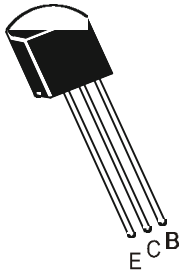
Continental Device India Limited

An ISO/TS16949 and ISO 9001 Certified Company

NPN SILICON PLANAR EPITAXIAL TRANSISTOR

CSC2002



TO-92
Plastic Package

Designed for use in Driver Stage of High Voltage Audio Equipments.

ABSOLUTE MAXIMUM RATINGS (T_a=25ºC unless specified otherwise)

DESCRIPTION	SYMBOL	VALUE	UNITS
Collector Emitter Voltage	V_{CEO}	60	V
Collector Base Voltage	V_{CBO}	60	V
Emitter Base Voltage	V_{EBO}	5	V
Collector Current	I_C	300	mA
Base Current	I_B	60	mA
Collector Power Dissipation	P_C	600	mW
Storage Temperature	T_{stg}	- 55 to +150	ºC
Junction Temperature	T_j	+150	ºC

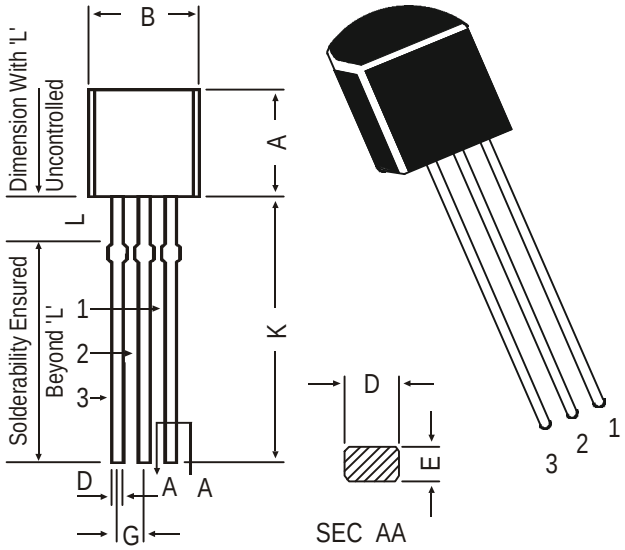
ABSOLUTE MAXIMUM RATINGS (T_a=25ºC unless specified otherwise)

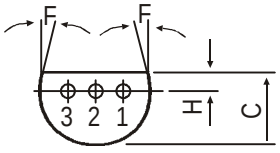
DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
Collector Cut Off Current	I_{CBO}	V_{CB}=60V, I_E = 0			100	nA
Emitter Cut Off Current	I_{EBO}	V_{EB}=5V, I_C = 0			100	nA
DC Current Gain	h_{FE} (1) *	V_{CE}=1V, I_C=50mA V_{CE}=2V, I_C=300mA	90 30		400	
Collector Emitter Saturation Voltage	$V_{CE\ (sat)}$ *	I_C=300mA, I_B=30mA			0.6	V
Base Emitter Saturation Voltage	$V_{BE\ (sat)}$ *	I_C=300mA, I_B=30mA			1.2	V
Base Emitter Voltage	V_{BE} *	V_{CE}=6V, I_C=10mA	0.6		0.7	V
Transition Frequency	f_T	V_{CE}=6V, I_C= -10mA,	50			MHz
Collector to Base Capacitance	C_{ob}	I_E=0, V_{CB}=6V, f=1MHz			15	pF

*** Pulsed PW ≤350ms, Duty Cycle ≤2%**

h_{FE} (1) Classification	M : 90 - 180,	L : 135 - 270,	K : 200 - 400

TO-92 Plastic Package





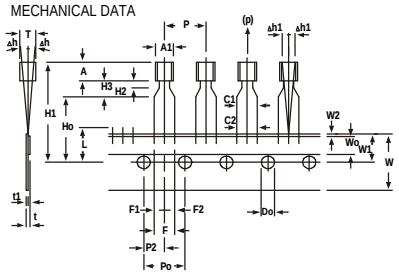
PIN CONFIGURATION
1. BASE
2. COLLECTOR
3. EMITTER

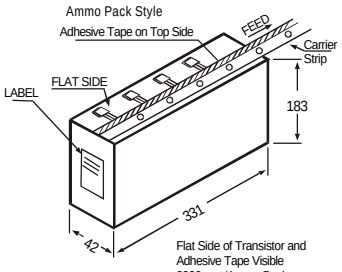
DIM	MIN.	MAX.
A	4.32	5.33
B	4.45	5.20
C	3.18	4.19
D	0.41	0.55
E	0.35	0.50
F	5 DEG	
G	1.14	1.40
H	1.14	1.53
K	12.70	—
L	1.982	2.082

All diminsions in mm.

TO-92 Transistors on Tape and Ammo Pack

MECHANICAL DATA





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		%%P1	
FEED HOLE PITCH	Po		12.7		%%P0.3	CUMULATIVE PITCH ERROR 1.0 mm/20 PITCH
FEED HOLE CENTRE TO COMPONENT CENTRE	P2		6.35		%%P0.4	TO BE MEASURED AT BOTTOM OF CLINCH
DISTANCE BETWEEN OUTER LEADS	F		5.08		+0.6 -0.2	
COMPONENT ALIGNMENT SIDE VIEW	△h		0	1.0		AT TOP OF BODY
COMPONENT ALIGNMENT FRONT VIEW	△h1		0	1.3		AT TOP OF BODY
TAPE WIDTH	W		18		%%P0.5	
HOLD-DOWN TAPE WIDTH	Wo		6		%%P0.2	
HOLE POSITION	W1		9		+0.7 -0.5	
HOLD-DOWN TAPE POSITION	W2		0.5		%%P0.2	
LEAD WIRE CLINCH HEIGHT	Ho		16		%%P0.5	
COMPONENT HEIGHT	H1			23.25		
LENGTH OF SNIPPED LEADS	L			11.0		
FEED HOLE DIAMETER	Do		4		%%P0.2	
TOTAL TAPE THICKNESS	t			1.2		t1 0.3 - 0.6
LEAD - TO - LEAD DISTANCE	F1, F2		2.54		+0.4, -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 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 IS PERMITTED.
5. A TAPE TRAILER, HAVING AT LEAST THREE FEED HOLES IS 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

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 inaccuracie 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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