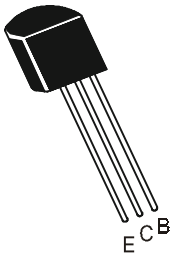
Continental Device India Limited

An IS/ISO 9002 and IECQ Certified Manufacturer

IS/ISO 9002
Lic# OSC/L- 000019.2

NPN SILICON PLANAR EPITAXIAL TRANSISTOR

CD13001



TO - 92
Plastic Package

ABSOLUTE MAXIMUM RATING (T_a =25ºC)

DESCRIPTION	SYMBOL	VALUE	UNIT
Collector Base Voltage	V_{CBO}	500	V
Collector Emitter Voltage	V_{CEO}	400	V
Emitter Base Voltage	V_{EBO}	9.0	V
Collector Current Continuous	I_C	0.5	A
Peak (1)	I_{CM}	1.5	
Collector Power Dissipation	P_C	900	mW
Operating and Storage Junction Temperature Range	T_j, T_{stg}	- 55 to +150	ºC

(1) Pulse Test: Pulse Width = 5ms, Duty Cycle≤10%

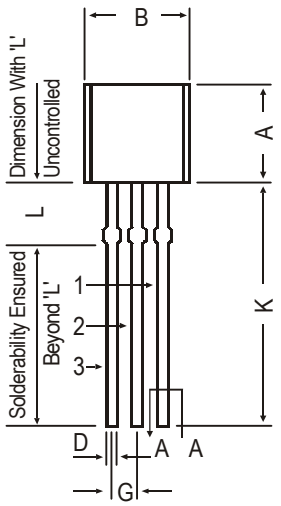
ELECTRICAL CHARACTERISTICS (T_a=25ºC unless specified otherwise)

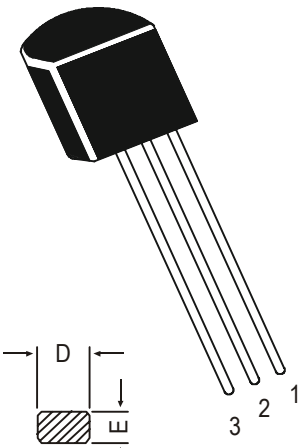
DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Collector Base Voltage	V_{CBO}	I_C=100µA, I_E=0	500			V
Collector Emitter Voltage	V_{CEO}	I_C=1mA, I_B=0	400			V
Emitter Base Voltage	V_{EBO}	I_E=100µA, I_C=0	9			V
Collector Cut off Current	I_{CBO}	V_{CB}=500V, I_E = 0			100	µA
	I_{CEO}	V_{CE}=400V, I_B = 0			200	
Emitter Cut off Current	I_{EBO}	V_{EB}=9V, I_C=0			100	µA
DC Current Gain	h_{FE}*	V_{CE}=20V, I_C=20mA	10		40	
	h_{FE}	V_{CE}=10V, I_C=0.25mA	5			
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=50mA, I_B=10mA			0.5	V
Base Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=50mA, I_B=10mA			1.2	V
Transition Frequency	f_T	V_{CE}=20V,I_C=20mA,f=1MHz	8			MHz
Fall Time	t_f	I_C=50mA, I_{B1}= -1_{B2}=5mA			0.3	µs
Storage Time	t_s	V_{CC}=45V			1.5	

h_{FE}* Classifications

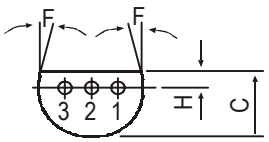
Note: Product is pre selected in DC current gain (Groups A to F). CDIL reserves the right to ship any of the groups according to production availability.	A	B	C	D	E	F
	10-15	15-20	20-25	25-30	30-35	35-40
MARKING	CD 13001 A	CD 13001 B	CD 13001 C	CD 13001 D	CD 13001 E	CD 13001 F

TO-92 Plastic Package





SEC AA



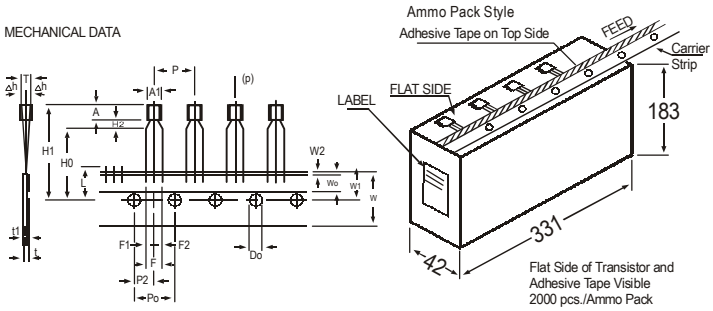
PIN CONFIGURATION
1. BASE
2. COLLECTOR
3. EMITTER

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



All dimensions in mm unless specified otherwise

ITEM	SYMBOL	SPECIFICATION MIN.	NOM.	MAX.	TOL .	REMARKS
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 -0.2	
COMPONENT ALIGNMENT	△h		0	1		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		t1 0.3 - 0.6
LEAD - TO - LEAD DISTANCEF1,	F2		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

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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