

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
		BCY78		
P_D	Total Power Dissipation	@ $T_{case} = 45^\circ$	1	Watts
		BCY78		
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	BCY79	450	$^\circ\text{C/W}$
		BCY78		
R_{thJ-c}	Thermal Resistance, Junction to ambient in free air	BCY79	150	$^\circ\text{C/W}$
		BCY78		

PNP BCY78 – BCY79

ELECTRICAL CHARACTERISTICS

T_j=25°C unless otherwise specified

Symbol	Ratings	Test Condition(s)	Min	Typ	Mx	Unit	
I _{CEC}	Collector Cutoff Current	V _{CB} = -35 V, V _{BE} = 0V	BCY79	-	-	-20	nA
		V _{CB} = -25 V, V _B = 0V	BCY78				
I _{CEC}	Collector Cutoff Current	V _{CB} = -35 V	BCY79	-	-	-10	μA
		V _{BE} = 0V, T _j = 150°C	BCY78				
I _{EBO}	Emitter Cutoff Current	V _{CB} = -25 V	BCY79	-	-	-	nA
		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	-	-0.04	-0.08	
			BCY78				
V _{BE(SAT)}	Base-Emitter Saturation Voltage	I _C = -10 mA, I _B = -0.25 mA	BCY79	-0.6	-0.7	-0.85	V
			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				

			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
I _C = -100 mA, V _{CE} = -1 V	-	<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

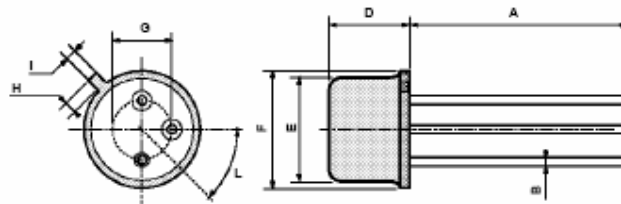
PNP BCY78 – BCY79

Symbol	Ratings	Test Condition(s)	Min	Typ	Mx	Unit	
f_T	Transition frequency	$I_C = -10 \text{ mA}$, $V_{CE} = -5 \text{ V}$ $f = 100 \text{ MHz}$	BCY79 BCY78	-	180	-	MHz
F	Noise figure , $R_S = 2 \text{ k}\Omega$	$I_C = -200 \mu\text{A}$, $V_{CE} = -5 \text{ V}$ $f = 1 \text{ kHz}$, $B = 200 \text{ Hz}$	BCY79 BCY78	-	2	6	db
t_d	Delay time	$I_{Con} = -10 \text{ mA}$ $I_{Bon} = -I_{Boff} = -1 \text{ mA}$ $V_{BB} = 3.6 \text{ V}$ $R_1 = R_2 = 5 \text{ k}\Omega$ $R_L = 990 \Omega$	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		$I_{Con} = -100 \text{ mA}$ $I_{Bon} = -I_{Boff} = -10 \text{ mA}$ $V_{BB} = 5 \text{ V}$ $R_1 = 500 \Omega$ $R_2 = 700 \Omega$ $R_L = 98 \Omega$	BCY79 BCY78	-	5	
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	$I_E = I_e = 0$, $V_{CB} = -10 \text{ V}$ $f = 1 \text{ MHz}$		BCY79 BCY78	-	-	5
C_E	Emitter capacitance	$I_C = I_c = 0$, $V_{EB} = -0.5 \text{ V}$ $f = 1 \text{ MHz}$	BCY79 BCY78	-	-	15	pF

PNP BCY78 – BCY79

MECHANICAL DATA CASE TO-18

DIMENSIONS		
	mm	inches
A	12,7	0,5
B	0,49	0,019
D	5,3	0,208
E	4,9	0,193
F	5,8	0,228
G	2,54	0,1
H	1,2	0,047
I	1,16	0,045
L	45°	45°



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

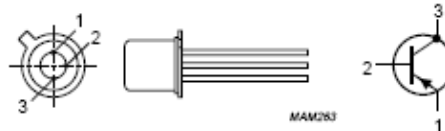


Fig.1 Simplified outline (TO-18) and symbol.

Information furnished is believed to be accurate and reliable. However, CS assumes no responsibility for the consequences of use of such information nor for errors that could appear.

Data are subject to change without notice.