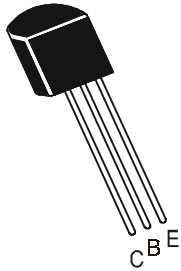


## SILICON PLANAR EPITAXIAL TRANSISTORS



BC 307, A, B, C  
BC 308, A, B, C  
BC 309, A, B, C

TO-92  
Plastic Package

General Purpose Transistors Deisgned For Small Signal Amplification

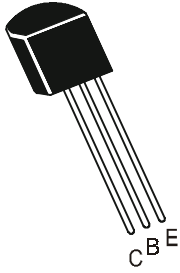
From DC To Low Radio Frequencies

### ABSOLUTE MAXIMUM RATINGS (Ta=25°C unless specified otherwise)

DESCRIPTION	SYMBOL	BC307	BC308	BC309	UNITS
Collector Emitter Voltage	$V_{CEO}$	45	25	25	V
Collector Base Voltage	$V_{CBO}$	50	30	30	V
Emitter Base Voltage	$V_{EBO}$	5	5	5	V
Collector Current Continuous	$I_C$		100		mA
Power Dissipation@ Ta=25°C	$P_D$		350		mW
Derate Above 25°C			2.8		mW/°C
Power Dissipation@ Tc=25°C	$P_D$		1		W
Derate Above 25°C			8		mW/°C
Operating And Storage Junction Temperature Range	$T_j, T_{stg}$		-55 to +150		°C
<b>THERMAL RESISTANCE</b>					
Junction to ambient	$R_{th(j-a)}$		357		°C/W
Junction to case	$R_{th(j-c)}$		125		°C/W

# SILICON PLANAR EPITAXIAL TRANSISTORS

BC 307, A, B, C  
BC 308, A, B, C  
BC 309, A, B, C



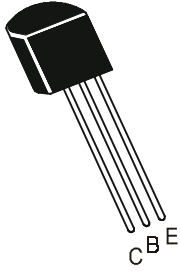
TO-92  
Plastic Package

## ELECTRICAL CHARACTERISTICS (Ta=25°C unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
Collector Emitter Breakdown Voltage	$BV_{CEO}$	$I_C=2mA, I_B=0$				
	BC307		45			V
	BC308, BC309		25			V
Emitter Base Breakdown Voltage	$BV_{EBO}$	$I_E=100\mu A, I_C=0$	5			V
Collector Emitter Leakage Current	BC307	$I_{CES}$ $V_{CES}=50V, V_{BE}=0$			15	nA
	BC308, BC309	$V_{CES}=30V, V_{BE}=0$			15	nA
	BC307	$V_{CES}=50V, V_{BE}=0,$ $T_A=125^\circ C$			4	$\mu A$
	BC308, BC309	$V_{CES}=30V, V_{BE}=0,$ $T_A=125^\circ C$			4	$\mu A$
	DC Current Gain	A	$h_{FE}$ $I_C=10\mu A, V_{CE}=5V$		90	
	B			150		
	C			270		
	BC307, BC308, BC309	$I_C=2mA, V_{CE}=5V$	120		800	
	A		120	170	220	
	B		200	290	460	
	C		420	500	800	
	A	$I_C=2mA, V_{CE}=5V^*$		120		
	B			180		
	C			300		
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=10mA, I_B=0.5mA$		0.10	0.3	V
		$I_C=100mA, I_B=5mA$		0.25		V
Base Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=10mA, I_B=0.5mA$		0.7		V
		$I_C=100mA, I_B=5mA$		1.0		V
Base Emitter On Voltage	$V_{BE(on)}$	$I_C=2mA, V_{CE}=5V$	0.55	0.62	0.7	V

# SILICON PLANAR EPITAXIAL TRANSISTORS

BC 307, A, B, C  
 BC 308, A, B, C  
 BC 309, A, B, C



TO-92  
 Plastic Package

## ELECTRICAL CHARACTERISTICS (Ta=25°C unless specified otherwise)

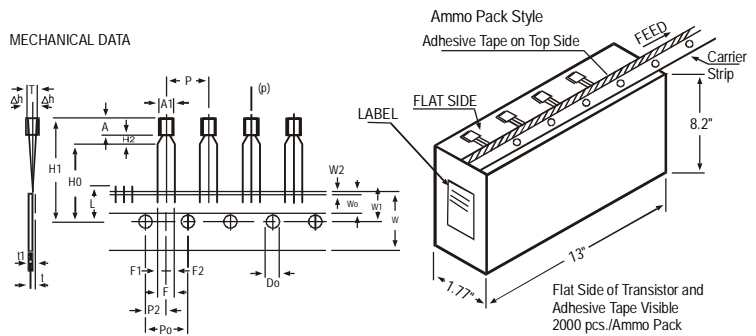
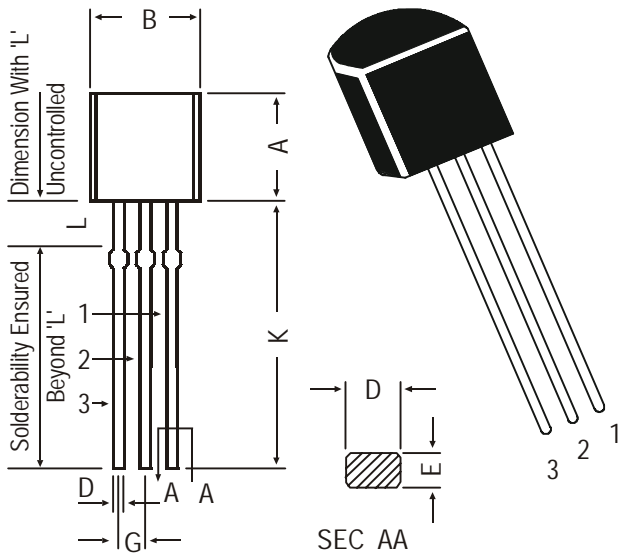
DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS					
<b>DYNAMIC CHARACTERISTICS</b>											
Transition Frequency		$f_T$ $I_C=10mA, V_{CE}=5V$ $f=50MHz$									
							BC307	280	MHz		
							BC308	320	MHz		
							BC309	360	MHz		
Collector Base Capacitance	$C_{cbo}$	$V_{CB}=10V, I_E=0$ $f=1MHz$			6	pF					
Noise Figure	BC 309	NF $I_C=0.2mA, V_{CE}=5V$ $R_g=2K\Omega f=30Hz$ to 15KHz			2	4	dB				
								BC307, BC308	2	10	dB
								BC309	2	4	dB
		$R_S=2K\Omega f=30Hz$ to 15KHz									

\*Pulse Condition: Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .

TO-92  
 Plastic Package

TO-92 Plastic Package

TO-92 Transistors on Tape and Ammo Pack



All dimensions in mm unless specified otherwise

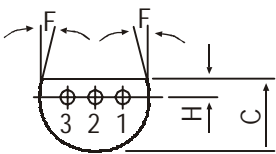
ITEM	SYMBOL	SPECIFICATION				REMARKS
		MIN.	NOM.	MAX.	TOL.	
BODY WIDTH	A1	4.0		4.8		
BODY HEIGHT	A	4.8		5.2		
BODY THICKNESS	T	3.9		4.2		
PITCH OF COMPONENT	P		12.7			
FEED HOLE PITCH	Po		12.7		±0.3	CUMULATIVE PITCH ERROR 1.0 mm/20 PITCH
FEED HOLE CENTRE TO COMPONENT CENTRE	P2		6.35		±0.4	TO BE MEASURED AT BOTTOM OF CLINCH
DISTANCE BETWEEN OUTER LEADS	F		5.08		+0.6	
COMPONENT ALIGNMENT	$\Delta h$		0	1	-0.2	AT TOP OF BODY
TAPE WIDTH	W		18		±0.5	
HOLD-DOWN TAPE WIDTH	Wo		6		±0.2	
HOLE POSITION	W1		9		+0.7 -0.5	
HOLD-DOWN TAPE POSITION	W2		0.5		±0.2	
LEAD WIRE CLINCH HEIGHT	Ho		16		±0.5	
COMPONENT HEIGHT	H1			23.25		
LENGTH OF SNIPPED LEADS	L			11.0		
FEED HOLE DIAMETER	Do		4		±0.2	
TOTAL TAPE THICKNESS	t			1.2		11 0.3 - 0.6
LEAD - TO - LEAD DISTANCE F1,	F2		2.54		+0.4 -0.1	
CLINCH HEIGHT	H2			3		
PULL - OUT FORCE	(P)	6N				

NOTES

1. MAXIMUM ALIGNMENT DEVIATION BETWEEN LEADS NOT TO BE GREATER THAN 0.2 mm.
2. MAXIMUM NON-CUMULATIVE VARIATION BETWEEN TAPE FEED HOLES SHALL NOT EXCEED 1 mm IN 20 PITCHES.
3. HOLDDOWN TAPE NOT TO EXCEED BEYOND THE EDGE(S) OF CARRIER TAPE AND THERE SHALL BE NO EXPOSURE OF ADHESIVE.
4. NO MORE THAN 3 CONSECUTIVE MISSING COMPONENTS ARE PERMITTED.
5. A TAPE TRAILER, HAVING AT LEAST THREE FEED HOLES ARE REQUIRED AFTER THE LAST COMPONENT.
6. SPLICES SHALL NOT INTERFERE WITH THE SPROCKET FEED HOLES.

DIM	MIN.	MAX.
A	4.32	5.33
B	4.45	5.20
C	3.18	4.19
D	0.41	0.55
E	0.35	0.50
F	5 DEG	
G	1.14	1.40
H	1.14	1.53
K	12.70	—
L	1.982	2.082

All dimensions in mm.



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-92 Bulk	1K/polybag	200 gm/1K pcs	3" x 7.5" x 7.5"	5K	17" x 15" x 13.5"	80K	23 kgs
TO-92 T&A	2K/ammo box	645 gm/2K pcs	12.5" x 8" x 1.8"	2K	17" x 15" x 13.5"	32K	12.5 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