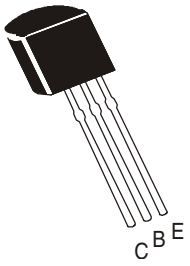
Continental Device India Limited

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

NPN SILICON PLANAR EPITAXIAL TRANSISTORS

BC549,A.B,C
BC550,A,B,C



TO-92
Plastic Package
For Lead Free Parts, Device Part # will be Prefixed with "T"

Low Noise Transistors

ABSOLUTE MAXIMUM RATINGS (T_a=25ºC)

DESCRIPTION	SYMBOL	BC549	BC550	UNITS
Collector Emitter Voltage	V_{CEO}	30	45	V
Collector Base Voltage	V_{CBO}	30	50	V
Emitter Base Voltage	V_{EBO}	5.0		V
Collector Current Continuous	I_C	100		mA
Power Dissipation at T_a=25ºC	P_D	625		mW
Derate Above 25ºC		5.0		mW/ºC
Power Dissipation at T_c=25ºC	P_D	1.5		W
Derate Above 25ºC		12		mW/ºC
Operating And Storage Junction Temperature Range	T_j, T_{stg}	- 55 to +150		ºC

THERMAL RESISTANCE

Junction to Case	$R_{th\ (j-c)}$	83.3	ºC/W
Junction to Ambient in free air	$R_{th\ (j-a)}$	200	ºC/W

ELECTRICAL CHARACTERISTICS (T_a=25ºC unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
Collector Emitter Voltage	V_{CEO}	I_C=1mA, I_B=0				
		BC549	30			V
		BC550	45			V
Collector Base Voltage	V_{CBO}	I_C=100µA, I_E=0				
		BC549	30			V
		BC550	50			V
Emitter Base Voltage	V_{EBO}	I_E=10µA, I_C=0	5.0			V
Collector Cut Off Current	I_{CBO}	V_{CB}=30V, I_E=0			15	nA
		V_{CB}=30V, I_E=0, T_a= +125ºC			5.0	µA
Emitter Cut Off Current	I_{EBO}	V_{EB}=4V, I_C=0			15	nA

BC549_550Rev_1 081205E

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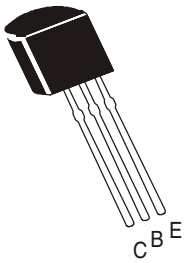

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ELECTRICAL CHARACTERISTICS (T_a=25ºC unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION		MIN	TYP	MAX	UNITS
DC Current Gain	h_{FE}	I_C=10µA, V_{CE}=5V	**B/C**	100			
		I_C=2mA, V_{CE}=5V					
		BC549A/BC550A		110		220	
		BC549B/550B		200		450	
		BC549C/550C		420		800	
		BC549/550		110		800	
Collector Emitter Saturation Voltage	$V_{CE\ (sat)}$	I_C=10mA, I_B=0.5mA				0.25	V
		I_C=10mA, I_B=See Note (1)				0.60	V
		*I_C=100mA, I_B=5mA				0.60	V
Base Emitter Saturation Voltage	*$V_{BE\ (sat)}$	I_C=100mA, I_B=5mA			1.1		V
Base Emitter On Voltage	$V_{BE\ (on)}$	I_C=10µA, V_{CE}=5V			0.52		V
		I_C=100µA, V_{CE}=5V			0.55		V
		I_C=2mA, V_{CE}=5V		0.55		0.70	V

SMALL SIGNAL CHARACTERISTICS

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
Transistors Frequency	f_T	I_C=10mA, V_{CE}=5V, f=100MHz		250		MHz
Collector Base Capacitance	C_{cbo}	V_{CE}=10V, I_E=0, f=1MHz		2.5		pF
Small Signal Current	h_{fe}	I_C=2mA, V_{CE}=5V, f=1KHz				
		BC549/550	125		900	
		BC549B/550B	240		500	
		BC549C/550C	450		900	
Noise Figure	NF	I_C=200µA, V_{CE}=5V, R_S=2 kΩ, f=30 Hz - 15KHz			2.5	dB
		I_C=200µA, V_{CE}=5V, R_S=100 kΩ, f=1KHz			10	dB

Note 1- I_B is value for which I_C= 11mA at V_{CE}=1V

***Pulse Test = 300µs - Duty Cycle = 2%**

BC549_550Rev_1 081205E

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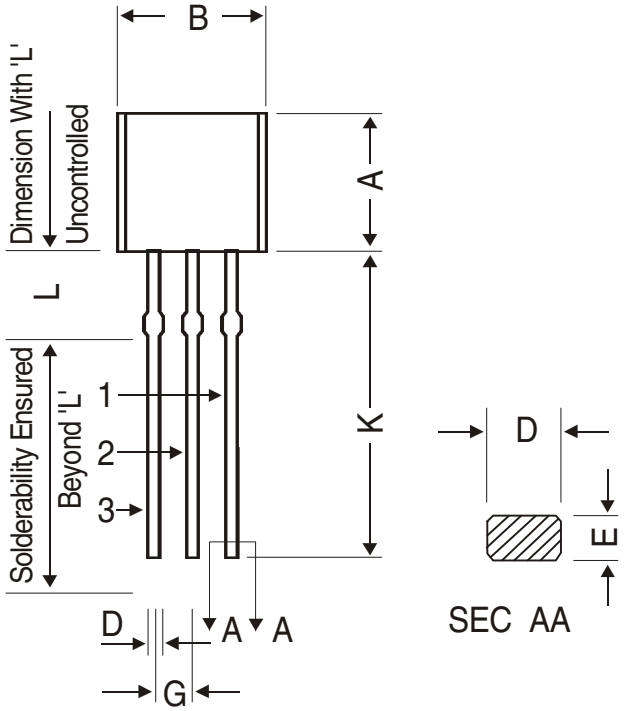
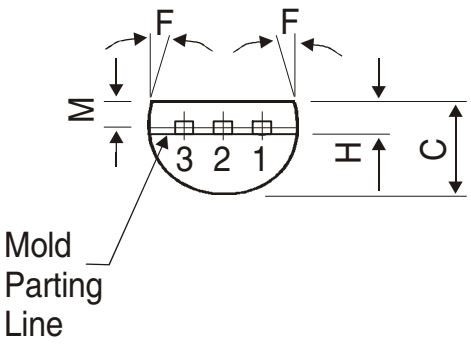
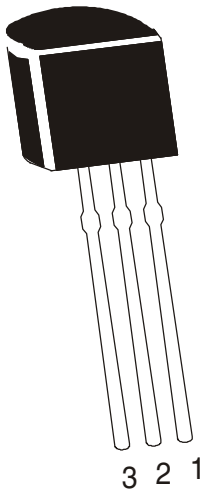
TO-92 Plastic Package



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	1.20	1.40
K	12.70	—
L	1.982	2.082
M	1.03	1.20

All dimensions are in mm





PIN CONFIGURATION
1. EMITTER
2. BASE
3. COLLECTOR

The TO-92 Package , Tape and Ammo Pack drawings are correct as on the date of issue/revision of this Data Sheet.

The currently valild dimensions and information, may please be confirmed from the TO-92 Drawing in the Packages and Packing Section of the Product Catalogue.

Packing Details

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

BC549_550Rev_1 081205E

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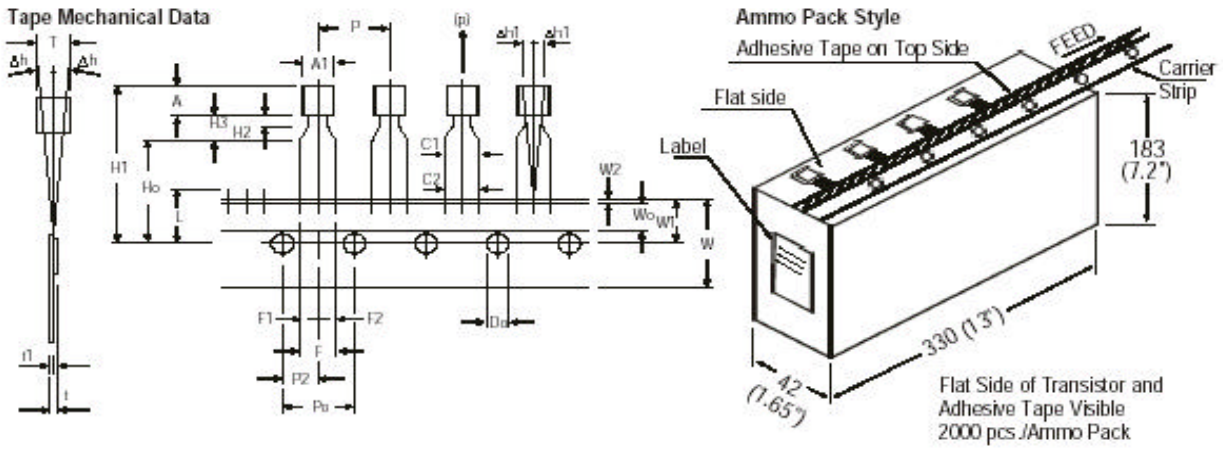
TO-92 Tape and Ammo Pack



All dimensions are in mm

ITEM	SYMBOL	SPECIFICATION			
		MIN.	NOM.	MAX.	TOL.
BODY WIDTH	A1	4.45		5.20	
BODY HEIGHT	A	4.32		5.33	
BODY THICKNESS	T	3.18		4.19	
PITCH OF COMPONENT	P		12.7		± 1.0
*1 FEED HOLE PITCH	Po		12.7		± 0.3
*2 FEED HOLE CENTRE TO COMPONENT CENTRE	P2		6.35		± 0.4
DISTANCE BETWEEN OUTER LEADS	F		5.08		+ 0.6 - 0.2
*3 COMPONENT ALIGNMENT SIDE VIEW	Δh		0	1.0	
*4 COMPONENT ALIGNMENT FRONT VIEW	Δh1		0	1.3	
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	0.0		0.7	
LEAD WIRE CLINCH HEIGHT	Ho		16		± 0.5
COMPONENT HEIGHT	H1			24.0	
LENGTH OF SNIPPED LEADS	L			11.0	
FEED HOLE DIAMETER	Do		4		± 0.2
*5 TOTAL TAPE THICKNESS	t			1.2	
LEAD - TO - LEAD DISTANCE	F1, F2	2.40		2.70	- 0.1
STAND OFF	H2	0.45		1.45	
CLINCH HEIGHT	H3			3.0	
LEAD PARALLELISM	|C1 - C2|			0.22	
PULL - OUT FORCE	(p)	6N			

NOTES

1. Maximum alignment deviation between leads will not to be greater than 0.2mm.
2. Maximum non-cumulative variation between tape feed holes shall not exceed 1 mm in 20 pitches.
3. Holddown tape will not exceed beyond the edge(s) of carrier tape and there shall be no exposure of adhesive.
4. There will be no more than three (3) consecutive missing components in a tape.
5. A tape trailer, having at least three feed holes are provided after the last component in a tape.
6. Splices should not interfere with the sprocket feed holes.

REMARKS

*1 Cumulative pitch error 1.0 mm/20 pitch
*2 To be measured at bottom of clinch
*3 At top of body
*4 At top of body
*5 t1 0.3 – 0.6 mm

Component Disposal Instructions

1. CDIL Semiconductor Devices are RoHS compliant, customers are requested to please dispose as per prevailing Environmental Legislation of their Country.
2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

BC549_550Rev_1 081205E

Disclaimer

The product information and the selection guides facilitate selection of the CDIL's 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 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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