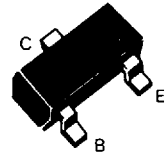


# SOT23 PNP SILICON PLANAR SMALL SIGNAL TRANSISTORS

## BCX71

### PARTMARKING DETAILS:-

BCX71G - BG	BCX71GR - CG
BCX71H - BH	BCX71HR - 6P
BCX71J - BJ	BCX71JR - J8
BCX71K - BK	BCX71KR - CK



### ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Emitter Voltage	$V_{CES}$	-45	V
Collector-Emitter Voltage	$V_{CEO}$	-45	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Continuous Collector Current	$I_C$	-200	mA
Base Current	$I_B$	-50	mA
Power Dissipation at $T_{amb} = 25^\circ\text{C}$	$P_{TOT}$	-330	mW
Operating and Storage Temperature Range	$t_j:stsg$	-55 to +150	$^\circ\text{C}$

### ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^\circ\text{C}$ unless otherwise stated)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS	
Collector-Emitter Voltage	$V_{(BR)CEO}$	-45			V	$I_{CEO} = -2\text{mA}$	
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5			V	$I_{EBO} = -1\mu\text{A}$	
Collector-Emitter Cut-Off Current	$I_{CES}$			-20 -60	nA $\mu\text{A}$	$V_{CES} = -45\text{V}$ $V_{CES} = -45\text{V}$ , $T_{amb} = 150^\circ\text{C}$	
Emitter-Base Cut-Off Current	$I_{EBO}$			-20	nA	$V_{EBO} = -4\text{V}$	
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$		-0.12 -0.25	-0.25 -0.55	V V	$I_C = -10\text{mA}$ , $I_B = -0.25\text{mA}$ $I_C = -50\text{mA}$ , $I_B = -1.25\text{mA}$	
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	-0.60 -0.68	-0.70 -0.80	-0.85 -1.05	V V	$I_C = -10\text{mA}$ , $I_B = -0.25\text{mA}$ $I_C = -50\text{mA}$ , $I_B = -1.25\text{mA}$	
Base-Emitter Voltage	$V_{BE}$	-0.6	-0.55 -0.65 -0.72	-0.75 -0.75 -0.75	V V V	$I_C = -10\mu\text{A}$ , $V_{CE} = -5\text{V}$ $I_C = -2\text{mA}$ , $V_{CE} = -5\text{V}$ $I_C = -50\text{mA}$ , $V_{CE} = -1\text{V}$	
Static Forward current transfer ratio	BCX71G	$h_{FE}$	120 60	140 170	220		$I_C = -10\mu\text{A}$ , $V_{CE} = -5\text{V}$ $I_C = -2\text{mA}$ , $V_{CE} = -5\text{V}$ $I_C = -50\text{mA}$ , $V_{CE} = -1\text{V}$
	BCX71H	$h_{FE}$	30 180 80	200 250	310		$I_C = -10\mu\text{A}$ , $V_{CE} = -5\text{V}$ $I_C = -2\text{mA}$ , $V_{CE} = -5\text{V}$ $I_C = -50\text{mA}$ , $V_{CE} = -1\text{V}$
	BCX71J	$h_{FE}$	40 250 100	270 350	460		$I_C = -10\mu\text{A}$ , $V_{CE} = -5\text{V}$ $I_C = -2\text{mA}$ , $V_{CE} = -5\text{V}$ $I_C = -50\text{mA}$ , $V_{CE} = -1\text{V}$
	BCX71K	$h_{FE}$	100 380 110	340 500	630		$I_C = -10\mu\text{A}$ , $V_{CE} = -5\text{V}$ $I_C = -2\text{mA}$ , $V_{CE} = -5\text{V}$ $I_C = -50\text{mA}$ , $V_{CE} = -1\text{V}$

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# BCX71

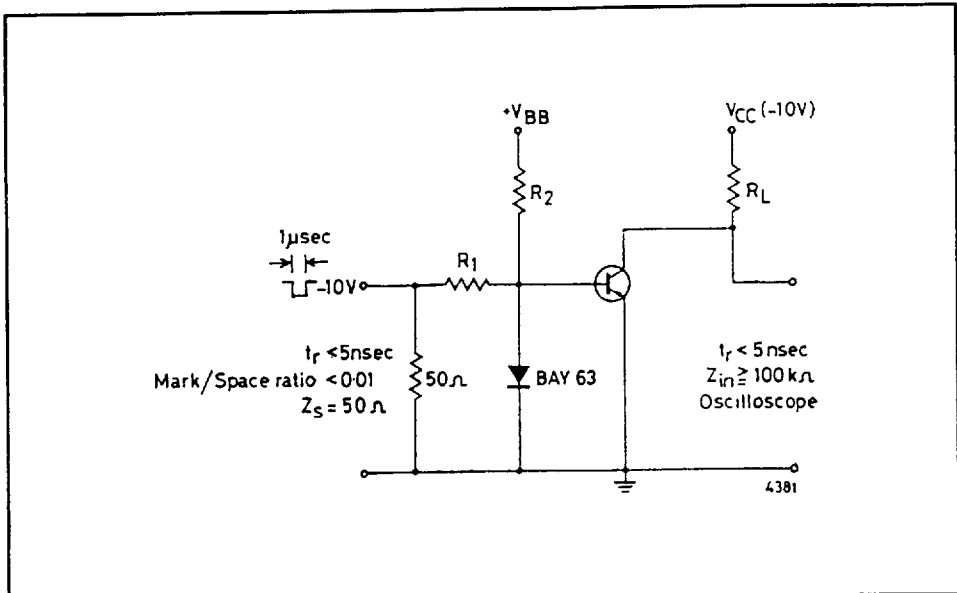
## CHARACTERISTICS (continued)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Transition Frequency	$f_T$		180		MHz	$I_C = -10\text{mA}$ , $V_{CE} = -5\text{V}$ $f = 100\text{MHz}$
Collector-Base Capacitance	$C_{cbo}$			6	pF	$V_{CBO} = -10\text{V}$ , $f = 1\text{MHz}$
Emitter-Base Capacitance	$C_{ebo}$		11		pF	$V_{EBO} = -0.5\text{V}$ , $f = \text{MHz}$
Noise Figure	N		2	6	dB	$I_C = -0.2\text{mA}$ , $V_{CE} = -5\text{V}$ $R_G = -2\text{k}\Omega$ , $f = 1\text{kHz}$ $\Delta f = 200\text{Hz}$
Switching times: Delay Time Rise Time Turn-On Time Storage Time Fall Time Turn-Off Time	$t_d$ $t_r$ $t_{on}$ $t_s$ $t_f$ $t_{off}$		35 50 85 400 80 480	150 800	ns ns ns ns ns ns	$-I_C : -I_{B1} : -I_{B2} = -10 : 1 : 1\text{mA}$ $R_1 = -5\text{k}\Omega$ , $R_2 = -5\text{k}\Omega$ $V_{BB} = -3.6\text{V}$ , $R_L = -990\Omega$

## FOUR TERMINAL NETWORK DATA ( $I_C = 2\text{mA}$ , $V_{CE} = 5\text{V}$ , $f = 1\text{kHz}$ )

	$h_{FE}$ Group G			$h_{FE}$ Group H			$h_{FE}$ Group J			$h_{FE}$ Group K			K
	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
$h_{11e}$	1.6	2.7	4.5	2.5	3.6	6.0	3.2	4.5	8.5	4.5	7.5	12	
$h_{12e}$		1.5			2			2			3		$10^{-4}$
$h_{21e}$		200			260			330			520		
$h_{22e}$		18	30		24	50		30	60		50	100	$\mu\text{s}$

## SWITCHING CIRCUIT



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