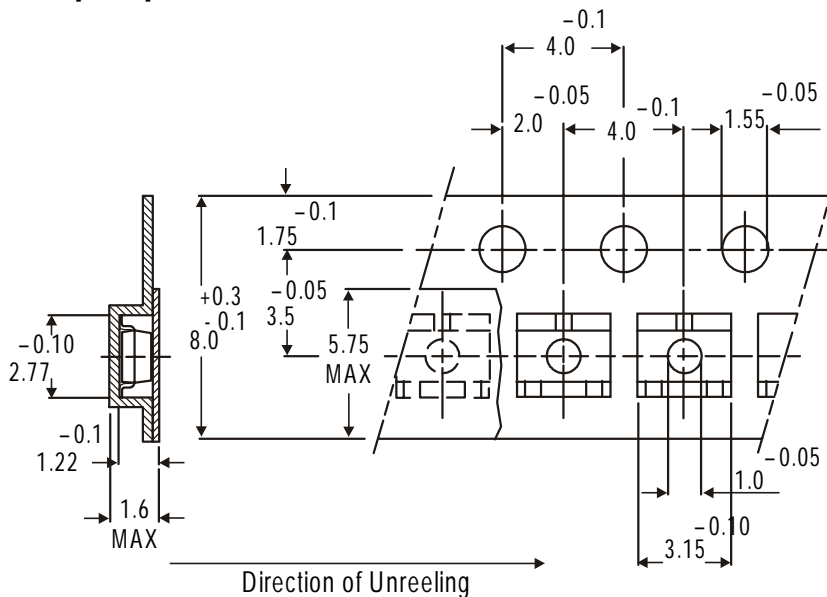
All dimensions in mm  
330 / 180 mm Antistatic Coated Plastic Reel

NOTES:

No. of Devices	8mm Tape Size of Reel 330 mm (13") 10,000 Pcs	8mm Tape Size of Reel 180 mm (7") 3,000 Pcs
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- The bandolier of 330 mm reel contains at least 10,000 devices.
- The bandolier of 180 mm reel contains at least 3,000 devices.
- No more than 0.5% missing devices / reel. 50 empty compartments for 330 mm reel. 15 empty compartments for 180 mm reel.
- Three consecutive empty places might be found provided this gap is followed by 6 consecutive devices.
- The carrier tape (leader) starts with at least 75 empty positions (equivalent to 330 mm). In order to fix the carrier tape a self adhesive tape of 20 to 50 mm is applied. At the end of the bandolier at least 40 empty positions (equivalent to 160 mm) are there.

Tape Specification for SOT-23 Surface Mount Device



All dimensions in mm

## Packing Detail

PACKAGE	STANDARD PACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr Wt
SOT-23 T&R	3K/reel	136 gm/3K pcs	3" x 7.5" x 7.5"	12.0K	17" x 15" x 13.5"	192.0K	12 kgs
			9" x 9" x 9"	51.0K	19" x 19" x 19"	408.0K	28 kgs
	10K/reel	415 gm/10K pcs	13" x 13" x 0.5"	10.0K	17" x 15" x 13.5"	300.0K	16 kgs

## Customer Notes

### Component Disposal Instructions

1. CDIL Semiconductor Devices are RoHS compliant, customers are requested to please dispose as per prevailing Environmental Legislation of their Country.
2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

## Disclaimer

The product information and the selection guides facilitate selection of the CDIL's Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review our Data Sheet(s) so as to confirm that the Device(s) meet functionality parameters for your application. The information furnished on the CDIL Web Site/CD are believed to be accurate and reliable. CDIL however, does not assume responsibility for inaccuracies or incomplete information. Furthermore, CDIL does not assume liability whatsoever, arising out of the application or use of any CDIL product; neither does it convey any license under its patent rights nor rights of others. These products are not designed for use in life saving/support appliances or systems. CDIL customers selling these products (either as individual Discrete Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and CDIL will not be responsible for any damages resulting from such sale(s).

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