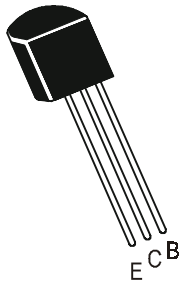


NPN SILICON EPITAXIAL TRANSISTOR

CSD545



**TO-92
Plastic Package**

Low Frequency Power Amplifier And Converter Stage Applications.

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

DESCRIPTION	SYMBOL	VALUE	UNIT
Collector Emitter Voltage	BV_{CEO}	25	V
Collector Base Voltage	BV_{CBO}	25	V
Emitter Base Voltage	BV_{EBO}	5	V
Collector Current Continuous	I_C	1	A
	Peak I_{CM}	1.5	A
Collector Power Dissipation	P_D	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 Breakdown Voltage	BV_{CEO}	$I_C=1mA, I_B=0$	25			V
Collector Base Breakdown Voltage	BV_{CBO}	$I_C=10\mu A, I_B=0$	25			V
Emitter Base Breakdown Voltage	BV_{EBO}	$I_E=10\mu A, I_C=0$	5			V
Collector Cut off Current	I_{CBO}	$V_{CB}=20V, I_E = 0$			1.0	μA
Emitter Cut off Current	I_{EBO}	$V_{BE}=4V, I_E = 0$			1.0	μA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=2V, I_C=50mA$	60		560	
	$h_{FE(2)*}$	$V_{CE}=2V, I_C=1A$	30			
Base Emitter Saturation Voltage	$V_{BE(sat)*}$	$I_C=500mA, I_B=50mA$		0.85	1.2	V
Collector Emitter Saturation Voltage	$V_{CE(sat)*}$	$I_C=500mA, I_B=50mA$		0.1	0.3	V

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

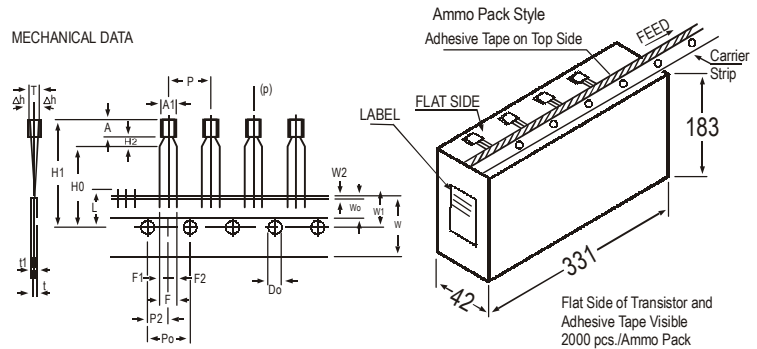
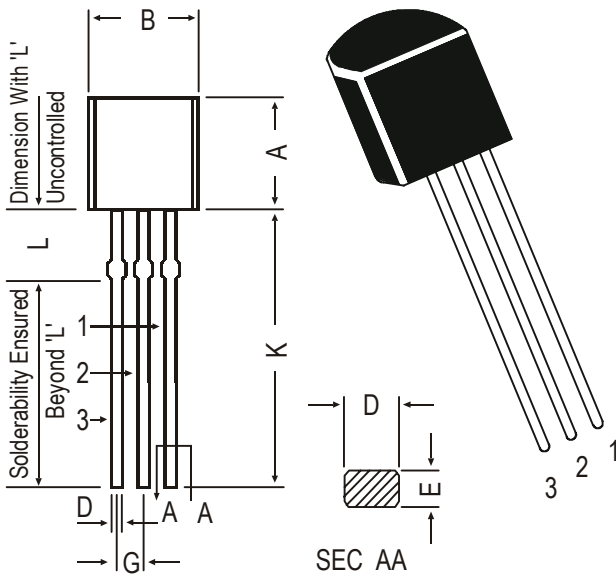
DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
DYNAMIC CHARACTERISTICS						
Transition Frequency	f_T	$I_C=50mA, V_{CE}=10V$		180		MHz
Collector Output Capacitance	C_{ob}	$I_E=0, V_{CB}=10V$ $f=1MHz$		15		pF

CLASSIFICATION	D	E	F	G
$h_{FE(1)}$	60-120	100-200	160-320	280-560

*Pulse Condition: Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

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		CUMULATIVE PITCH ERROR 1.0 mm/20 PITCH TO BE MEASURED AT BOTTOM OF CLINCH
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	AT TOP OF BODY
COMPONENT ALIGNMENT	Δh		0	1		
TAPE WIDTH	W		18		±0.5	t1 0.3 - 0.6
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	
TOTAL TAPE THICKNESS	t			1.2		
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

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