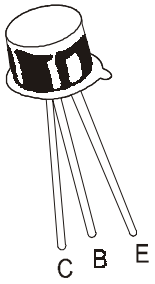
PNP SILICON PLANAR EPITAXIAL TRANSISTORS

BCY70 , 71, 72



TO-18
Metal Can Package

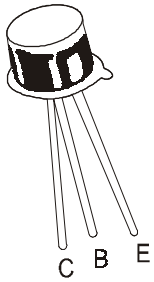
General Purpose Industrial Applications.

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

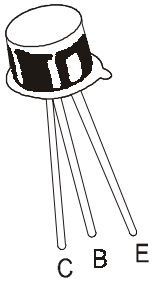
ELECTRICAL CHARACTERISTICS (Ta=25ºC unless specified otherwise)

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 Tj = 100ºC	<0.5	<2.0		µA
		V_{CB}=25V, I_E=0 Tj = 100ºC			<2	µA
		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

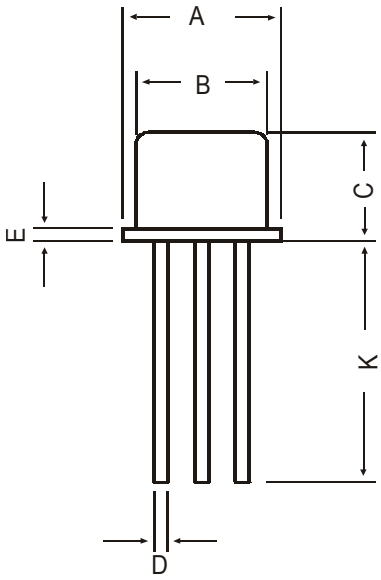
DESCRIPTION	SYMBOL	TEST CONDITION	VALUE MIN	VALUE TYP	VALUE MAX	UNIT
Emitter Cut off Current	I_{EBO}	V_{EB}=4V, I_C=0			10	nA
		V_{EB}=4V, I_C=0, Tj =100ºC			2	µA
		V_{EB}=54V, I_C=0			500	nA
DC Current Gain	h_{FE}	I_C=10µA,V_{CE}=1V	60			
		I_C=100µA,V_{CE}=1V	80			
		I_C=1mA,V_{CE}=1V	100			
BCY70		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

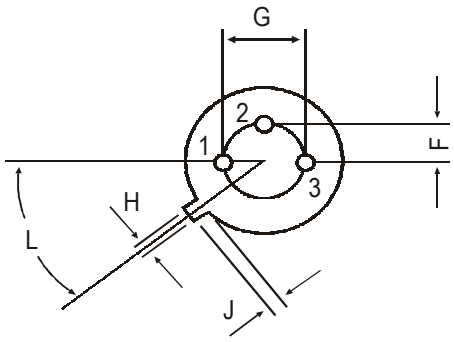


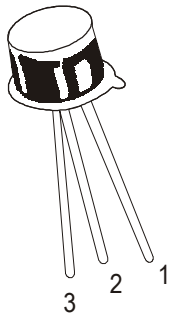
TO-18
Metal Can Package

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

Disclaimer

The product information and the selection guides facilitate selection of the CDIL's Discrete Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review our Data Sheet(s) so as to confirm that the Device(s) meet functionality parameters for your application. The information furnished in the Data Sheet and on the CDIL Web Site/CD is believed to be accurate and reliable. CDIL however, does not assume responsibility for inaccuracies or incomplete information. Furthermore, CDIL does not assume liability whatsoever, arising out of the application or use of any CDIL product; neither does it convey any license under its patent rights nor rights of others. These products are not designed for use in life saving/support appliances or systems. CDIL customers selling these products (either as individual Discrete Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and CDIL will not be responsible for any damages resulting from such sale(s).

CDIL strives for continuous improvement and reserves the right to change the specifications of its products without prior notice.

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