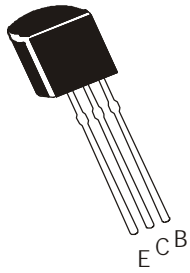


PNP EPITAXIAL PLANAR SILICON TRANSISTOR

CSA1015



**TO-92
Plastic Package**

**Audio Frequency General Purpose and Driver Stage Amplifier Applications.
Complementary CSC1815**

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

DESCRIPTION	SYMBOL	VALUE	UNITS
Collector Base Voltage	V _{CBO}	50	V
Collector Emitter Voltage	V _{CEO}	50	V
Emitter Base Voltage	V _{EBO}	5	V
Collector Current Continuous	I _C	150	mA
Base Current	I _B	50	mA
Collector Power Dissipation	P _C	625	mW
Operating And Storage Junction Temperature Range	T _j , T _{stg}	-55 to +125	°C

THERMAL RESISTANCE

Junction to case	R _{th(j-c)}	250	°C/W
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ELECTRICAL CHARACTERISTICS (T_a=25°C unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
Collector Cut off Current	I _{CBO}	V _{CB} =50V, I _E =0			100	nA
Emitter Cut off Current	I _{EBO}	V _{EB} =5V, I _C = 0			100	nA
DC Current Gain	*h _{FE}	I _C =2mA, V _{CE} =6V	70		400	
	h _{FE}	I _C =150mA, V _{CE} =6V	25			
Collector Emitter Saturation Voltage	V _{CE(sat)}	I _C =100mA, I _B = 10mA			0.30	V
Base Emitter Saturation Voltage	V _{BE(sat)}	I _C =100mA, I _B = 10mA			1.1	V

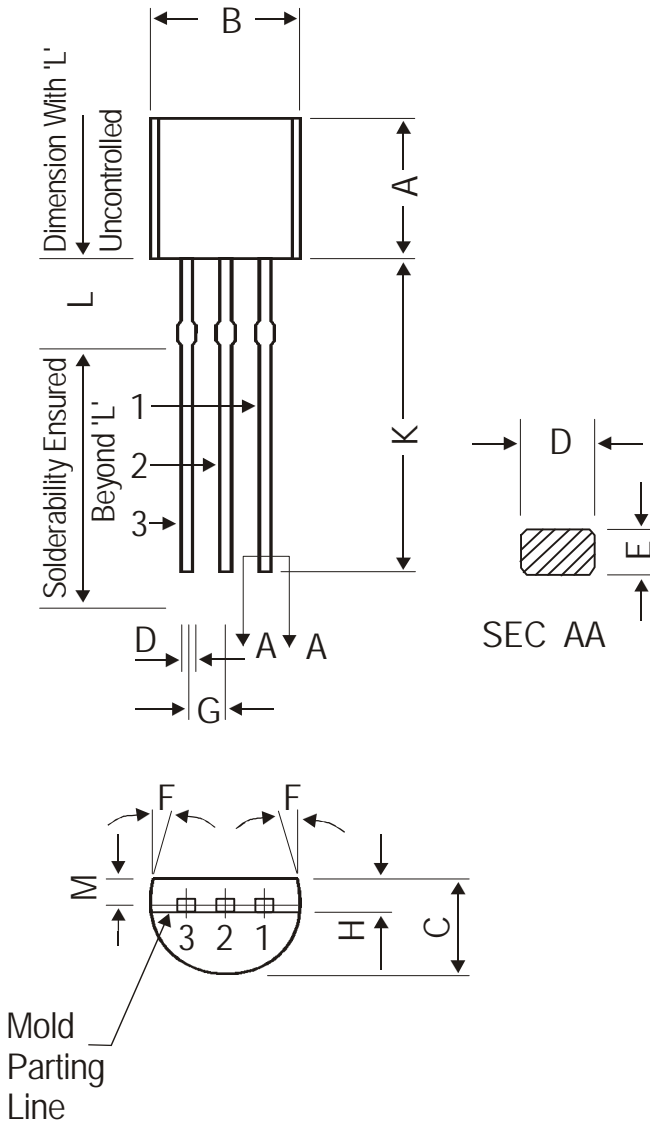
DYNAMIC CHARACTERISTICS

Transition Frequency	f _t	V _{CE} =10V, I _C =1mA, f=100MHz	80			MHz
Collector Output Capacitance	C _{ob}	V _{CB} =10V, I _E =0, f=1MHz			7.0	pF
Base Spreading Resistance	r _{bb'}	V _{CB} =10V, I _E =1mA, f=30MHz		30		Ω
Noise Figure	NF	V _{CE} =6V, I _C =0.1mA, R _g =10Kohms, f=1KHz			10	dB

CLASSIFICATION

	O	Y	GR
*h _{FE}	70 - 140	120 - 240	200 - 400

TO-92 Plastic Package

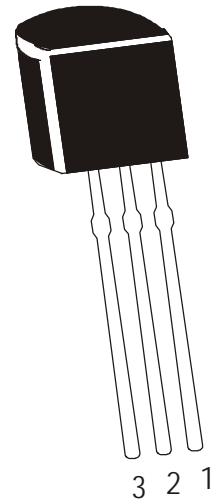


DIM	MIN.	MAX.
A	4.32	5.33
B	4.45	5.20
C	3.18	4.19
D	0.41	0.55
E	0.35	0.50
F	5 DEG	
G	1.14	1.40
H	1.20	1.40
K	12.70	—
L	1.982	2.082
M	1.03	1.20

All dimensions are in mm

PIN CONFIGURATION

1. BASE
2. COLLECTOR
3. EMITTER



The TO-92 Package, Tape and Ammo Pack Drawings are correct as on the date of issue/revision of this Data Sheet.

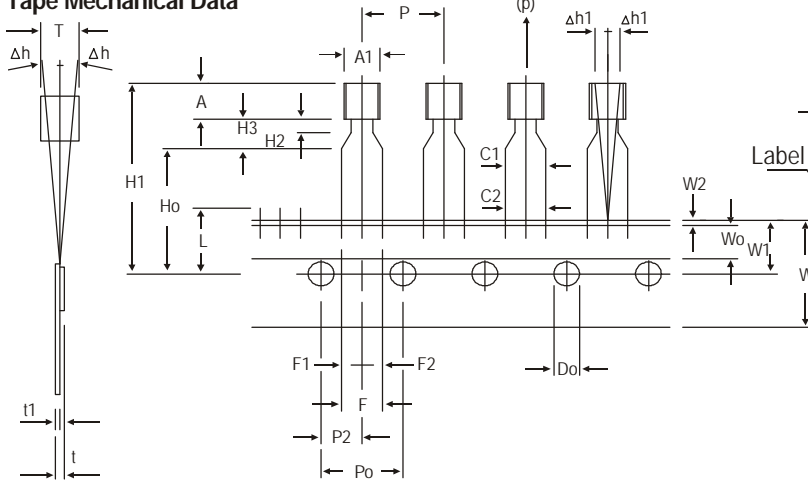
The currently valid dimensions and information, may please be confirmed from the TO-92 Drawing in the Packages and Packing Section of the Product Catalogue.

Packing Details

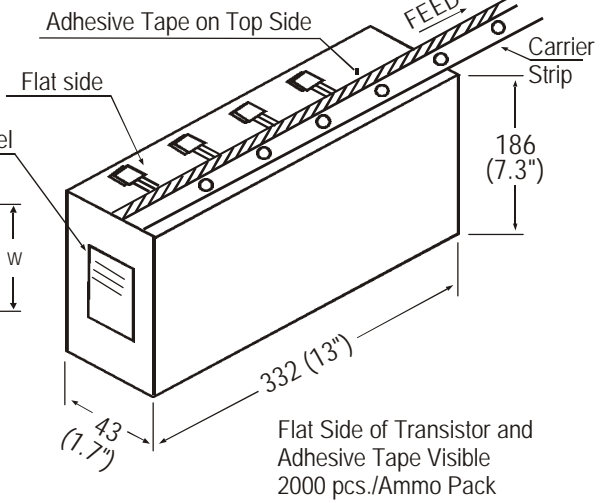
PACKAGE	STANDARD PACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr Wt
TO-92 Bulk	1K/polybag	200 gm/1K pcs	3" x 7.5" x 7.5"	5K	17" x 15" x 13.5"	80K	23 kgs
TO-92 T&A	2K/ammo box	645 gm/2K pcs	12.5" x 8" x 1.8"	2K	17" x 15" x 13.5"	32K	12.5 kgs

TO-92 Tape and Ammo Pack

Tape Mechanical Data



Ammo Pack Style



All dimensions are in mm

ITEM	SYMBOL	SPECIFICATION			
		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		± 1.0
*1 FEED HOLE PITCH	Po		12.7		± 0.3
*2 FEED HOLE CENTRE TO COMPONENT CENTRE	P2		6.35		± 0.4
DISTANCE BETWEEN OUTER LEADS	F		5.08		+ 0.6 - 0.2
*3 COMPONENT ALIGNMENT SIDE VIEW	Δh		0	1.0	
*4 COMPONENT ALIGNMENT FRONT VIEW	Δh1		0	1.3	
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
*5 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

- Maximum alignment deviation between leads will not to be greater than 0.2mm.
- Maximum non-cumulative variation between tape feed holes shall not exceed 1 mm in 20 pitches.
- Holddown tape will not exceed beyond the edge(s) of carrier tape and there shall be no exposure of adhesive.
- There will be no more than three (3) consecutive missing components in a tape.
- A tape trailer, having at least three feed holes are provided after the last component in a tape.
- Splices should not interfere with the sprocket feed holes.

REMARKS

- *1 Cumulative pitch error 1.0 mm/20 pitch
- *2 To be measured at bottom of clinch
- *3 At top of body
- *4 At top of body
- *5 t1 0.3 – 0.6 mm

Disclaimer

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