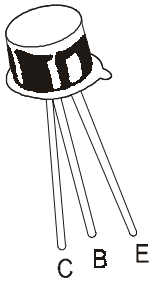
PNP SILICON PLANAR EPITAXIAL TRANSISTORS

BCY70 , 71, 72



TO-18
Metal Can Package

General Purpose Industrial Applications.

ABSOLUTE MAXIMUM RATINGS (Ta=25ºC unless specified otherwise)

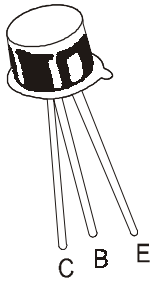
DESCRIPTION	SYMBOL	BCY70	BCY71	BCY72	UNIT
Collector Emitter Voltage	V_{CEO}	40	45	25	V
Collector Base Voltage	V_{CBO}	50	45	30	V
Emitter Base Voltage	V_{EBO}	5	5	5	V
Collector Current Continuous	I_C		200		mA
Collector Current Peak	I_{CM}		200		mA
Power Dissipation @Ta=25ºC	P_D		350		mW
Derate Above 25ºC			2		mW/ºC
Operating Storage and Junction Temperature Range	T_{stg}		-65 to +200		ºC

THERMAL RESISTANCE

Junction to Ambient	$R_{th(j-a)}$		500		ºC/W
Junction to Case	$R_{th(j-c)}$		150		ºC/W

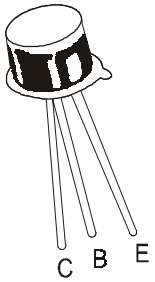
ELECTRICAL CHARACTERISTICS (Ta=25ºC unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	VALUE			UNIT
			BCY70	BCY71	BCY72	
Collector Emitter Breakdown Voltage	BV_{CEO}	I_C=1mA,I_B=0	>40	>45	>25	V
Collector Base Breakdown Voltage	BV_{CBO}	I_C=100µA.I_E=0	>50	>45	>30	V
Emitter Base Breakdown Voltage	BV_{EBO}	I_E=100µA, I_C=0	>5	>5	>5	V
Collector Cut off Current	I_{CBO}	V_{CB}=40V, I_E=0	<10	<50		nA
		V_{CB}=25V, I_E=0			<50	nA
		V_{CB}=40V, I_E=0	<0.5	<2.0		µA
		Tj = 100ºC				
		V_{CB}=25V, I_E=0			<2	µA
		Tj = 100ºC				
		V_{CB}=V_{CBO} MAX, I_E=0	<500	<500	<500	nA
Collector Cut off Current	I_{CEX}	V_{CE} =50V, V_{EB} =3V	<20			nA



TO-18
Metal Can Package

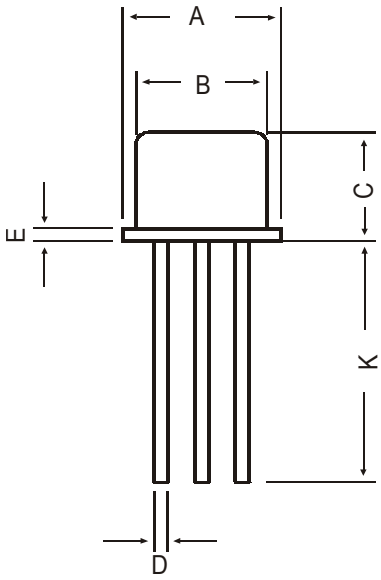
DESCRIPTION	SYMBOL	TEST CONDITION	VALUE MIN	VALUE TYP	VALUE MAX	UNIT
Emitter Cut off Current	I_{EBO}	V_{EB}=4V, I_C=0			10	nA
		V_{EB}=4V, I_C=0, Tj =100ºC			2	µA
		V_{EB}=54V, I_C=0			500	nA
DC Current Gain	h_{FE}	I_C=10µA,V_{CE}=1V	60			
		I_C=100µA,V_{CE}=1V	80			
		I_C=1mA,V_{CE}=1V	100			
BCY70		I_C=10mA,V_{CE}=1V	100			
BCY71			100		400	
		I_C=50mA,V_{CE}=1V	45			
Collector Emitter Saturation Voltage	$V_{CE(Sat)}$	I_C=10mA,I_B=1mA			250	mV
		I_C=50mA,I_B=5mA			500	mV
Base Emitter Saturation Voltage	$V_{BE(Sat)}$	I_C=10mA,I_B=1mA	600		900	V
		I_C=50mA,I_B=5mA			1.2	V
DYNAMIC CHARACTERISTICS						
Transition Frequency	f_T	I_C=10mA, V_{CE}=20V f=100MHz	250			MHz
BCY71		I_C=100µA, V_{CE}=20V f=10.7MHz	15			MHz
Collector Capacitance	C_c	V_{CB}=10V, I_E=0, f=1MHz			6.0	pF
Emitter Capacitance	C_e	V_{EB}=1.0V, f=1MHz, I_C=0			8.0	pF
Noise Figure	NF	I_C=0.1mA, V_{CE}=5V				
BCY70, 72		Rs=2KΩ, f=10Hz to 10KHz			6	dB
BCY71					2	dB
Input Impedance	h_{ie}	I_C=10mA, V_{CE}=10V, f=1KHz		4.0		KΩ
Reverse Voltage Transfer Ratio	h_{re}	I_C=10mA, V_{CE}=10V, f=1KHz		2.1		$x10^{-4}$
Small Signal Current Gain	$\lvert h_{fe} \rvert$	I_C=10mA, V_{CE}=10V, f=1KHz		325		
Out put Admittance	h_{oe}	I_C=10mA, V_{CE}=10V, f=1KHz		20		µmhos

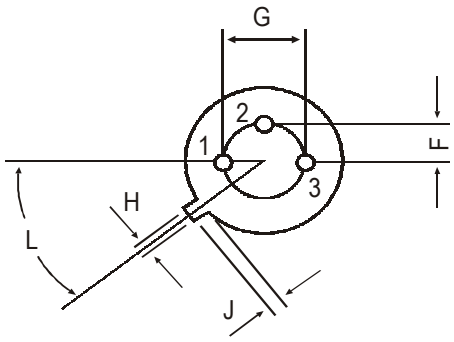


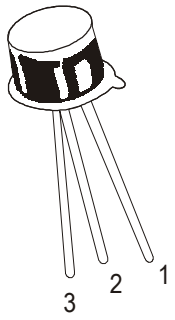
TO-18
Metal Can Package

DESCRIPTION	SYMBOL	TEST CONDITION	VALUE			UNIT
			MIN	TYP	MAX	
SWITCHING CHARACTERISTICS						
Delay time	t_d	I_C=10mA,I_{Bon}=I_{BOff}=1mA			35	ns
Rise time	t_r	I_C=10mA,I_{Bon}=I_{BOff}=1mA			35	ns
Turn on Time	t_{on}	I_C=10mA,I_{Bon}=I_{BOff}=1mA			65	
Storage time	t_s	I_C=10mA,I_{Bon}=I_{BOff}=1mA			350	ns
Fall time	t_f	I_C=10mA,I_{Bon}=I_{BOff}=1mA			80	ns
Turn Off Time	t_{off}	I_C=10mA,I_{Bon}=I_{BOff}=1mA			420	ns

TO-18 Metal Can Package







PIN CONFIGURATION
1. EMITTER
2. BASE
3. COLLECTOR

All diminsions 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	

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"	5K	17" x 15" x 13.5"	80K	34 kgs

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CDIL is a registered Trademark of
Continental Device India Limited
C-120 Naraina Industrial Area, New Delhi 110 028, India.
Telephone + 91-11-579 6150 Fax + 91-11-579 9569, 579 5290
e-mail sales@cdil.com www.cdil.com