

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	$^\circ\text{C}$
		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	$^\circ\text{C}/\text{W}$
R_{thJ-c}	Thermal Resistance, Junction to ambient in free air	150	$^\circ\text{C}/\text{W}$

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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	-	-	-20	nA				
		BCY79								
		V _{CB} = -25 V, V _B = 0V								
		BCY78								
I _{CES}	Collector Cutoff Current	V _{CB} = -35 V	-	-	-10	μA				
		V _{BE} = 0V, T _j = 150°C								
		BCY79								
		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	-	-	-20	nA				
							BCY79			
		BCY78								
V _{CEO}	Collector Emitter Breakdown Voltage	I _C = -2 mA, I _B = 0	-45	-	-	V				
							BCY79			
		BCY78	-32	-	-					
V _{EBO}	Emitter Base Breakdown Voltage	I _E = -1 μA, I _C = 0	-5	-	-	V				
							BCY79			
		BCY78								
V _{CE(SAT)}	Collector-Emitter saturation Voltage	I _C = -10 mA	-	-0.12	-0.25	V				
		I _B = -0.25 mA								
		BCY79								
		BCY78								
		I _C = -100 mA								
		I _B = -2.5 mA								
		BCY79								
		BCY78								
V _{BE(SAT)}	Base-Emitter Saturation Voltage	I _C = -10 mA	-0.6	-0.7	-0.85	V				
		I _B = -0.25 mA								
		BCY79								
		BCY78								
		I _C = -100 mA								
		I _B = -2.5 mA								
		BCY79								
		BCY78								
V _{BE}	Base-Emitter Voltage	I _C = -10 μA	-0.6	-0.65	-0.75	V				
		V _{CE} = -5 V								
		BCY79								
		BCY78								
		I _C = -2 mA								
		V _{CE} = -5 V								
		BCY79								
		BCY78								
		I _C = -10 mA								
		V _{CE} = -1 V								
		BCY79								
		BCY78								
		I _C = -100 mA								
		V _{CE} = -1 V								
		BCY79								
		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
	-	<400	<630	<1000		
h _{fe}	Small-Signal Current Gain	I _C = 2 mA, V _{CE} = 5 V f = 1kHz	>125	>175	>250	>350
			<250	<350	<500	<700

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ELECTRICAL CHARACTERISTICS

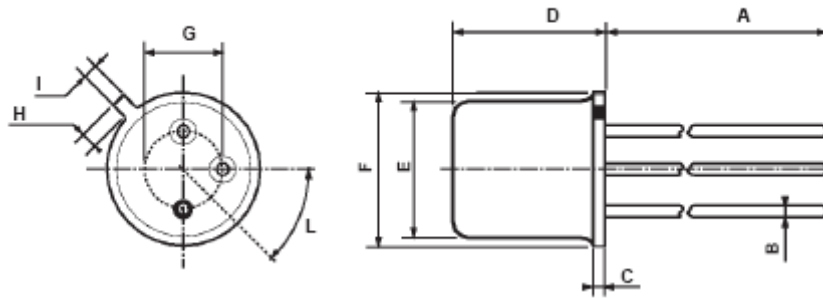
T_j=25°C unless otherwise specified

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

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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

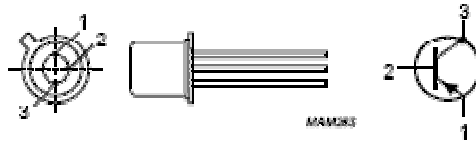


Fig.1 Simplified outline (TO-18) and symbol.

Revised September 2012

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