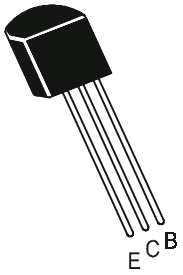
NPN SILICON EPITAXIAL TRANSISTORS

CSC1213
CSC1213A

TO-92
Plastic Package



Low Frequency Amplifier.

ABSOLUTE MAXIMUM RATINGS (Ta=25ºC unless specified otherwise)

DESCRIPTION	SYMBOL	CSC1213		CSC1213A	UNIT
Collector Emitter Voltage	V_{CEO}	35		50	V
Collector Base Voltage	V_{CBO}	35		50	V
Emitter Base Voltage	V_{EBO}		4.0	6	V
Collector Current	I_C		500		mA
Collector Power Dissipation	P_C		400		mW
Operating And Storage Junction Temperature Range	T_j, T_{stg}		-55 to +150		ºC

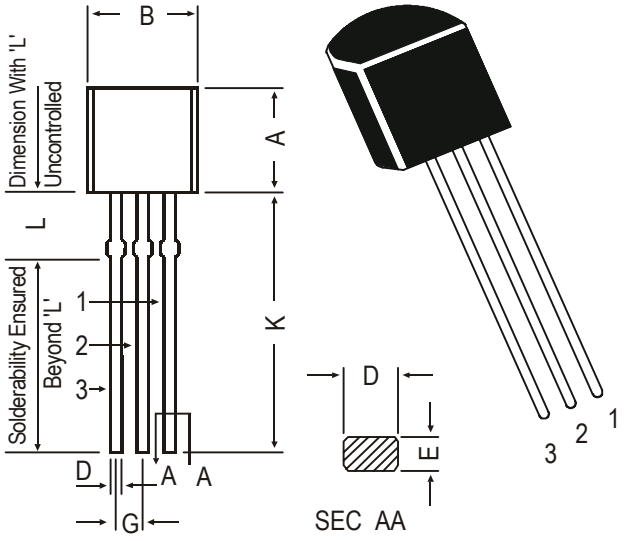
ELECTRICAL CHARACTERISTICS (Ta=25ºC unless specified otherwise)

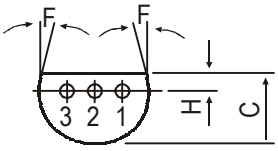
DESCRIPTION	SYMBOL		MIN	TYP	MAX	UNIT
Collector Base Voltage	V_{CBO}	I_C=10µA,I_E=0				
CSC1213			35			V
CSC1213A			50			V
Collector Emitter Voltage	V_{CEO}	I_C=1mA,I_B=0				
CSC1213			35			V
CSC1213A			50			V
Emitter Base Voltage	V_{EBO}	I_E=10µA, I_C=0	4.0			V
Collector Cut off Current	I_{CBO}	V_{CB}=20V, I_E = 0			500	nA
DC Current Gain	h_{FE}*	V_{CE}=3V,I_C=10mA	60		320	
	h_{FE}**	V_{CE}=3V,I_C=500mA	10			
Collector Emitter Saturation Voltage	$V_{CE(sat)}$* *	I_C=150mA,I_B=15mA			0.6	V
Base Emitter on Voltage	$V_{BE\ (on)}$	I_C=10mA, V_{CE}=3V		0.64		V

* hFE CLASSIFICATION	B	C	D
CSC1213 & CSC1213A	60-120	100-200	160-320

** Pulse Test

TO-92 Plastic Package



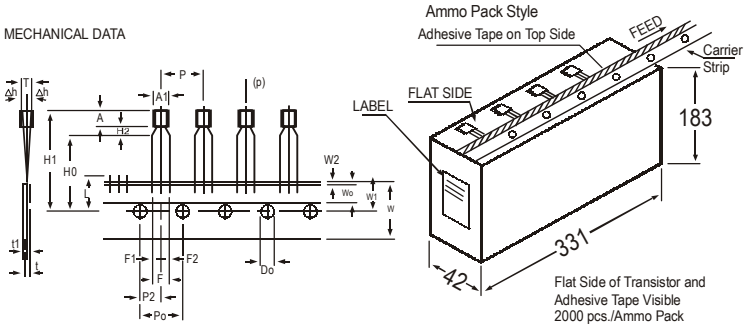


PIN CONFIGURATION
1. BASE
2. COLLECTOR
3. EMITTER

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.

TO-92 Transistors on Tape and Ammo Pack



All dimensions in mm unless specified otherwise

ITEM	SYMBOL	SPECIFICATION MIN.	NOM.	MAX.	TOL .	REMARKS
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 -0.2	
COMPONENT ALIGNMENT	△h		0	1		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 DISTANCEF1,	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

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