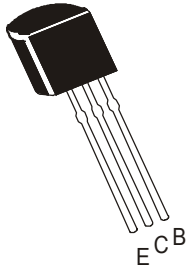


**PNP SILICON PLANAR EPITAXIAL TRANSISTOR**

**CSA950**



**TO-92  
Plastic Package**

**Complementary CSC2120**

**Audio Power Amplifier Application.**

**ABSOLUTE MAXIMUM RATINGS (Ta=25°C unless specified otherwise)**

DESCRIPTION	SYMBOL	VALUE	UNIT
Collector Emitter Voltage	$V_{CEO}$	30	V
Collector Base Voltage	$V_{CBO}$	35	V
Emitter Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	800	mA
Emitter Current	$I_E$	800	mA
Collector Power Dissipation	$P_C$	600	mW
Operating And Storage Junction Temperature Range	$T_j, T_{stg}$	-55 to +150	°C

**ELECTRICAL CHARACTERISTICS (Ta=25°C unless specified otherwise)**

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT	
Collector Emitter Voltage	$V_{(BR)CEO}$	$I_C=10mA, I_B=0$	30			V	
Collector Cut off Current	$I_{CBO}$	$V_{CB}=35V, I_E = 0$			0.1	μA	
Emitter Cut off Current	$I_{EBO}$	$V_{EB}=5V, I_C = 0$			0.1	μA	
DC Current Gain	$h_{FE(1)}$	$V_{CE}=1V, I_C=100mA$	100		320		
		$V_{CE}=1V, I_C=700mA$	35				
Collector Emitter Saturation Voltage	$V_{CE(sat)}^*$	$I_C=500mA, I_B=20mA$					
			CSA950			0.7	V
			CSC2120			0.5	V
Base Emitter On Voltage	$V_{BE(on)}$	$V_{CE} = 5V, I_C= 10mA$	0.5		0.8	V	
Transition Frequency	$f_T$	$I_C=10mA, V_{CE}=5V$		120		MHz	
Collector Output Capacitance	$C_{ob}$	$V_{CB}=10V, I_E=0$					
			CSA950		19		pF
			CSC2120		13		pF

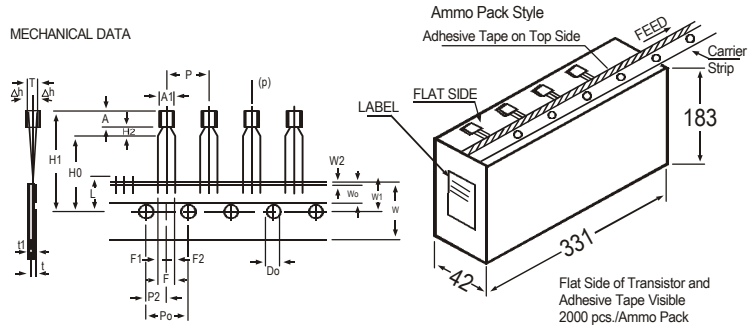
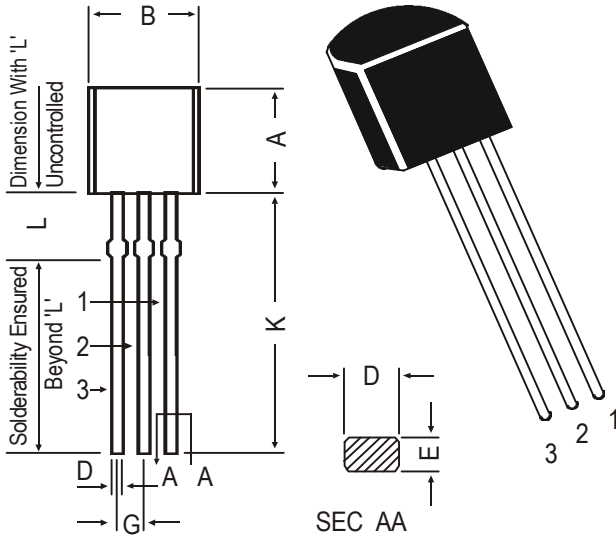
**CLASSIFICATION**  $h_{FE(1)}$       **O** : 100-200      **Y** : 160-320

**\*Pulse Condition: Width ≤ 300ms, Duty Cycle ≤ 2%.**

**TO-92  
Plastic Package**

**TO-92 Plastic Package**

**TO-92 Transistors on Tape and Ammo Pack**



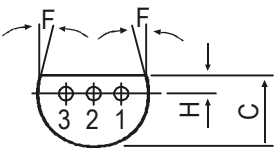
All dimensions in mm unless specified otherwise

ITEM	SYMBOL	SPECIFICATION				REMARKS
		MIN.	NOM.	MAX.	TOL.	
BODY WIDTH	A1	4.0		4.8		
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	
COMPONENT ALIGNMENT	Δh		0	1	-0.2	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 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.

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

**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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