

## PNP BCY70 – BCY71 – BCY72

### SILICON PLANAR EPITAXIAL TRANSISTORS

The BCY70 - BCY79 – BCY72 are PNP transistors mounted in TO-18 metal.  
 General purpose industrial applications.  
 Low current and low voltage.  
 Compliance to RoHS.

#### ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings	Value	Unit	
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	BCY70	-40	V
		BCY71	-45	
		BCY72	-25	
$V_{CEB}$	Collector-Emitter Voltage ( $I_E = 0$ )	BCY70	-50	V
		BCY71	-45	
		BCY72	-25	
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	-5	V	
$I_C$	Collector Current	-200	mA	
$I_{CM}$	Peak Collector Current	-200	mA	
$I_{BM}$	Peak Base Current	-100	mA	
$P_D$	Total Power Dissipation	@ $T_{amb} = 25^\circ\text{C}$	390	mW
$T_J$	<i>Junction Temperature</i>	200	$^\circ\text{C}$	
$T_{Stg}$	Storage Temperature range	-65 to +150	$^\circ\text{C}$	
$T_{amb}$	Operating ambient Temperature	-65 to +150	$^\circ\text{C}$	

#### THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
$R_{thJ-a}$	Thermal Resistance Junction-ambient	500	$^\circ\text{C}/\text{W}$
$R_{thJ-c}$	Thermal Resistance, Junction-case	150	$^\circ\text{C}/\text{W}$

## PNP BCY70 – BCY71 – BCY72

### ELECTRICAL CHARACTERISTICS

T<sub>j</sub>=25°C unless otherwise specified

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit			
I <sub>CES</sub>	Collector Cutoff Current	V <sub>CB</sub> = -20 V, V <sub>BE</sub> = 0 V	BCY70	-	-	-10	nA		
			BCY71	-	-	-100			
			BCY72	-	-	-100			
I <sub>CES</sub>	Collector Cutoff Current	V <sub>CB</sub> = -50 V V <sub>BE</sub> = 0 V, T <sub>j</sub> = 150 °C	BCY70	-	-	-0.5	μA		
		V <sub>CB</sub> = -45 V V <sub>BE</sub> = 0 V, T <sub>j</sub> = 150 °C	BCY71	-	-	-10			
		V <sub>CB</sub> = -25 V V <sub>BE</sub> = 0 V, T <sub>j</sub> = 150 °C	BCY72	-	-	-10			
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>BE</sub> = -5.0 V, I <sub>C</sub> = 0	BCY70	-	-	-500	nA		
			BCY71						
			BCY72						
V <sub>CE(SAT)</sub>	Collector-Emitter saturation Voltage	I <sub>C</sub> = -10 mA, I <sub>B</sub> = -1 mA	BCY70	-	-	-0.25	V		
			BCY71						
			BCY72						
		I <sub>C</sub> = -50 mA, I <sub>B</sub> = -5 mA	BCY70	-	-	-0.5			
			BCY71						
			BCY72						
V <sub>BE(SAT)</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = -10 mA, I <sub>B</sub> = -1 mA	BCY70	-0.6	-	-0.9	V		
			BCY71						
			BCY72						
		I <sub>C</sub> = -50 mA, I <sub>B</sub> = -5 mA	BCY70	-	-	-1.2			
			BCY71						
			BCY78						
		<b>BCY70</b>		<b>BCY71</b>		<b>BCY72</b>		<b>Unit</b>	
		<b>Min</b>	<b>Max</b>	<b>Min</b>	<b>Max</b>	<b>Min</b>	<b>Max</b>		
h <sub>FE</sub>	DC Current Gain	I <sub>C</sub> = -0.1 mA V <sub>CE</sub> = -1 V	40	-	80	-	-	-	-
		I <sub>C</sub> = -1 mA V <sub>CE</sub> = -1 V	45	-	90		40	-	
		I <sub>C</sub> = -10 mA V <sub>CE</sub> = -1 V	50	-	100	600	50	-	
		I <sub>C</sub> = -50 mA V <sub>CE</sub> = -1 V	15	-	15	-	-	-	

## PNP BCY70 – BCY71 – BCY72

### ELECTRICAL CHARACTERISTICS

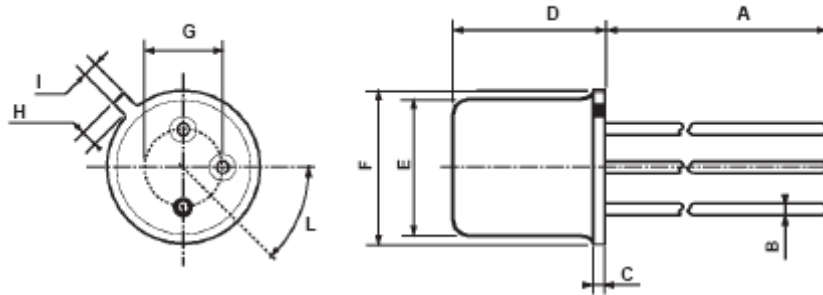
T<sub>j</sub>=25°C unless otherwise specified

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit	
<b>h<sub>fe</sub></b>	Small-Signal Current Gain	I <sub>C</sub> = -1 mA, V <sub>CE</sub> = -10 V f = 1kHz	BCY71 only	100	-	400	-
<b>f<sub>T</sub></b>	Transition frequency	I <sub>C</sub> = -0.1 mA, V <sub>CE</sub> = -20 V f = 10.7 MHz	BCY71	15	-	-	MHz
		I <sub>C</sub> = -10 mA, V <sub>CE</sub> = -20 V f = 100 MHz	BCY70	250	-	-	
			BCY71 BCY72	200	-	-	
<b>NF</b>	Noise Figure	I <sub>C</sub> = -0.1 mA, V <sub>CE</sub> = -5 V f = 10 to 10 kHz R <sub>g</sub> = 2 kΩ	BCY71	-	-	2	dB
			BCY70	-	-	6	
			BCY72	-	-	-	
<b>t<sub>d</sub></b>	Delay time	I <sub>Con</sub> = -10 mA I <sub>Bon</sub> = -I <sub>Boff</sub> = -1mA V <sub>EE</sub> = 3 V	BCY70	-	-	35	ns
<b>t<sub>r</sub></b>	Rise time		BCY72	-	-	35	
			BCY70 BCY72	-	-	35	
<b>t<sub>s</sub></b>	Storage time		BCY70	-	-	350	
			BCY72	-	-	350	
<b>t<sub>f</sub></b>	Fall time		BCY70	-	-	80	
			BCY72	-	-	80	
<b>t<sub>on</sub></b>	Turn on time		BCY70	-	-	65	
		BCY72	-	-	65		
<b>t<sub>off</sub></b>	Turn off time	BCY70	-	-	420		
		BCY72	-	-	420		
<b>C<sub>C</sub></b>	Collector-Base capacitance	I <sub>E</sub> = 0, V <sub>CB</sub> = -10 V f = 1MHz	BCY70	-	-	8	pF
			BCY71	-	-	8	
			BCY72	-	-	8	
<b>C<sub>E</sub></b>	Emitter-Base capacitance	I <sub>C</sub> = 0, V <sub>EB</sub> = -1 V f = 1MHz	BCY70	-	-	8	pF
			BCY71	-	-	8	
			BCY72	-	-	8	

## PNP BCY70 – BCY71 – BCY72

### ECHANICAL DATA CASE TO-18 (PNP)

DIMENSIONS (mm)		
	min	max
A	12.7	-
B	-	0.49
C	0.9	-
D	-	5.3
E	-	4.9
F	-	5.8
G	2.54	-
H	-	1.2
I	-	1.16
L	45°	-



Pin 1 :	emitter
Pin 2 :	base
Pin 3 :	Collector
Case :	Collector

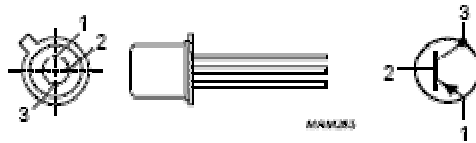


Fig. 1 Simplified outline (TO-18) and symbol.

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