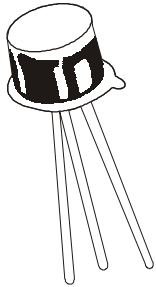


**PNP COMPLEMENTARY SILICON PLANAR EPITAXIAL TRANSISTORS**

**BCY77, BCY78  
BCY79  
TO-18**



**Complementary BCY58/59**

**ABSOLUTE MAXIMUM RATINGS**

DESCRIPTION	SYMBOL	BCY77	BCY78	BCY79	UNIT
Collector -Emitter Voltage	VCEO	60	32	45	V
Collector -Emitter Voltage	VCES	60	32	45	V
Emitter -Base Voltage	VEBO	5.0	5.0	5.0	V
Collector Current Continuous	IC	100	200	200	mA
Base Current Continuous	IB	50	50	50	mA
Power Dissipation@ Ta=25 degC	PD		600		mW
@ TC=45 deg C			1.0		W
Operating And Storage Junction Temperature Range	Tj, Tstg		-65 to +200		deg C
<b>THERMAL RESISTANCE</b>					
Junction to Ambient in Free Air	Rth(j-a)		450		K/W
Junction to Case	Rth(j-c)		150		K/W

**ELECTRICAL CHARACTERISTICS (Ta=25 deg C Unless Otherwise Specified)**

DESCRIPTION	SYMBOL	TEST CONDITION	BCY77	BCY78	BCY79	UNIT
Collector -Emitter Voltage	VCEO	IC=2mA, IB=0	>60	>32	>45	V
Collector -Emitter Voltage	VCES	IC=10uA, VBE=0	>60	>32	>45	V
Emitter-Base Voltage	VEBO	IE=1uA, IC=0	>5.0	>5.0	>5.0	V
Collector-Cut off Current	ICES	VCE=VCE max, VBE=0	<100	<100	<100	nA
		VCE=50V, VBE=0	<20	-	.-	nA
		VCE=25V, VBE=0	-	<20	-	nA
		VCE=35V, VBE=0	-	-	<20	nA
		TA=150 deg C				
Emitter Cut off Current	ICEX	VCE=60V, VBE=0	<10	-	.-	uA
		VCE=25V, VBE=0	-	<10	-	uA
		VCE=35V, VBE=0	-	-	<10	uA
		VCE=VCE, max	<20	<20	<20	uA
		VBE=0.2V, Ta=100 deg C				
Emitter Cut off Current	IEBO	VEB=4V, IC=0	<20	<20	<20	nA
Base Emitter on Voltage	VBE(on)	IC=10uA, VCE=5V		TYP 0.55		V
		IC=2mA, VCE=5V		0.6 to 0.75		V
		IC=10mA, VCE=1V		TYP 0.68		V
		IC=50mA, VCE=1V (2)		TYP 0.72		V
		IC=100mA, VCE=1V (1)		TYP 0.75		V

ELECTRICAL CHARACTERISTICS (Ta=25 deg C Unless Otherwise Specified)			BCY77-79		
DESCRIPTION	SYMBOL	TEST CONDITION	VALUE	UNIT	
<b>Collector Emitter Saturation Voltage</b>	VCE(Sat)	IC=10mA, IB=0.25mA	<0.25	V	
		IC=50mA, IB=1.25mA (2)	<0.80	V	
		IC=100mA, IB=2.5mA (1)	<0.80	V	
<b>Base Emitter Saturation Voltage</b>	VBE(Sat)	IC=10mA, IB=0.25mA	0.60-0.85	V	
		IC=50mA, IB=1.25mA (2)	0.70-1.2	V	
		IC=100mA, IB=2.5mA (1)	0.70-1.2	V	
<b>DC Current</b>	hFE	IC=10uA, VCE=5V	<b>7</b>	TYP140	
			<b>8</b>	>30	
			<b>9</b>	>40	
			<b>10</b>	>100	
			<b>Only BCY78/79</b> IC=2mA, VCE=5V	<b>7</b>	120-220
				<b>8</b>	180-310
				<b>9</b>	250-460
			<b>Only BCY78/79</b> IC=10mA, VCE=1V	<b>10</b>	380-630
				<b>7</b>	>80
				<b>8</b>	120-400
			<b>9</b>	160-630	
			<b>Only BCY78/79</b> IC=100mA, VCE=1V (1)	<b>10</b>	240-1000
				<b>7</b>	>40
				<b>8</b>	>45
			<b>9</b>	>60	
<b>Only BCY78/79</b> IC=50mA, VCE=1V (2)	<b>10</b>	>60			
	<b>7</b>	>40			
	<b>8</b>	>45			
<b>9</b>	>60				
<b>Small Signal Current Gain</b>	hfe	IC=2mA, VCE=5V, f=1kHz	<b>7</b>	125-250	
			<b>8</b>	175-350	
			<b>9</b>	250-500	
			<b>10</b>	350-700	
			<b>Only BCY78/79</b>	<b>10</b>	350-700
<b>Input Impedance</b>	hie	IC=2mA, VCE=5V, f=1kHz	<b>7</b>	1.6-4.5	
			<b>8</b>	2.5-6.0	
			<b>9</b>	3.2-8.5	
			<b>10</b>	TYP 7.5	
<b>Voltage Feedback Ratio</b>	hre	IC=2mA, VCE=5V, f=1kHz	<b>7</b>	TYP1.5	
			<b>8</b>	TYP2.0	
			<b>9</b>	TYP2.0	
			<b>10</b>	TYP 3.0	
<b>Output Admittance</b>	hoe	IC=2mA, VCE=5V, f=1kHz	<b>7</b>	<30	
			<b>8</b>	<50	
			<b>9</b>	<60	
			<b>10</b>	<100	
			<b>Only BCY78/79</b>	<b>10</b>	<100

**ELECTRICAL CHARACTERISTICS (Ta=25 deg C Unless Otherwise Specified)****BCY77-79**

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Noise Figure	NF	VCE=5V, IC=0.2mA RS=2khoms, f=1kHz, B=200Hz		<6.0		dB
Transition Frequency	ft	VCE=5V, IC=10mA, f=100MHz		TYP180		MHz
Collector base Capacitance	Ccbo	VCB=10V, IE=0, f=1MHz		<7.0		pF
Emitter base Capacitance	Cebo	VEB=0.5V, IC=0, f=1MHz		<15		pF

**SWITCHING CHARACTERISTICS****BCY77/78/79**

Delay time	td		-	35	-	ns
Rise time	tr	IC=10mA, IB1=IB2=1mA	-	50	-	ns
Turn on time	ton	VBB=3.6V, R1=R2=5kohms	-	-	150	ns
Storage time	ts	RL=990 ohms	-	400	-	ns
Fall time	tf		-	80	-	ns
Turn off time	toff		-	-	800	ns

**BCY78/79**

Delay Time	td		-	5.0	-	ns
Rise Time	tr	IC=100mA, IB1=1B2=10mA	-	50	-	ns
Turn-on time	ton	R1=500 ohms, R2=700 ohms	-	-	150	ns
Storage Time	ts	RL=98 ohms, VBB=5V	-	250	-	ns
Fall time	tf		-	200	-	ns
Turn-Off time	toff		-	-	800	ns

**BCY77**

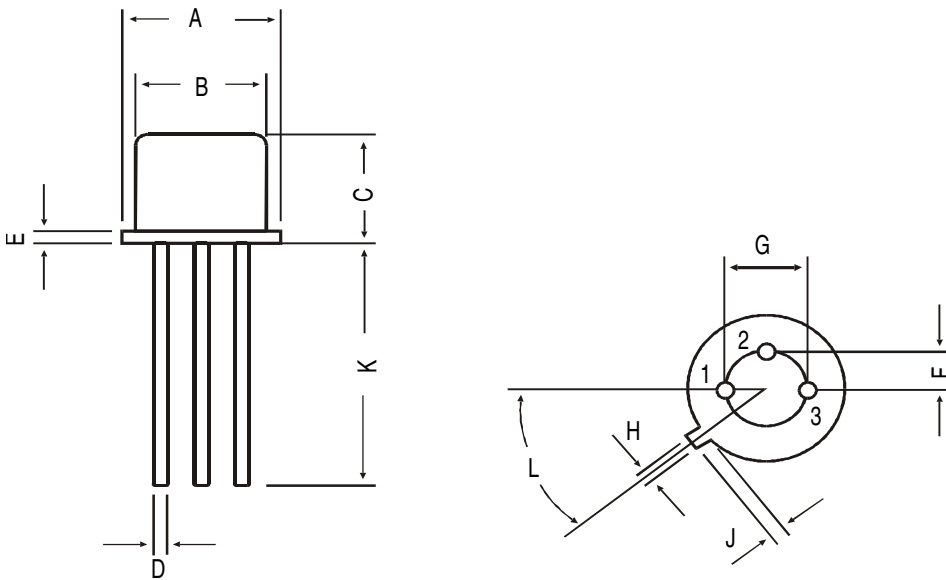
Delay Time	td		-	15	-	ns
Rise Time	tr	IC=50mA, IB1=1B2=5mA	-	50	-	ns
Turn-on time	ton	R1=1kohms, R2=1.3kohms	-	-	150	ns
Storage Time	ts	RL=195 ohms, VBB=4.7V	-	300	-	ns
Fall time	tf		-	150	-	ns
Turn-Off time	toff		-	-	800	ns

(1) ONLY BCY78/79

(2) ONLY BCY77

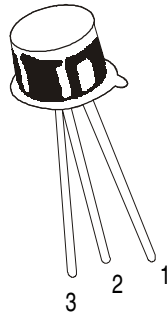
Pulse Test : Pulse Width=300us, Duty Cycle=2%

## TO-18 Metal Can Package



All dimensions in mm.

DIM	MIN	MAX
A	5.24	5.84
B	4.52	4.97
C	4.31	5.33
D	0.40	0.53
E	—	0.76
F	—	1.27
G	—	2.97
H	0.91	1.17
J	0.71	1.21
K	12.70	—
L	45 DEG	



### PIN CONFIGURATION

1. EMITTER
2. BASE
3. COLLECTOR

## Packing Detail

PACKAGE	STANDARD PACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr Wt
TO-18	1K/polybag	350 gm/1K pcs	3" x 7.5" x 7.5"	5.0K	17" x 15" x 13.5"	80.0K	34 kgs

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