

PNP  
SILICON  
TRANSISTORS

The BCY70, BCY71 and BCY72 are PNP silicon planar epitaxial transistors designed for general purpose amplifier and switching applications.

TO-18



CBE

### ABSOLUTE MAXIMUM RATINGS

		BCY70	BCY71	BCY72
Collector-Base Voltage	$V_{CB0}$	50V	45V	25V
Collector-Emitter Voltage	$V_{CE0}$	50V	45V	25V
Emitter-Base Voltage	$V_{EB0}$		5V	
Collector Current	$I_C$		200mA	
Total Power Dissipation	$P_{tot}$		350mW	
Operating Junction & Storage Temperature	$T_j, T_{stg}$		-65 to +200°C	

### ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ )

PARAMETER	SYMBOL	MIN	MAX	UNIT	TEST CONDITIONS
Collector Cutoff Current	BCY70	$I_{CB0}$	10	nA	$V_{CB}=40V$ $I_E=0$
			500	nA	$V_{CB}=50V$ $I_E=0$
	BCY71		50	nA	$V_{CB}=40V$ $I_E=0$
			500	nA	$V_{CB}=45V$ $I_E=0$
	BCY72		50	nA	$V_{CB}=20V$ $I_E=0$
			500	nA	$V_{CB}=25V$ $I_E=0$
Collector Cutoff Current	$I_{CEX}$		20	nA	$V_{CE}=50V$ $V_{EB}=3V$
Emitter Cutoff Current	$I_{EB0}$		500	nA	$V_{EB}=5V$ $I_C=0$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.25	V	$I_C=10mA$ $I_B=1mA$
			0.5	V	$I_C=50mA$ $I_B=5mA^*$
Base-Emitter Saturation	BCY70,BCY71	$V_{BE(sat)}$	0.6	V	$I_C=10mA$ $I_B=1mA$
			1.2	V	$I_C=50mA$ $I_B=5mA^*$

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# ELECTRICAL CHARACTERISTICS ( $T_A=25^{\circ}\text{C}$ )

PARAMETER		SYMBOL	MIN	MAX	UNIT	TEST CONDITIONS
D.C. Current Gain	BCY70	HFE	40			$I_C=0.1\text{mA}$ $V_{CE}=1\text{V}$
			45			$I_C=1\text{mA}$ $V_{CE}=1\text{V}$
			50			$I_C=10\text{mA}$ $V_{CE}=1\text{V}$
			15			$I_C=50\text{mA}$ $V_{CE}=1\text{V}^*$
	BCY71		40			$I_C=0.01\text{mA}$ $V_{CE}=1\text{V}$
			80			$I_C=0.1\text{mA}$ $V_{CE}=1\text{V}$
			90			$I_C=1\text{mA}$ $V_{CE}=1\text{V}$
			100	600		$I_C=10\text{mA}$ $V_{CE}=1\text{V}$
	BCY72		40			$I_C=1\text{mA}$ $V_{CE}=1\text{V}$
			50			$I_C=10\text{mA}$ $V_{CE}=1\text{V}$
	Small Signal Current Gain	BCY71	100	400		$I_C=1\text{mA}$ $V_{CE}=10\text{V}$ $f=1\text{KHz}$
Current Gain Bandwidth Product	BCY71	$f_T$	15		MHz	$I_C=0.1\text{mA}$ $V_{CE}=10\text{V}$ $f=10.7\text{MHz}$
	BCY70		250		MHz	$I_C=10\text{mA}$ $V_{CE}=20\text{V}$
	BCY71,BCY72		200		MHz	$f=100\text{MHz}$
Output Capacitance		$C_{ob}$		6	pF	$V_{CB}=10\text{V}$ $I_E=0$ $f=1\text{MHz}$
Input Capacitance		$C_{ib}$		8	pF	$V_{EB}=1\text{V}$ $I_C=0$ $f=1\text{MHz}$
Noise Figure	BCY70,BCY72	NF		6	dB	$I_C=0.1\text{mA}$ $V_{CE}=5\text{V}$
	BCY71			2	dB	$R_G=2\text{K}\Omega$ $f=10\text{Hz}$ to $10\text{KHz}$

\* Pulse Test : Pulse Width =  $300\mu\text{S}$ , Duty Cycle = 1%.