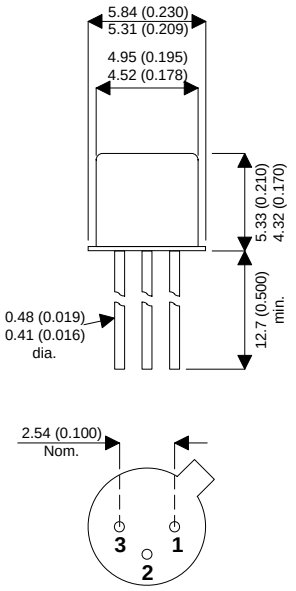
BCY70
BCY71
BCY72

GENERAL PURPOSE PNP SILICON TRANSISTOR

MECHANICAL DATA
Dimensions in mm (inches)



TO18 PACKAGE(TO-206AA)

Underside View

PIN 1 – Emitter PIN 2 – Base PIN 3 – Collector

DESCRIPTION

The BCY70, BCY71 & BCY72 are silicon planar epitaxial PNP tranistors in Jedec TO18 metal case.

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise stated)		**BCY70**	**BCY71**	**BCY72**
V_{CBO}	Collector - Base Voltage (I_E= 0)	-50V	-45V	-25V
V_{CEO}	Collector - Emitter Voltage(I_B= 0)	-40V	-45V	-25V
V_{EBO}	Emitter - Base Voltage(I_C= 0)		–5V	
I_{CM}	Collector Peak Current		-200mA	
P_{tot}	Total Power Dissipation @ T_{amb} < 25°C		350mW	
T_J , T_{STG}	Operating and Storage Junction Temperature Range		–65 to +200°C	
THERMAL DATA				
$R_{th\text{-}j\text{-}Case}$	Thermal Resistance Junction -case		150°C/W max	
$R_{th\text{-}j\text{-}amb}$	Thermal Resistance Junction -ambient		500°C/W max	

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BCY70
BCY71
BCY72

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise stated)

Parameter		Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current (V_{BE} = 0)	V_{CE} = -20V **BCY70**			-10	nA
		V_{CE} = -50V **BCY70**			-500	nA
		V_{CE} = -20V **BCY71**			-100	nA
		V_{CE} = -45V **BCY71**			-10	µA
		V_{CE} = -20V **BCY72**			-100	nA
		V_{CE} = -25V **BCY72**			-10	µA
I_{EBO}	Emitter Cutoff Current (I_C = 0)	V_{EB} = -5V			-10	µA
$V_{CE(sat)}$*	Collector – Emitter Saturation Voltage	I_C = -10mA I_B = -1mA			-0.25	V
		I_C = -50mA I_B = -5mA			-0.5	V
$V_{BE(sat)}$*	Base – Emitter Saturation Voltage	I_C = -10mA I_B = -1mA **BCY70 AND BCY71 ONLY**	-0.6		-0.9	V
		I_C = -50mA I_B = -5mA			-1.2	V
h_{FE}*	DC Current Gain	**BCY70**				—
		I_C = -0.1mA V_{CE} = -1V	40			—
		I_C = -1mA V_{CE} = -1V	45			—
		I_C = -10mA V_{CE} = -1V	50			—
		I_C = -50mA V_{CE} = -1V	15			—
		BCY71				—
		I_C = -0.01mA V_{CE} = -1V		60		—
		I_C = -0.1mA V_{CE} = -1V	80			—
		I_C = -1mA V_{CE} = -1V	90			—
		I_C = -10mA V_{CE} = 1V	100		600	—
		I_C = -50mA V_{CE} = -1V	15			—
		BCY72				—
		I_C = -1mA V_{CE} = - 1V	40			—
		I_C = -10mA V_{CE} = -1V	50			—
h_{fe}	Small Signal Current	I_C = -1mA V_{CE} = -10V f = 1KHz	100		400	—
f_T	Transition Frequency	I_C = -0.1mA V_{CE} = -20V f = 10.7MHz **BCY71**	15			MHz
		I_C = -10mA V_{CE} = -20V f = 100MHz **BCY70**	250			MHz
		BCY71 and BCY72	200			MHz
C_{EBO}	Emitter-Base Capacitance	I_C = 0 V_{EB} = -1V f = 1MHz			8	pF
C_{CBO}	Collector-Base Capacitance	I_E = 0 V_{CB} = -10V f = 1MHz			6	pF

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ELECTRICAL CHARACTERISTICS continued (T_A = 25°C unless otherwise stated)

Parameter		Test Conditions	Min.	Typ.	Max.	Unit
NF	Noise Figure	I_C = -0.1mA V_{CE} = -5V R_g = 2KΩ f = 10 to 10000 Hz **BCY70 AND BCY71** **BCY70**			 6 2	dB
h_{ie}	Input Impedance	I_C = -1mA V_{CE} = -10V f = 1kHz **BCY71 ONLY**	2		12	KΩ
h_{re}	Reverse Voltage Ratio	I_C = -1mA V_{CE} = -10V f = 1kHz **BCY71 ONLY**			20×10^{-4}	—
h_{oe}	Output Admittance	I_C = -1mA V_{CE} = -10V f = 1kHz **BCY71 ONLY**	10		60	µS
t_d	Delay Time	I_C = -10mA V_{EE} = 3V I_{B1} = -1mA **BCY70 AND BCY72 ONLY**		23	35	ns
t_r	Rise Time	I_C = -10mA V_{EE} = 3V I_{B1} = -1mA **BCY70 AND BCY72 ONLY**		25	35	ns
t_s	Storage Time	I_C = -10mA V_{EE} = 3V $I_{B1} = -I_{B2}$ = -1mA **BCY70 AND BCY72 ONLY**		270	350	ns
t_f	Fall Time	I_C = -10mA V_{EE} = 3V $I_{B1} = -I_{B2}$ = -1mA **BCY70 AND BCY72 ONLY**		50	80	ns
t_{on}	Turn-on Time	I_C = -10mA V_{EE} = 3V I_{B1} = -1mA **BCY70 AND BCY72 ONLY**		48	65	ns
t_{off}	Turn-Off Time	I_C = -10mA V_{EE} = 3V $I_{B1} = -I_{B2}$ = -1mA **BCY70 AND BCY72 ONLY**		320	420	ns

NOTES:

* Pulse test: $t_p \leq 300\mu s$, $\delta \leq 1\%$

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