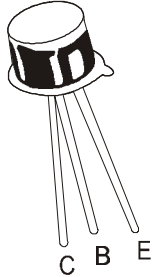


NPN SILICON PLANAR TRANSISTORS



BCY56
BCY57

TO-18
Metal Can Package

For General Purpose, Very High Gain Low Level and Low Noise Applications

ABSOLUTE MAXIMUM RATINGS

DESCRIPTION	SYMBOL	BCY56	BCY57	UNIT
Collector Emitter Voltage	V_{CEO}	45	20	V
Collector Base Voltage	V_{CBO}	45	25	V
Emitter Base Voltage	V_{EBO}	5		V
Collector Current Continuous	I_C	100		mA
Collector Current Peak	I_{CM}	100		mA
Power Dissipation @ $T_a=25^\circ\text{C}$ Derate Above 25°C	P_D	300	2	mW mW/°C
Power Dissipation @ $T_c=25^\circ\text{C}$ Derate Above 25°C	P_D	750	5	mW mW/°C
Operating and Storage Junction Temperature Range	T_j, T_{stg}	- 65 to +175		°C

THERMAL CHARACTERISTICS

Junction to Ambient in free air	$R_{th(j-a)}$	500	°C/W
Junction to Case	$R_{th(j-c)}$	200	°C/W

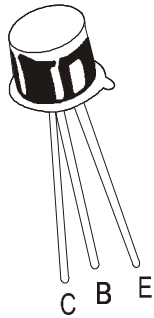
ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$ unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	BCY56	BCY57	UNIT
Collector Emitter Voltage	V_{CEO}	$I_C=1\text{mA}, I_B=0$	>45	>20	V
Collector Base Voltage	V_{CBO}	$I_C=100\mu\text{A}, I_E=0$	>45	>25	V
Emitter Base Voltage	V_{EBO}	$I_E=100\mu\text{A}, I_C=0$	>5		V
Collector Cut off Current	I_{CBO}	$V_{CB}=20\text{V}, I_E=0$	<100		nA
Emitter Cut off Current	I_{EBO}	$V_{EB}=5\text{V}, I_C=0$	<100		nA
Base Emitter on Voltage	$V_{BE(on)}$	$I_C=2\text{mA}, V_{CE}=5\text{V}$	0.6 - 0.7		V
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=10\text{mA}, I_B=1\text{mA}$ $*I_C=100\text{mA}, I_B=10\text{mA}$	Typ 0.08 Typ 0.20		V V
DC Current Gain	h_{FE}	$I_C=10\mu\text{A}, V_{CE}=5\text{V}$ BCY56 BCY57 $I_C=2\text{mA}, V_{CE}=5\text{V}$ BCY56 BCY57	>40 >100 100 - 450 200 - 800		

*Pulse Test: Pulse width $\leq 300\text{ms}$, Duty cycle $\leq 2\%$

NPN SILICON PLANAR TRANSISTORS

**BCY56
BCY57**



**TO-18
Metal Can Package**

ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$ unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
DC Current Gain	h_{FE}	$I_C=10\text{mA}, V_{CE}=5\text{V}$				
		BCY56 BCY57	100 200			

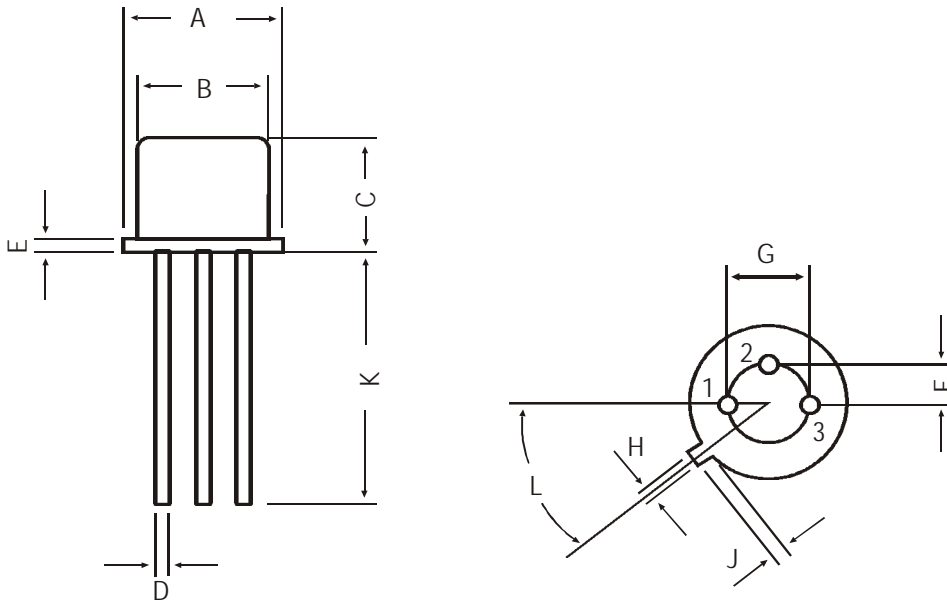
DYNAMIC CHARACTERISTICS

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Small Signal Current Gain	h_{fe}	$I_C=2\text{mA}, V_{CE}=5\text{V}, f=1\text{kHz}$				
		BCY56 BCY57	125 240		500 900	
Input Impedance	h_{ie}	$I_C=2\text{mA}, V_{CE}=5\text{V}, f=1\text{kHz}$				
		BCY56 BCY57		3.5 7.5		$\text{k}\Omega$ $\text{k}\Omega$
Reverse Voltage Transfer Ratio	h_{re}	$I_C=2\text{mA}, V_{CE}=5\text{V}, f=1\text{kHz}$				
		BCY56 BCY57		1.75 3.50		$\times 10^{-4}$ $\times 10^{-4}$
Output Admittance	h_{oe}	$I_C=2\text{mA}, V_{CE}=5\text{V}, f=1\text{kHz}$				
		BCY56 BCY57		17.5 35.0		μS μS
Noise Figure	NF	$I_C=0.2\text{mA}, V_{CE}=5\text{V}, R_g=2\text{k}\Omega,$ $f=30\text{kHz to } 15.7\text{kHz}$			5.0	dB
Transition frequency	f_T	$I_C=0.5\text{mA}, V_{CE}=5\text{V}, f=100\text{MHz}$		85		MHz
			BCY56 BCY57		100	
		$I_C=10\text{mA}, V_{CE}=5\text{V}, f=100\text{MHz}$		250		MHz
			BCY56 BCY57		350	
Collector Capacitance	C_C	$V_{CB}=5\text{V}, I_E=0, f=1\text{MHz}$		4.5		pF

**BCY56
BCY57**

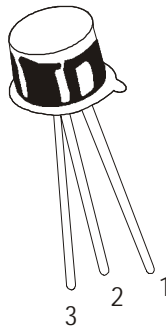
**TO-18
Metal Can Package**

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 Details

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 are 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).

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