

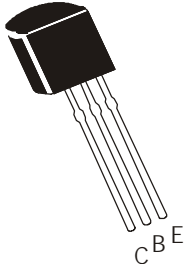
SILICON PLANAR EPITAXIAL TRANSISTORS

CNL368

NPN

CPL369

PNP



TO-92

Plastic Package

Amplifier Transistors.

ABSOLUTE MAXIMUM RATINGS (T_a=25°C Unless Specified Otherwise)

DESCRIPTION	SYMBOL	VALUE	UNITS
Collector Emitter Voltage	V _{CES}	25	V
Collector Emitter Voltage	V _{CEO}	20	V
Emitter Base Voltage	V _{EBO}	5	V
Collector Current Continuous	I _C	1	A
Power Dissipation @ T _a =25°C	P _D	1	W
Derate Above 25°C		6.4	mW/ °C
Power Dissipation @ T _c =25°C	P _D	2.75	W
Derate Above 25°C		22	mW/ °C
Operating And Storage Junction Temperature Range	T _j , T _{stg}	-55 to +150	°C

THERMAL RESISTANCE

Junction to Case	R _{th(j-c)}	45	°C/W
Junction to Ambient	R _{th(j-a)}	156	°C/W

ELECTRICAL CHARACTERISTICS (T_a=25°C Unless Specified Otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	MAX	UNITS
Collector Emitter Voltage	V _{CEO}	I _C =10mA, I _B =0	20		V
Collector Base Voltage	V _{CBO}	I _C =100µA, I _E =0	25		V
Emitter Base Voltage	V _{EBO}	I _E =100µA, I _C =0	5		V
Collector Cut off Current	I _{CBO}	V _{CB} =25V, I _E = 0		10	µA
		V _{CB} =25V, I _E = 0, T _j =150°C		1	mA
Emitter Cut off Current	I _{EBO}	V _{EB} =5V, I _C = 0		10	µA
Base-Emitter ON Voltage	V _{BE(on)}	I _C =1A, V _{CE} =1V		1	V
Collector-Emitter Saturation Voltage	V _{CE(sat)}	I _C =1A, I _B =100mA		0.5	V
DC Current Gain	h _{FE}	V _{CE} =1V, I _C =5mA	50		
		V _{CE} =1V, I _C =500mA	85	375	
		V _{CE} =1V, I _C =1A	60		

DYNAMIC CHARACTERISTICS

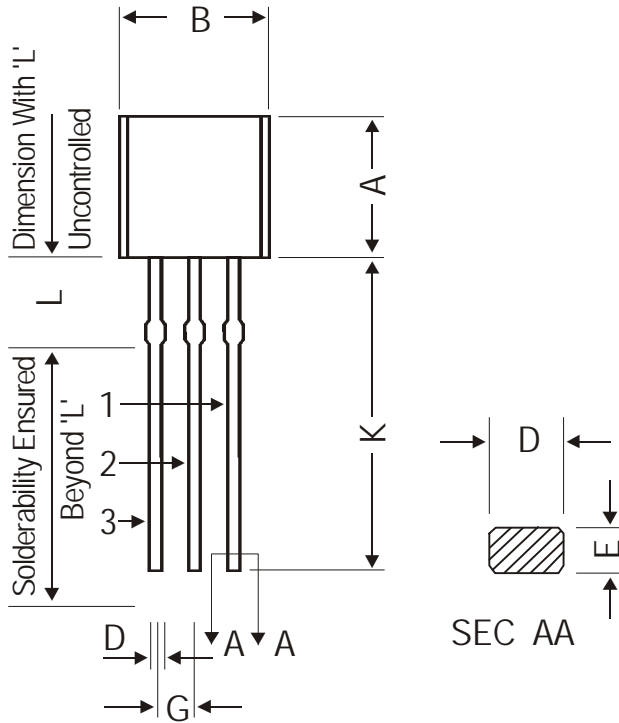
Transition Frequency	f _T	I _C =10mA, V _{CE} =5V, f=20MHz	65		MHz
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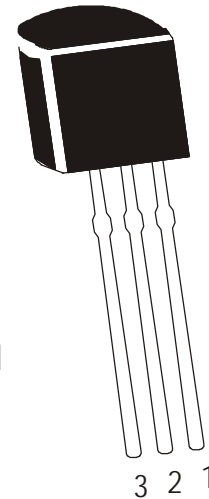
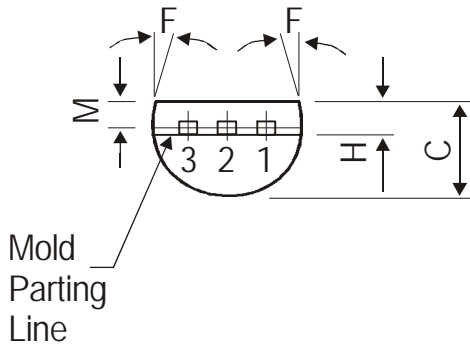
TO-92
Plastic Package

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. EMITTER
2. BASE
3. COLLECTOR

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.

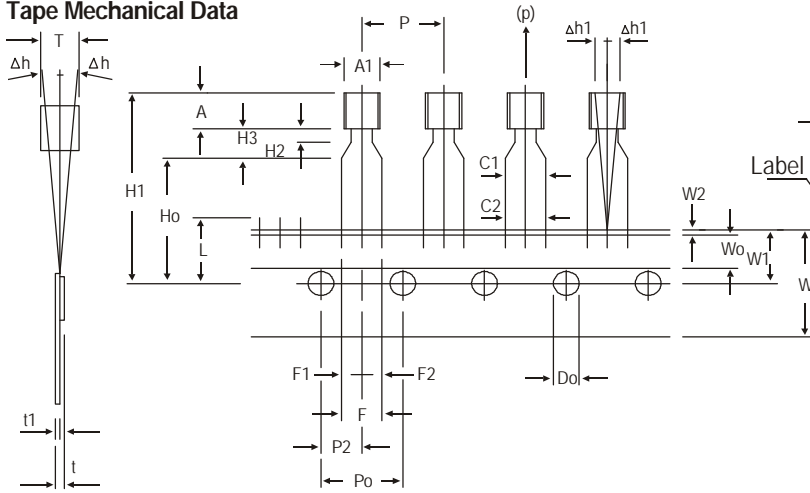
Packing Details

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

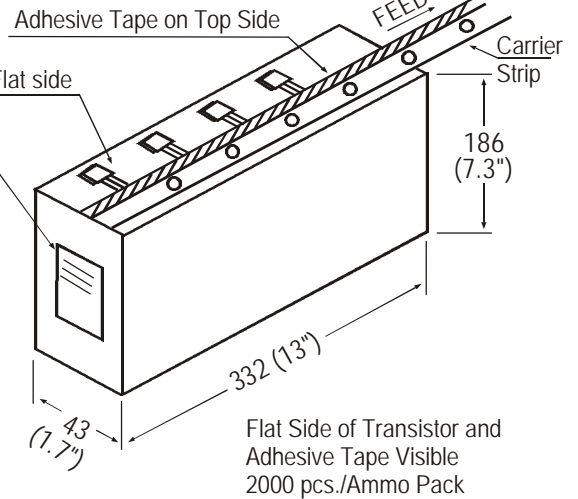
TO-92
Plastic Package

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

1. Maximum alignment deviation between leads will not to be greater than 0.2mm.
2. Maximum non-cumulative variation between tape feed holes shall not exceed 1 mm in 20 pitches.
3. Holddown tape will not exceed beyond the edge(s) of carrier tape and there shall be no exposure of adhesive.
4. There will be no more than three (3) consecutive missing components in a tape.
5. A tape trailer, having at least three feed holes are provided after the last component in a tape.
6. 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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