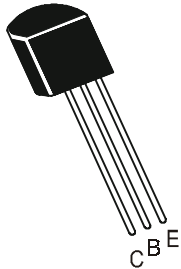


## SILICON PLANAR EPITAXIAL TRANSISTORS



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

TO-92  
Plastic Package

General Purpose Transistors Designed For Small Signal Amplification

From DC To Low Radio Frequencies

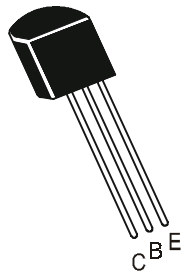
### ABSOLUTE MAXIMUM RATINGS (Ta=25°C unless specified otherwise)

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

### THERMAL RESISTANCE

Junction to ambient	$R_{th(j-a)}$	357	°C/W
Junction to case	$R_{th(j-c)}$	125	°C/W

# SILICON PLANAR EPITAXIAL TRANSISTORS



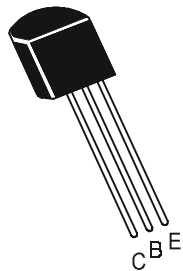
BC 307, A, B, C  
BC 308, A, B, C  
BC 309, A, B, C

TO-92  
Plastic Package

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

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

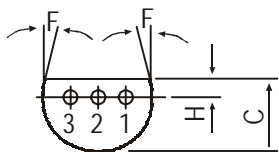
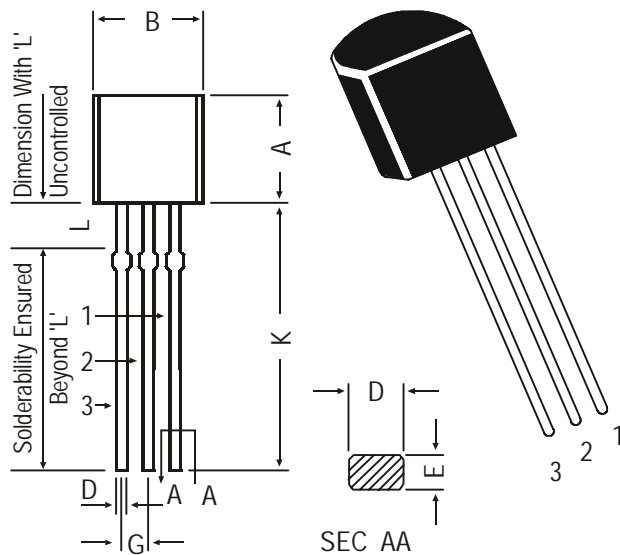
DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
<b>DYNAMIC CHARACTERISTICS</b>						
Transition Frequency	$f_T$	$I_C=10\text{mA}$ , $V_{CE}=5\text{V}$ $f=50\text{MHz}$		280 320 360		MHz
	BC307					
	BC308					
	BC309					
Collector Base Capacitance	$C_{cbo}$	$V_{CB}=10\text{V}$ , $I_E=0$ $f=1\text{MHz}$			6	pF
Noise Figure		$I_C=0.2\text{mA}$ , $V_{CE}=5\text{V}$ $R_g=2\text{K}\Omega$ $f=30\text{Hz}$ to $15\text{KHz}$		2	4	dB
	BC 309					
	BC307, BC308	$f=1\text{KHz}$ , $B=200\text{Hz}$		2	10	dB
	BC309			2	4	dB
		$R_S=2\text{K}\Omega$ $f=30\text{Hz}$ to $15\text{KHz}$				

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

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

## TO-92 Plastic Package

### TO-92 Plastic Package



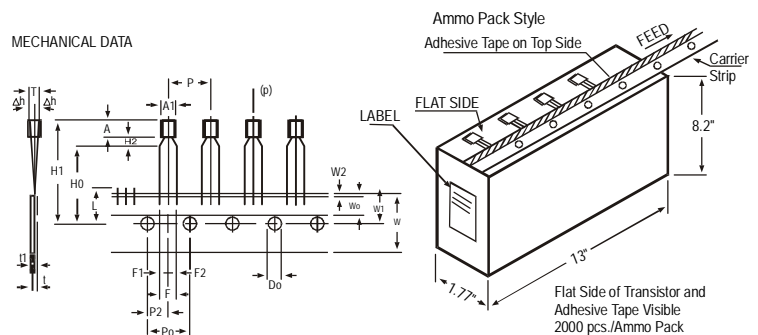
#### PIN CONFIGURATION

1. EMITTER
2. BASE
3. COLLECTOR

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.

### 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		±1	
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	Δh		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	F1		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.

### 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**

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**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