

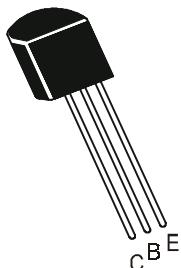


Continental Device India Limited

An ISO/TS 16949, ISO 9001 and ISO 14001 Certified Company



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

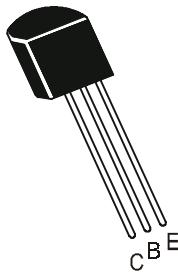
ABSOLUTE MAXIMUM RATINGS (Ta=25°C unless specified otherwise)

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	T _j , T _{stg}			-55 to +150	°C
Temperature Range					

THERMAL RESISTANCE

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

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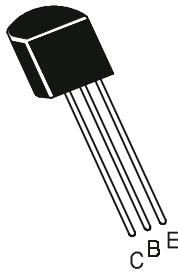
BC 309, A, B, C

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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 =100uA, 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°C		4		μA
BC308, BC309		V _{CES} =30V, V _{BE} =0, T _A =125°C		4		μA
DC Current Gain						
A	h _{FE}	I _C =10uA, 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

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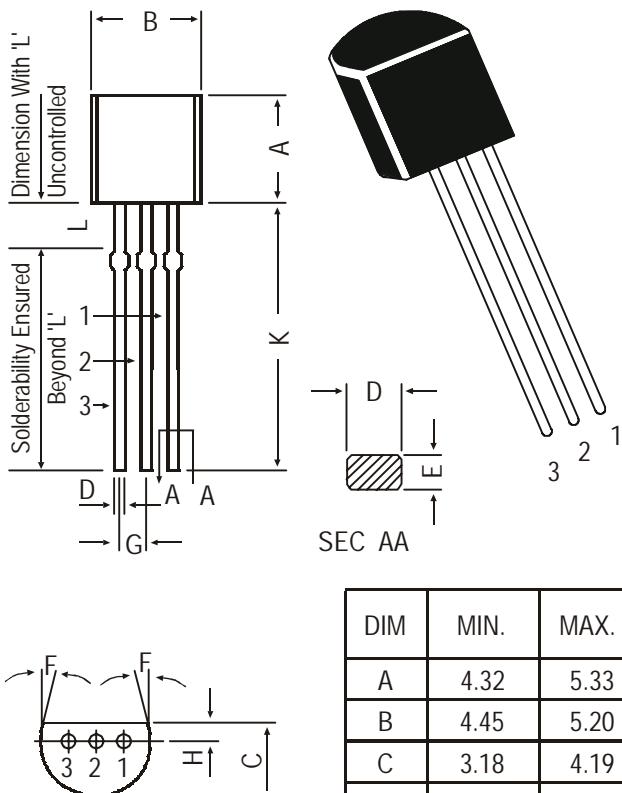
DESCRIPTION		SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
DYNAMIC CHARACTERISTICS							
Transition Frequency		f_T	$I_C=10\text{mA}, V_{CE}=5\text{V}$				
	BC307		$f=50\text{MHz}$	280			MHz
	BC308			320			MHz
	BC309			360			MHz
Collector Base Capacitance		C_{cbo}	$V_{CB}=10\text{V}, I_E=0$		6		pF
Noise Figure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

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

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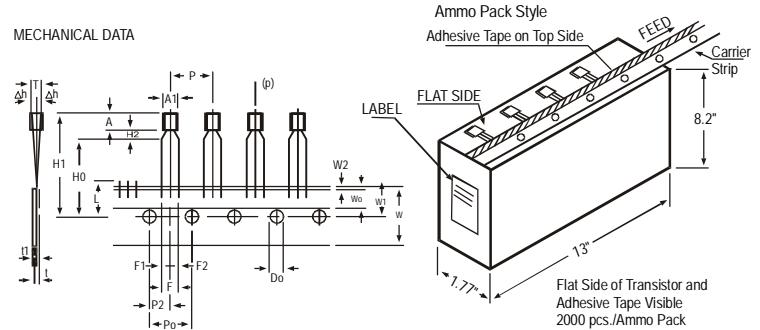


PIN CONFIGURATION
 1. Emitter
 2. Base
 3. Collector

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					
FEED HOLE PITCH	Po		12.7	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	
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		1.2	± 0.2	
TOTAL TAPE THICKNESS	t				± 0.4	t1 0.3 - 0.6
LEAD - TO - LEAD DISTANCE F1	F2	2.54			-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

Notes

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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).

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