

## PNP BCY78 – BCY79

### SILICON PLANAR EPITAXIAL TRANSISTORS

The BCY78 and BCY79 are PNP transistors mounted in TO-18 metal package with the collector connected to the case .

They are designed for use in audio drive and low-noise input stages.

Compliance to RoHS.

#### ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	BCY79	-45	V
		BCY78	-32	
$V_{CES}$	Collector-Emitter Voltage ( $V_{BE} = 0$ )	BCY79	-45	V
		BCY78	-32	
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	BCY79	-5	V
		BCY78	-5	
$I_C$	Collector Current	BCY79	-200	mA
		BCY78		
$I_B$	Base Current	BCY79	-20	mA
		BCY78		
$P_D$	Total Power Dissipation	@ $T_{amb} = 25^\circ$	390	mW
		BCY79		
$P_D$	Total Power Dissipation	@ $T_{case} = 45^\circ$	1	W
		BCY79		
$T_J$	Junction Temperature	BCY79	200	$^\circ C$
		BCY78		
$T_{Stg}$	Storage Temperature range	BCY79	-65 to +150	$^\circ C$
		BCY78		

#### THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
$R_{thJ-a}$	Thermal Resistance, Junction to mounting base	450	$^\circ C/W$
$R_{thJ-c}$	Thermal Resistance, Junction to ambient in free air	150	$^\circ C/W$

## PNP BCY78 – BCY79

### 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> = -35 V, V <sub>BE</sub> = 0V	-	-	-20	nA				
		BCY79								
		V <sub>CB</sub> = -25 V, V <sub>B</sub> = 0V								
		BCY78								
I <sub>CES</sub>	Collector Cutoff Current	V <sub>CB</sub> = -35 V	-	-	-10	μA				
		V <sub>BE</sub> = 0V, T <sub>j</sub> = 150°C								
		BCY79								
		V <sub>CB</sub> = -25 V								
		V <sub>BE</sub> = 0V, T <sub>j</sub> = 150°C								
		BCY78								
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>BE</sub> = -4.0 V, I <sub>C</sub> = 0	-	-	-20	nA				
							BCY79			
		BCY78								
V <sub>CEO</sub>	Collector Emitter Breakdown Voltage	I <sub>C</sub> = -2 mA, I <sub>B</sub> = 0	-45	-	-	V				
							BCY79			
		BCY78	-32	-	-					
V <sub>EBO</sub>	Emitter Base Breakdown Voltage	I <sub>E</sub> = -1 μA, I <sub>C</sub> = 0	-5	-	-	V				
							BCY79			
		BCY78								
V <sub>CE(SAT)</sub>	Collector-Emitter saturation Voltage	I <sub>C</sub> = -10 mA	-	-0.12	-0.25	V				
		I <sub>B</sub> = -0.25 mA								
		BCY79								
		BCY78								
		I <sub>C</sub> = -100 mA								
		I <sub>B</sub> = -2.5 mA								
		BCY79								
		BCY78								
V <sub>BE(SAT)</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = -10 mA	-0.6	-0.7	-0.85	V				
		I <sub>B</sub> = -0.25 mA								
		BCY79								
		BCY78								
		I <sub>C</sub> = -100 mA								
		I <sub>B</sub> = -2.5 mA								
		BCY79								
		BCY78								
V <sub>BE</sub>	Base-Emitter Voltage	I <sub>C</sub> = -10 μA	-0.6	-0.65	-0.75	V				
		V <sub>CE</sub> = -5 V								
		BCY79								
		BCY78								
		I <sub>C</sub> = -2 mA								
		V <sub>CE</sub> = -5 V								
		BCY79								
		BCY78								
		I <sub>C</sub> = -10 mA								
		V <sub>CE</sub> = -1 V								
		BCY79								
		BCY78								
		I <sub>C</sub> = -100 mA								
		V <sub>CE</sub> = -1 V								
		BCY79								
		BCY78								

Symbol	Ratings	Test Condition(s)	BCY79VII	BCY79VIII	BCY79IX	BCY79X
			BCY78VII	BCY78VIII	BCY78IX	BCY78X
h <sub>FE</sub>	DC Current Gain	I <sub>C</sub> = -10 μA, V <sub>CE</sub> = -5 V	-	>30	>40	>100
			Typ.140	Typ.200	Typ.270	Typ.390
		I <sub>C</sub> = -2 mA, V <sub>CE</sub> = -5 V	>120	>180	>250	>380
			<220	<310	<460	<630
		I <sub>C</sub> = -10 mA, V <sub>CE</sub> = -1 V	>80	>120	>160	>240
	-	<400	<630	<1000		
h <sub>fe</sub>	Small-Signal Current Gain	I <sub>C</sub> = 2 mA, V <sub>CE</sub> = 5 V f = 1kHz	>125	>175	>250	>350
			<250	<350	<500	<700

## PNP BCY78 – BCY79

### ELECTRICAL CHARACTERISTICS

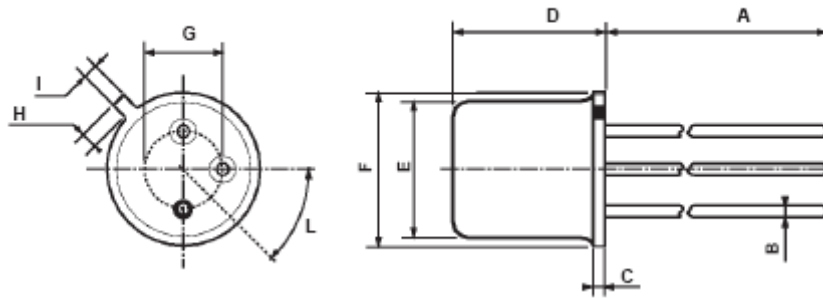
T<sub>j</sub>=25°C unless otherwise specified

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit		
f <sub>T</sub>	Transition frequency	I <sub>C</sub> = -10 mA, V <sub>CE</sub> = -5 V f = 100MHz	BCY79 BCY78	-	180	-	MHz	
F	Noise figure , RS=2kΩ	I <sub>C</sub> = -200 μA, V <sub>CE</sub> = -5 V f = 1kHz, B = 200Hz	BCY79 BCY78	-	2	6	db	
t <sub>d</sub>	Delay time	I <sub>Con</sub> = -10 mA I <sub>Bon</sub> = -I <sub>Boff</sub> = -1mA V <sub>BB</sub> = 3.6 V R1 = R2 = 5kΩ R <sub>L</sub> = 990 Ω	BCY79 BCY78	-	35	-	ns	
t <sub>r</sub>	Rise time		BCY79 BCY78	-	50	-		
t <sub>on</sub>	Turn on time		BCY79 BCY78	-	85	150		
t <sub>s</sub>	Storage time		BCY79 BCY78	-	400	-		
t <sub>f</sub>	Fall time		BCY79 BCY78	-	80	-		
t <sub>off</sub>	Turn off time		BCY79 BCY78	-	480	800		
t <sub>d</sub>	Delay time		BCY79 BCY78	-	5	-		ns
t <sub>r</sub>	Rise time		BCY79 BCY78	-	50	-		
t <sub>on</sub>	Turn on time		BCY79 BCY78	-	55	150		
t <sub>s</sub>	Storage time		BCY79 BCY78	-	250	-		
t <sub>f</sub>	Fall time	BCY79 BCY78	-	200	-			
t <sub>off</sub>	Turn off time	BCY79 BCY78	-	450	800			
C <sub>C</sub>	Collector capacitance	I <sub>E</sub> = I <sub>e</sub> = 0 , V <sub>CB</sub> = -10 V f = 1MHz	BCY79 BCY78	-	-	5	pF	
C <sub>E</sub>	Emitter capacitance	I <sub>C</sub> = I <sub>c</sub> = 0 , V <sub>EB</sub> = -0.5 V f = 1MHz	BCY79 BCY78	-	-	15	pF	

## PNP BCY78 – BCY79

### ECHANICAL DATA CASE TO-18

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

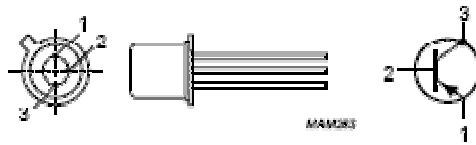


Fig.1 Simplified outline (TO-18) and symbol.

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