

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
P_D	Total Power Dissipation	@ $T_{case} = 45^\circ$	1	W
T_J	Junction Temperature	BCY79	200	$^\circ\text{C}$
		BCY78		
T_{Stg}	Storage Temperature range	BCY79	-65 to +150	$^\circ\text{C}$
		BCY78		

THERMAL CHARACTERISTICS

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

PNP BCY78 – BCY79

ELECTRICAL CHARACTERISTICS

T_j=25°C unless otherwise specified

Symbol	Ratings	Test Condition(s)		Min	Typ	Max	Unit
I _{CES}	Collector Cutoff Current	V _{CB} = -35 V, V _{BE} = 0V	BCY79	-	-	-20	nA
		V _{CB} = -25 V, V _B = 0V	BCY78				
I _{CES}	Collector Cutoff Current	V _{CB} = -35 V V _{BE} = 0V, T _j = 150°C	BCY79	-	-	-10	μA
		V _{CB} = -25 V V _{BE} = 0V, T _j = 150°C	BCY78				
I _{EBO}	Emitter Cutoff Current	V _{BE} = -4.0 V, I _C = 0	BCY79	-	-	-20	nA
			BCY78				
V _{CEO}	Collector Emitter Breakdown Voltage	I _C = -2 mA, I _B = 0	BCY79	-45	-	-	V
			BCY78	-32	-	-	
V _{EBO}	Emitter Base Breakdown Voltage	I _E = -1μA, I _C = 0	BCY79	-5	-	-	V
			BCY78				
V _{CE(SAT)}	Collector-Emitter saturation Voltage	I _C = -10 mA I _B = -0.25 mA	BCY79	-	-0.12	-0.25	V
			BCY78				
		I _C = -100 mA I _B = -2.5 mA	BCY79	-	-0.4	-0.8	
			BCY78				
V _{BE(SAT)}	Base-Emitter Saturation Voltage	I _C = -10 mA I _B = -0.25 mA	BCY79	-0.6	-0.7	-0.85	
			BCY78				
		I _C = -100 mA I _B = -2.5 mA	BCY79	-0.7	-0.85	-1.2	
			BCY78				
V _{BE}	Base-Emitter Voltage	I _C = -10 μA V _{CE} = -5 V	BCY79	-	-0.55	-	V
			BCY78				
		I _C = -2 mA V _{CE} = -5 V	BCY79	-0.6	-0.65	-0.75	
			BCY78				
		I _C = -10 mA V _{CE} = -1 V	BCY79	-	-0.68	-	
			BCY78				
		I _C = -100 mA V _{CE} = -1 V	BCY79	-	-0.75	-	
			BCY78				

Symbol	Ratings	Test Condition(s)	BCY79VII	BCY79VIII	BCY79IX	BCY79X
			BCY78VII	BCY78VIII	BCY78IX	BCY78X
h _{FE}	DC Current Gain	I _C = -10 μA, V _{CE} = -5 V	-	>30	>40	>100
			Typ.140	Typ.200	Typ.270	Typ.390
		I _C = -2 mA, V _{CE} = -5 V	>120	>180	>250	>380
			<220	<310	<460	<630
		I _C = -10 mA, V _{CE} = -1 V	>80	>120	>160	>240
h _{fe}	Small-Signal Current Gain	I _C = -100 mA, V _{CE} = -1 V	-	<400	<630	<1000
			>40	>45	>60	>60
		I _C = 2 mA, V _{CE} = 5 V f = 1kHz	>125	>175	>250	>350
			<250	<350	<500	<700

PNP BCY78 – BCY79

ELECTRICAL CHARACTERISTICS

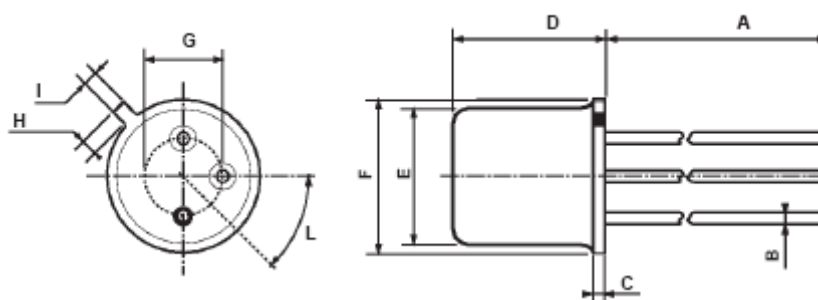
T_j=25°C unless otherwise specified

Symbol	Ratings	Test Condition(s)		Min	Typ	Max	Unit		
f _T	Transition frequency	I _C =-10 mA, V _{CE} =-5 V f = 100MHz	BCY79 BCY78	-	180	-	MHz		
F	Noise figure , RS=2kΩ	I _C =-200 μA, V _{CE} =-5 V f = 1kHz, B =200Hz	BCY79 BCY78	-	2	6	db		
t _d	Delay time	I _{Con} =-10 mA I _{Bon} = -I _{Boff} = -1mA V _{BB} =3.6 V R1= R2 = 5kΩ R _L = 990 Ω	BCY79 BCY78	-	35	-	ns		
t _r	Rise time		BCY79 BCY78	-	50	-			
t _{on}	Turn on time		BCY79 BCY78	-	85	150			
t _s	Storage time		BCY79 BCY78	-	400	-			
t _f	Fall time		BCY79 BCY78	-	80	-			
t _{off}	Turn off time		BCY79 BCY78	-	480	800			
t _d	Delay time		I _{Con} =-100 mA I _{Bon} = -I _{Boff} = -10mA V _{BB} =5 V R1= 500Ω R2 = 700Ω R _L = 98 Ω	BCY79 BCY78	-	5		-	ns
t _r	Rise time			BCY79 BCY78	-	50		-	
t _{on}	Turn on time			BCY79 BCY78	-	55		150	
t _s	Storage time	BCY79 BCY78		-	250	-			
t _f	Fall time	BCY79 BCY78		-	200	-			
t _{off}	Turn off time	BCY79 BCY78		-	450	800			
C _C	Collector capacitance	I _E = I _e = 0 ,V _{CB} =-10 V f = 1MHz		BCY79 BCY78	-	-	5	pF	
C _E	Emitter capacitance	I _C = I _c = 0 ,V _{EB} =-0.5 V f = 1MHz		BCY79 BCY78	-	-	15	pF	

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MECHANICAL 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

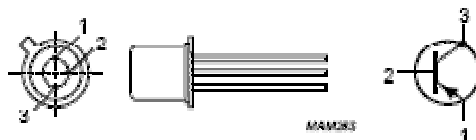


Fig.1 Simplified outline (TO-18) and symbol.

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