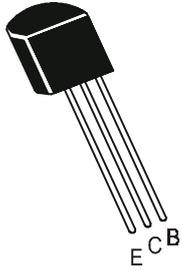


**NPN SILICON PLANAR EPITAXIAL TRANSISTORS**

**CSC460**



**TO-92  
Plastic Package**

**High Frequency And VHF Amplifier Mixer**

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

DESCRIPTION	SYMBOL	VALUE	UNIT
Collector Emitter Voltage	$V_{CEO}$	30	V
Collector Base Voltage	$V_{CBO}$	30	V
Emitter Base Voltage	$V_{EBO}$	5	V
Collector Current Continuous	$I_C$	100	mA
Power Dissipation @ Ta=25°C	$P_C$	200	mW
Operating And Storage Junction Temperature Range	$T_j, T_{stg}$	-55 to +125	°C

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

DESCRIPTION	SYMBOL	TEST CONDITION	VALUE		UNIT
			MIN	TYP MAX	
Collector Emitter Voltage	$V_{CEO}$	$I_C=1mA, R_{BE}=0$	30		V
Collector Base Voltage	$V_{CBO}$	$I_C=10\mu A, I_E=0$	30		V
Emitter Base Voltage	$V_{EBO}$	$I_E=10\mu A, I_C=0$	5		V
Collector Cut off Current	$I_{CBO}$	$V_{CB}=18V, I_E=0$		0.5	$\mu A$
Emitter Cut off Current	$I_{EBO}$	$V_{EB}=2V, I_C=0$		0.5	$\mu A$
Base Emitter (on) Voltage	$V_{BE(on)}$	$I_C=2mA, V_{CE}=12V$		0.75	V
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=10mA, I_B=1mA$		1.1	V
DC Current Gain	$h_{FE}$	$I_C=2mA, V_{CE}=12V$	35	200	

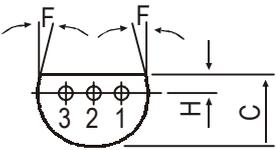
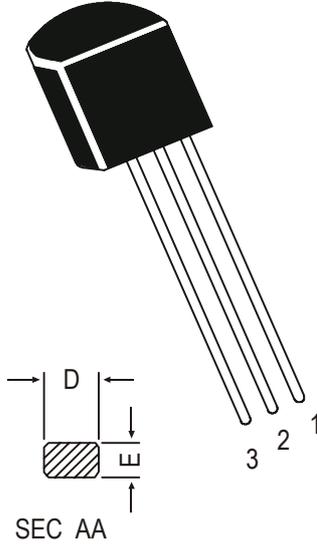
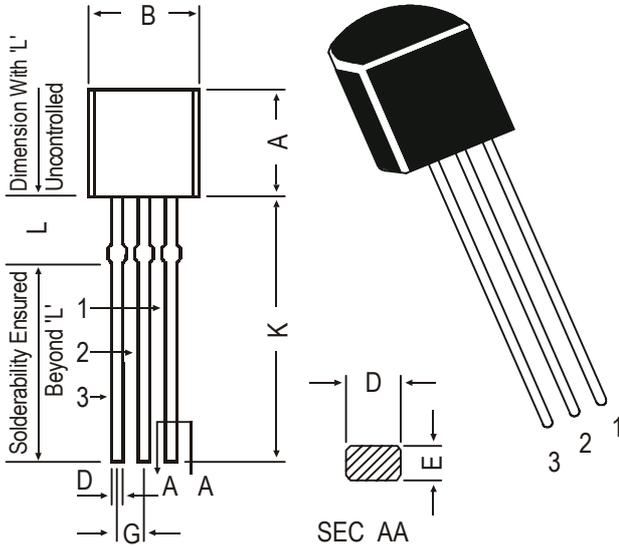
**SMALL SIGNAL CHARACTERISTICS**

Current Gain Bandwidth Product	$f_T$	$I_C=2mA, V_{CE}=12V$	230		MHz
Output Capacitance	$C_{ob}$	$I_E=0, V_{CB}=10V$ $f=1MHz$		3.5	pF
Noise Figure	NF	$V_{CE}=6V, I_C=2mA$ $R_g=500\Omega, f=1MHz$	5		dB

$h_{FE}$ CLASSIFICATION	A :	B:	C:
	35-70	60-150	100-200

TO-92 Plastic Package

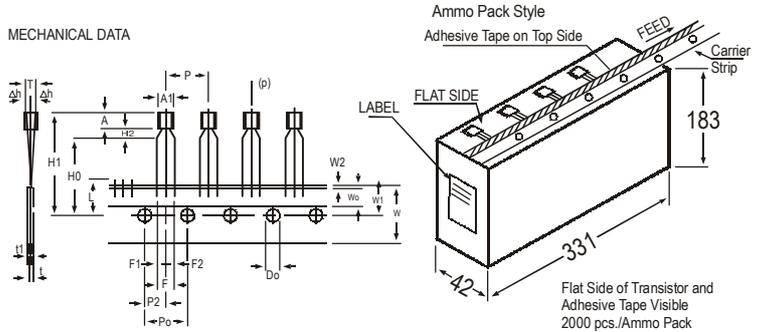
TO-92 Transistors on Tape and Ammo Pack



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.



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 AT TOP OF BODY
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	
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	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,	F1			2.54	+0.4 -0.1	
LEAD - TO - LEAD DISTANCE F2,	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

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