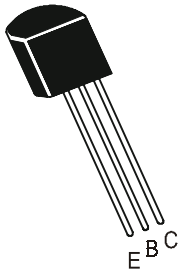


**PNP SILICON PLANAR TRANSISTOR**

**CD9012  
TO-92  
CBE**



**General Purpose Audio Amplifier Applications.**

**ABSOLUTE MAXIMUM RATINGS**

DESCRIPTION	SYMBOL	VALUE	UNIT
Collector -Emitter Voltage	VCEO	30	V
Collector -Base Voltage	VCBO	40	V
Emitter Base Voltage	VEBO	5.0	V
Collector Current	IC	500	mA
Collector Power Dissipation	PC	625	mW
Operating And Storage Junction Temperature Range	Tj, Tstg	-55 to +150	deg C

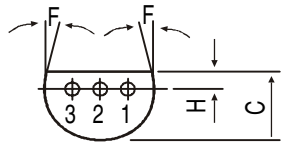
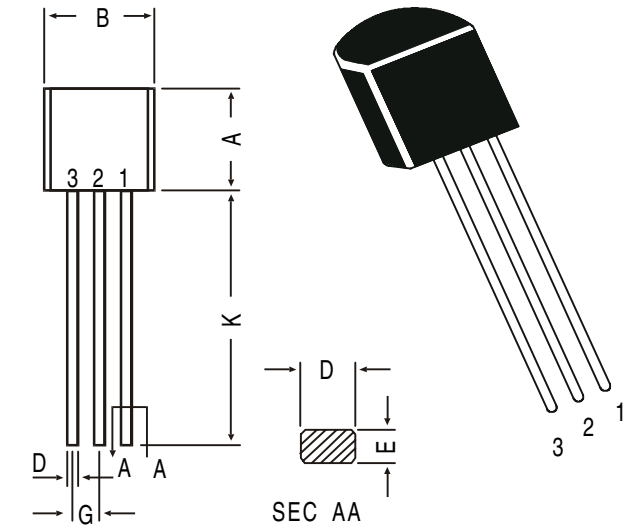
**ELECTRICAL CHARACTERISTICS (Ta=25 deg C Unless Otherwise Specified)**

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Collector -Emitter Voltage	VCEO	IC=1mA, IB=0	30	-	-	V
Collector -Base Voltage	VCBO	IC=100uA, IE=0	40	-	-	V
Emitter Base Voltage	VEBO	IE=100uA, IC=0	5.0	-	-	V
Collector Cut off Current	ICBO	VCB=25V, IE=0	-	-	100	nA
Emitter Cut off Current	IEBO	VEB=3V, IC=0	-	-	100	nA
DC Current Gain	hFE	IC=50mA, VCE=1V *	64	-	465	
		IC=500mA, VCE=1V	40			
Collector Emitter Saturation Voltage	VCE(Sat)	IC=150mA, IB=15mA	-	-	0.20	V
		IC=500mA, IB=50mA	-	-	0.60	V
Base Emitter Saturation Voltage	VBE(Sat)	IC=150mA, IB=15mA	-	-	1.0	V
		IC=500mA, IB=50mA	-	-	1.2	V
<b>Dynamic Characteristics</b>						
Output Capacitance	Cob	VCB=10V, f=1MHz	-	-	10	pF
Transition Frequency	ft	VCE=10V, IC=50mA, f=100MHz	200	-	-	MHz
Noise Figure	NF	VCE=10V, IC=1mA, f=1KHz	-	-	6.0	dB

**hFE CLASSIFICATION \*** D/E/F= 64 t G/H/I= 118 to 305: J 278 to 465

# TO-92 Plastic Package

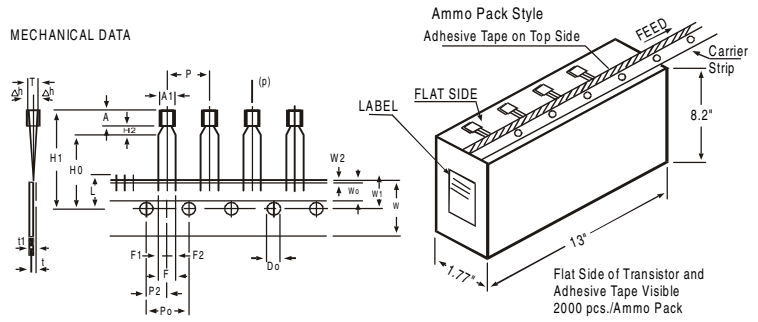
## TO-92 Transistors on Tape and Ammo Pack



- PIN CONFIGURATION**
1. COLLECTOR
  2. BASE
  3. EMITTER

All dimensions in mm.

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	—



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		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	Δh	0		1		AT TOP OF BODY
TAPE WIDTH	W	18			±0.5	
HOLD-DOWN TAPE WIDTH	W0	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		±0.3 - 0.6
LEAD - TO - LEAD DISTANCE F1,	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"	5.0K	17" x 15" x 13.5"	80.0K	23 kgs
TO-92 T&A	2K/ammo box	645 gm/2K pcs	12.5" x 8" x 1.8"	2.0K	17" x 15" x 13.5"	32.0K	12.5 kgs

## Customer Notes

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