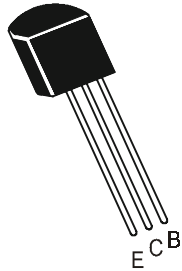


## NPN SILICON PLANAR EPITAXIAL TRANSISTOR

**CSC3329**



**TO-92**

**Plastic Package**

### Complementary CSA1316

#### ABSOLUTE MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ unless specified otherwise)

DESCRIPTION	SYMBOL	VALUE	UNITS
Collector Emitter Voltage	$V_{CEO}$	80	V
Collector Base Voltage	$V_{CBO}$	80	V
Emitter Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	100	mA
Base Current	$I_B$	20	mA
Collector Power Dissipation	$P_C$	400	mW
Storage Temperature	$T_{stg}$	- 55 to +125	$^\circ\text{C}$
Junction Temperature	$T_j$	125	$^\circ\text{C}$

#### ABSOLUTE MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
Collector Cut off Current	$I_{CBO}$	$V_{CB}=80\text{V}, I_E = 0$			100	nA
Emitter Cut off Current	$I_{EBO}$	$V_{EB}=5\text{V}, I_C = 0$			100	nA
Collector Emitter Voltage	$V_{CEO}$	$I_C=1\text{mA}, I_B=0$	80			V
DC Current Gain	$h_{FE}^*$	$V_{CE}=6\text{V}, I_C=2\text{mA}$	200		700	
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=10\text{mA}, I_B=1\text{mA}$			0.1	V
Base Emitter on Voltage	$V_{BE(on)}$	$V_{CE}=6\text{V}, I_C=2\text{mA}$		0.6		V
Base Spreading Resistance	$r_{bb'}$	$V_{CE}=6\text{V}, I_C=1\text{mA}, f=100\text{MHz}$		2.0		$\Omega$
Transition Frequency	$f_T$	$V_{CE}=6\text{V}, I_C = -1\text{mA}, f=100\text{MHz}$		80		MHz
Collector Output Capacitance	$C_{ob}$	$I_E=0, V_{CB}=10\text{V}, f=1\text{MHz}$		6.2		pF
Noise Figure	NF	$V_{CE} = 6\text{V}, I_C=0.1\text{mA}, f=10\text{Hz}, R_g=10\text{k}\Omega$			6.0	dB
		$V_{CE} = 6\text{V}, I_C=0.1\text{mA}, f=10\text{KHz}, R_g=10\text{k}\Omega$			2.0	
		$V_{CE} = 6\text{V}, I_C=0.1\text{mA}, f=10\text{KHz}, R_g=100\Omega$		2.5		

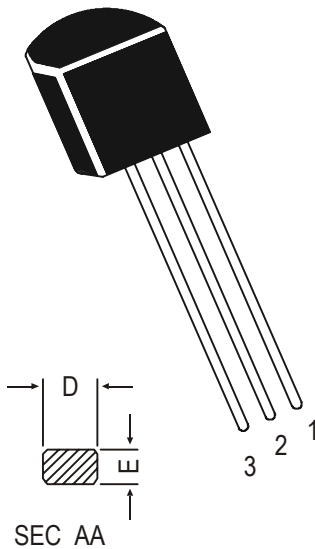
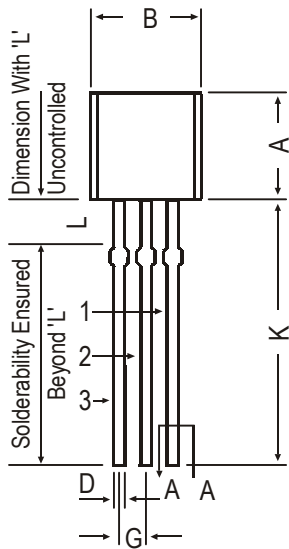
**\* $h_{FE}$  Classification**

**GR : 200 - 400,**

**BL : 350 - 700**

## TO-92 Plastic Package

## TO-92 Transistors on Tape and Ammo Pack

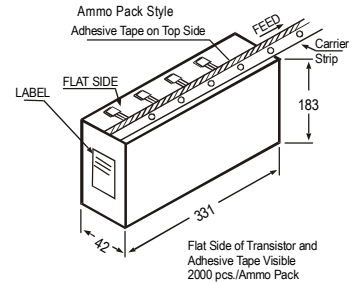
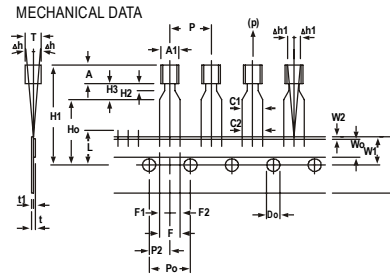


DIM	MIN.	MAX.
A	4.32	5.33
B	4.45	5.20
C	3.18	4.19
D	0.41	0.55
E	0.35	0.50
F	5 DEG	
G	1.14	1.40
H	1.14	1.53
K	12.70	—
L	1.982	2.082

All dimensions in mm.

## PIN CONFIGURATION

1. BASE
2. COLLECTOR
3. EMITTER



ITEM	SYMBOL	SPECIFICATION				REMARKS
		MIN.	NOM.	MAX.	TOL.	
BODY WIDTH	A1	4.0		4.8		CUMULATIVE PITCH ERROR 1.0 mm/20 PITCH
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	TO BE MEASURED AT BOTTOM OF CLINCH
FEED HOLE CENTRE TO COMPONENT CENTRE	P2		6.35		%%P0.4	
DISTANCE BETWEEN OUTER LEADS	F		5.08		+0.6	
COMPONENT ALIGNMENT SIDE VIEW	Δh		0	1.0	-0.2	
COMPONENT ALIGNMENT FRONT VIEW	Δh1		0	1.3		AT TOP OF BODY
TAPE WIDTH	W		18		%%P0.5	AT TOP OF BODY
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	t1 0.3 - 0.6
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		
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

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