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°	BCY79	390	mW
			BCY78		
P_D	Total Power Dissipation	@ T_{case}= 45°	BCY79	1	W
			BCY78		
T_J	Junction Temperature		BCY79	200	°C
			BCY78		
T_{Stg}	Storage Temperature range		BCY79	-65 to +150	°C
			BCY78		

THERMAL CHARACTERISTICS

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

PNP BCY78 – BCY79

ELECTRICAL CHARACTERISTICS

Tj=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	-	-04	-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	
			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 BCY78VII	BCY79VIII BCY78VIII	BCY79IX BCY78IX	BCY79X 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
		I_C =-100 mA, V_{CE} =-1 V	>40	>45	>60	>60
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

ELECTRICAL CHARACTERISTICS

Tj=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

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

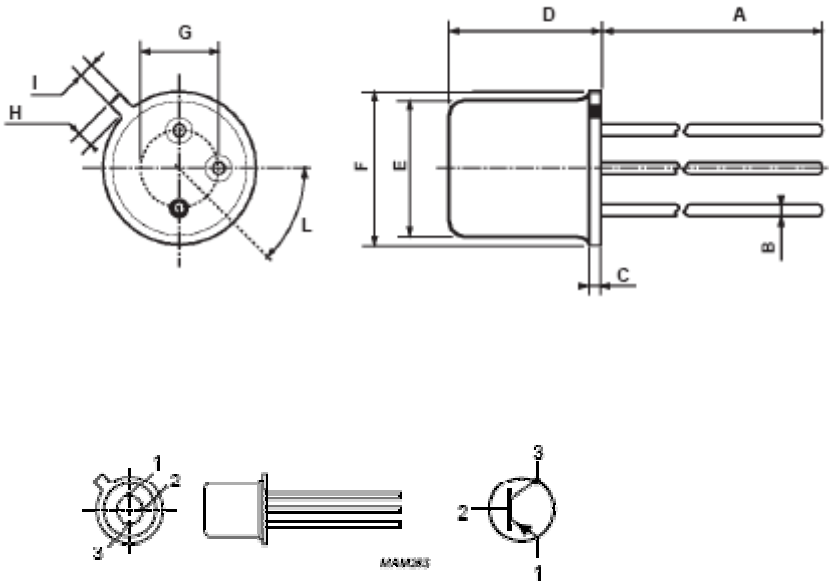

Fig.1 Simplified outline (TO-18) and symbol.

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