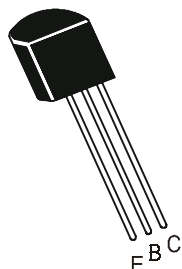


## NPN SILICON PLANAR TRANSISTOR

**CD9014**  
**TO-92**  
**CBE**



### ABSOLUTE MAXIMUM RATINGS

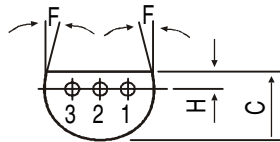
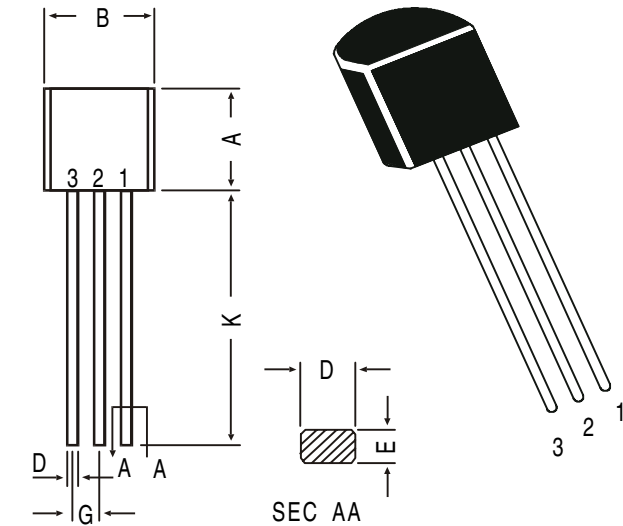
DESCRIPTION	SYMBOL	VALUE	UNIT
Collector -Emitter Voltage	VCEO	50	V
Collector -Base Voltage	VCBO	50	V
Emitter Base Voltage	VEBO	5.0	V
Collector Current	IC	100	mA
Collector Power Dissipation	PC	625	mW
Operating And Storage Junction Temperature Range	Tj, Tstg	-55 to +150	deg C

### 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	50	-	-	V
Collector -Base Voltage	VCBO	IC=100uA, IE=0	50	-	-	V
Emitter Base Voltage	VEBO	IE=100uA, IC=0	5.0	-	-	V
Collector Cut off Current	ICBO	VCB=50V, IE=0	-	-	50	nA
Emitter Cut off Current	IEBO	VEB=5V, IC=0	-	-	50	nA
DC Current Gain	hFE	IC=1mA, VCE=5V	60	-	1000	
Collector Emitter Saturation Voltage	VCE(Sat)	IC=100mA, IB=5mA	-	-	0.30	V
Emitter Base Saturation Voltage	VBE(Sat)	IC=100mA, IB=5mA	-	-	1.0	V
<b>Dynamic Characteristics</b>						
Output Capacitance	Cob	VCB=10V, f=1MHz	-	-	3.50	pF
Transition Frequency	ft	VCE=5V, IC=10mA, f=100MHz	125	-	-	MHz
Noise Figure	NF	VCE=5V, IC=200uA, f=1KHz	-	-	4.0	dB

<b>hFE CLASSIFICATION</b>	<b>A : 60-150, B : 100-300, C : 200-600, D : 400-1000, D1 : 400-630, D2 : 570-840, D3 : 760-1000, E : &gt;800</b>
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## TO-92 Plastic Package

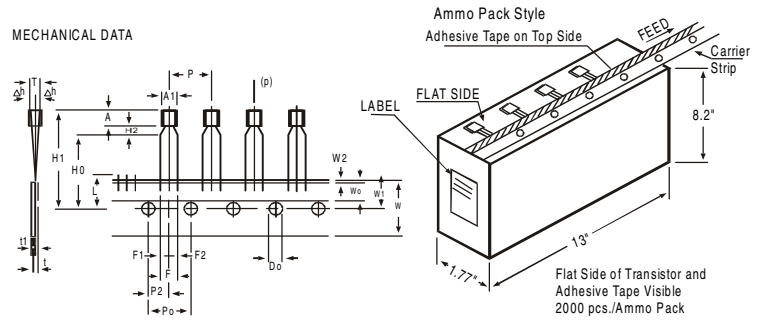


**PIN CONFIGURATION**  
 1. COLLECTOR  
 2. BASE  
 3. EMITTER

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	—

## TO-92 Transistors on Tape and Ammo Pack



All dimensions in mm unless specified otherwise

ITEM	SYMBOL	SPECIFICATION				REMARKS
		MIN.	NOM.	MAX.	TOL.	
BODY WIDTH	A1	4.0		4.8		CUMULATIVE PITCH ERROR 1.0 mm/20 PITCH TO BE MEASURED AT BOTTOM OF CLINCH
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	
FEED HOLE CENTRE TO COMPONENT CENTRE	P2		6.35		±0.4	AT TOP OF BODY
DISTANCE BETWEEN OUTER LEADS	F		5.08		+0.6 -0.2	
COMPONENT ALIGNMENT	Δh		0	1		
TAPE WIDTH	W		18		±0.5	
HOLD-DOWN TAPE WIDTH	W0		6		±0.2	
HOLE POSITION	W1		9		+0.7 -0.5	t1 0.3 - 0.6
HOLD-DOWN TAPE POSITION	W2		0.5		±0.2	
LEAD WIRE CLINCH HEIGHT	H0		16		±0.5	
COMPONENT HEIGHT	H1			23.25		
LENGTH OF SNIPPED LEADS	L			11.0		
FEED HOLE DIAMETER	Do		4		±0.2	t1 0.3 - 0.6
TOTAL TAPE THICKNESS	t			1.2		
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

### Disclaimer

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