

**SOT-23 Formed SMD Package**

**BCX71G BCX71H  
BCX71J BCX71K**

*SILICON PLANAR EPITAXIAL TRANSISTORS*

*P-N-P silicon transistors*

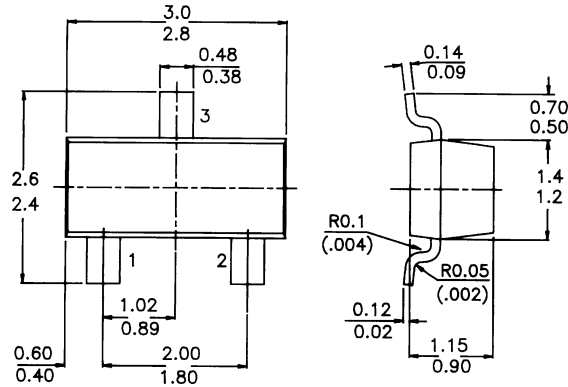
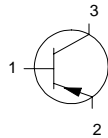
**Marking**

BCX71G = BG  
BCX71H = BH  
BCX71J = BJ  
BCX71K = BK

**PACKAGE OUTLINE DETAILS**  
ALL DIMENSIONS IN mm

**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	$P_{tot}$	max.	250 mW
Junction temperature	$T_j$	max.	150 °C
Transition frequency at $f = 100$ MHz $-V_{CE} = 5$ V; $-I_C = 10$ mA	$f_T$	typ.	180 MHz
Noise figure at $f = 1$ kHz $-V_{CE} = 5$ V; $-I_C = 200$ mA	$F$	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

**BCX71G BCX71H  
BCX71J BCX71K**

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
--------------------------	---------------	---	--------

**CHARACTERISTICS**

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

Collector-emitter cut-off current

$V_{EB} = 0; -V_{CE} = 45\text{ V}$	$-I_{CES}$	<	20 nA
-------------------------------------	------------	---	-------

$V_{EB} = 0; -V_{CE} = 45\text{ V}; T_{amb} = 150\text{ }^\circ\text{C}$	$-I_{CES}$	<	20 mA
--	------------	---	-------

Emitter-base cut-off current

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

Saturation voltages

$-I_C = 10\text{ mA}; -I_B = 0,25\text{ mA}$	$-V_{CEsat}$	0,06 to 0,25 V
--	--------------	----------------

$-V_{BEsat}$	0,6 to 0,85 V
--------------	---------------

$-I_C = 50\text{ mA}; -I_B = 1,25\text{ mA}$	$-V_{CEsat}$	0,12 to 0,55 V
--	--------------	----------------

$-V_{BEsat}$	0,68 to 1,05 V
--------------	----------------

Transition frequency at  $f = 100\text{ MHz}$ .

$-V_{CE} = 5\text{ V}; -I_C = 10\text{ mA}$	$f_T$	typ.	180 MHz
---	-------	------	---------

Capacitance at  $f = 1\text{ MHz}$

$-V_{CB} = 10\text{ V}; I_E = I_e = 0$	$C_c$	typ.	4,5 pF
--	-------	------	--------

Emitter capacitance at  $f = 1\text{ MHz}$

$-V_{EB} = 0,5\text{ V}; I_C = I_c = 0$	$C_e$	typ.	11 pF
---	-------	------	-------

Noise figure at  $R_S = 2\text{ kW}$

$-V_{CE} = 5\text{ V}; -I_C = 200\text{ mA}; B = 200\text{ Hz}$	$F$	typ.	2 dB
---	-----	------	------

		<	6 dB
--	--	---	------

				<b>BCX71G</b>	<b>71H</b>	<b>71J</b>	<b>71K</b>
<b>D.C. current gain</b>							
$-V_{CE} = 5\text{ V}; -I_C = 10\text{ mA}$	$h_{FE}$	>	-	30	40	100	
$-V_{CE} = 5\text{ V}; -I_C = 2\text{ mA}$	$h_{FE}$	>	120	180	250	380	
		<	220	310	460	630	
$-V_{CE} = 1\text{ V}; -I_C = 50\text{ mA}$	$h_{FE}$	>	60	80	100	110	
<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 mS	
<b>Base-emitter voltage</b>							
$-V_{CE} = 5\text{ V}; -I_C = 2\text{ mA}$	$V_{BE}$			0,6 to 0,75	V		
		typ.		0,65	V		
$-V_{CE} = 5\text{ V}; -I_C = 10\text{ mA}$	$V_{BE}$	typ.		0,55	V		
$-V_{CE} = 1\text{ V}; -I_C = 50\text{ mA}$	$V_{BE}$	typ.		0,72	V		

### Disclaimer

The product information and the selection guides facilitate selection of the CDIL's Discrete 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 is 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).

CDIL strives for continuous improvement and reserves the right to change the specifications of its products without prior notice.



CDIL is a registered Trademark of  
**Continental Device India Limited**

C-120 Naraina Industrial Area, New Delhi 110 028, India.  
Telephone + 91-11-579 6150 Fax + 91-11-579 9569, 579 5290  
e-mail sales@cdil.com www.cdil.com