

## Continental Device India Limited

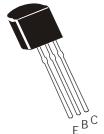
An ISO/TS 16949 and ISO 9001 Certified Manufacturer



## NPN SILICON PLANAR EPITAXIAL TRANSISTORS

CN300 / 301 / 302 CN303 / 304

TO-92 Plastic Package



# **General Purpose Audio Transistors**

**Complementary CP500 series** 

#### **ABSOLUTE MAXIMUM RATINGS**

DESCRIPTION	SYMBOL	CN300	CN301	CN302	CN303	CN304	UNITS
Collector Base Voltage	$V_{CBO}$	25	35	35	45	70	V
Collector Emitter Voltage	$V_{CEO}$	25	35	35	45	70	V
Emitter Base Voltage	$V_{EBO}$	5					
Collector Continuous Current	I <sub>C</sub>	500 m					
Base Current	$I_B$	100					mA
Power Dissipation @ T <sub>a</sub> =25°C	$P_{D}$	300					
Operating and Storage Junction Temperature Range	T <sub>j</sub> , T <sub>stg</sub>	- 65 to +150					°C

## **ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless specified otherwise)**

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	MAX	UNITS
Collector Cut Off Current	I <sub>CBO</sub>	V <sub>CB</sub> =V <sub>CB</sub> (max)		200	nA
Emitter Cut Off Current	I <sub>EBO</sub>	$V_{EB}=4V$ , $I_C=0$		200	nA
Collector Emitter Voltage	$V_{CEO}$	$I_C=1$ mA, $I_B=0$			
		CN300	25		V
		CN301/CN302	35		V
		CN303	45		V
		CN304	70		V
Collector Emitter Saturation Voltage	*V <sub>CE (sat)</sub>	$I_C=50$ mA, $I_B=5$ mA			V
		CN300/303/304		0.35	V
		CN301/CN302		0.25	V
Base Emitter Saturation Voltage	*V <sub>BE (sat)</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =1mA	0.65	1.0	V
DC Current Gain	*h <sub>FE</sub>	I <sub>C</sub> =100μA, V <sub>CE</sub> =6V <b>CN302</b>	20		
		I <sub>C</sub> =10mA, V <sub>CE</sub> =6V			
		CN300/301/303/304	50	300	
		CN302	100	300	
		I <sub>C</sub> =50mA, V <sub>CE</sub> =6V <b>CN302</b>	50		

\*Pulse Condition: Pulse Width = 300ms, Duty Cycle ≤ 2%.

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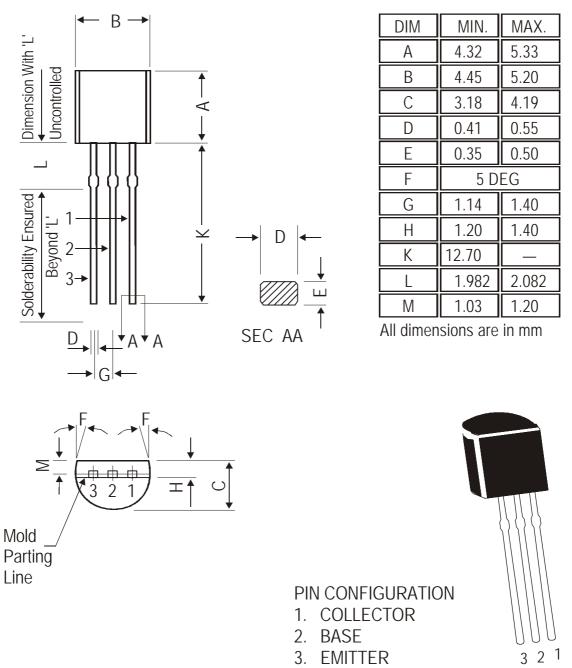
# ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless specified otherwise)

## **DYNAMIC CHARACTERISTICS**

BINAMIO CHARACTERIO 1100					
DESCRIPTION	SYMBOL	OL TEST CONDITION MIN		MAX	UNITS
Output Capacitance	C <sub>obo</sub>	$V_{CB}=6V$ , $I_{E}=0$ , $f=1MHz$		6	pF
Noise Figure	N <sub>F</sub>	$V_{CE}$ =6V, $I_{C}$ =100μA, f=1KHz, $R_{s}$ =1.5k $\Omega$		7	dB
Transition Frequency	f <sub>T</sub>	$V_{CE}$ =6V, $I_{C}$ =10mA, $f$ =100MHz	150		MHz

TO-92 Plastic Package

# **TO-92 Plastic Package**



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

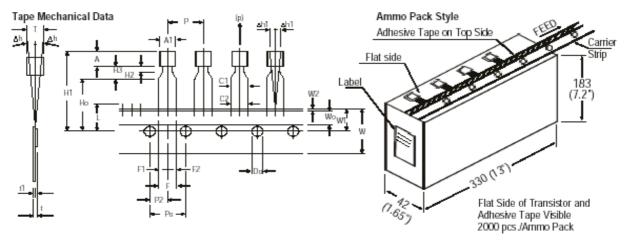
The currently valid dimensions and information, may please be confirmed from the TO-92 Drawing in the Packages and Packing Section of the Product Catalogue.

## Packing Details

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PACKAGE	STANDARD PACK		INNER CARTO	N BOX	OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	GrWt
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

# TO-92 Plastic Package

# TO-92 Tape and Ammo Pack



#### All dimensions are in mm

		SPECIFICATION		ION		
ITEM	SYMBOL	MIN.	NOM.	MAX.	TOL.	
BODY WIDTH	A1	4.45		5.20		NOTES
BODY HEIGHT	Α	4.32		5.33		1. Maximum alignment deviation between
BODY THICKNESS	T	3.18		4.19		leads will not to be greater than 0.2mm.
PITCH OF COMPONENT	Р		12.7		± 1.0	Maximum non-cumulative variation
*1 FEED HOLE PITCH	Po		12.7		± 0.3	between tape feed holes shall not
*2 FEED HOLE CENTRE TO COMPONENT CENTRE						exceed 1 mm in 20 pitches.
	P2		6.35		± 0.4	Holddown tape will not exceed beyond
DISTANCE BETWEEN OUTER LEADS	F		5.08		+ 0.6 - 0.2	the edge(s) of carrier tape and there shall be no exposure of adhesive.
*3 COMPONENT ALIGNMENT SIDE VIEW	Δh		0	1.0		There will be no more than three (3)
*4 COMPONENT ALIGNMENT FRONT VIEW	∆h1		0	1.3		consecutive missing components in a
TAPE WIDTH	W		18		± 0.5	tape.
HOLD-DOWN TAPE WIDTH	Wo		6		± 0.2	A tape trailer, having at least three feed
HOLE POSITION	W1		9		+ 0.7 - 0.5	holes are provided after the last component in a tape.
HOLD-DOWN TAPE POSITION	W2	0.0		0.7		6. Splices should not interfere with the
LEAD WIRE CLINCH HEIGHT	Ho		16		± 0.5	sprocket feed holes.
COMPONENT HEIGHT	H1			24.0		
LENGTH OF SNIPPED LEADS	L			11.0		
FEED HOLE DIAMETER	Do		4		± 0.2	REMARKS
*5 TOTAL TAPE THICKNESS	t			1.2		· · <u> </u>
LEAD - TO - LEAD DISTANCE	F1, F2	2.40		2.70		*1 Cumulative pitch error 1.0 mm/20 pitch
STAND OFF	H2	0.45		1.45	- 0.1	*2 To be measured at bottom of clinch
CLINCH HEIGHT	Н3			3.0		*3 At top of body
LEAD PARALLELISM	C1 - C2			0.22		*4 At top of body
PULL - OUT FORCE	(p)	6N				*5 t1 0.3 – 0.6 mm

**Customer Notes** 

CN300 / 301 / 302 CN303 / 304

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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 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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