

TÜV MANAGEMENT SERVICE

An ISO/TS16949 and ISO 9001 Certified Company

#### NPN SILICON PLANAR EPITAXIAL TRANSISTOR

2N5172

TO-92 Plastic Package

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

DESCRIPTION	SYMBOL	VALUE	UNITS
Collector Emitter Voltage	V <sub>CEO</sub>	25	V
Collector Base Voltage	V <sub>CBO</sub>	25	V
Emitter Base Voltage	V <sub>EBO</sub>	5	V
Collector Current Continuous	I <sub>C</sub>	100	mA
Power Dissipation @ Ta=25°C	P <sub>D</sub>	625	mW
Derate Above 25°C		5	mW/ºC
Power Dissipation @ Tc=25°C	P <sub>D</sub>	1.5	W
Derate Above 25°C		12	mW/ºC
Operating And Storage Junction	T <sub>j</sub> , T <sub>stg</sub>	- 55 to +150	۰C
Temperature Range			

#### THERMAL RESISTANCE

Junction to Ambient	R <sub>th(j-a)</sub>	200	°C/W
Junction to Case	$R_{th(j-c)}$	83.3	°C/W

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

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
Collector Emitter Voltage	$V_{CEO}$	$I_C=10$ mA, $I_B=0$	25			
Collector Cut Off Current	I <sub>CBO</sub>	$V_{CB}=25V$ , $I_{E}=0$			100	nA
		V <sub>CB</sub> =25V,I <sub>E</sub> =0,Ta=100°C			10	μΑ
Collector Cut Off Current	I <sub>CES</sub>	$V_{CE}$ =25V, $V_{BE}$ =0V			100	nA
Emitter Cut Off Current	I <sub>EBO</sub>	$V_{EB} = 5V, I_C = 0$			100	nA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =10V,I <sub>C</sub> =10mA	100		500	
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	I <sub>C</sub> =10mA,I <sub>B</sub> =1mA			0.25	V
Base Emitter Saturation Voltage	$V_{BE(sat)}$	I <sub>C</sub> =10mA,I <sub>B</sub> =1mA		0.75		V
Base Emitter On Voltage	$V_{BE(on)}$	$V_{CE}=10V,I_{C}=10mA$	0.5		1.2	V

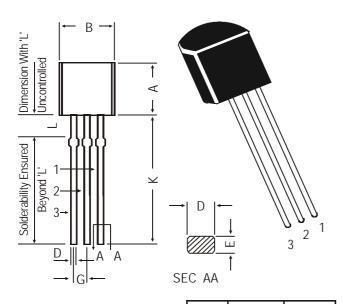
# DYNAMIC CHARACTERISTICS

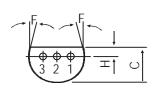
Current Gain-Bandwidth Product	$f_T$	$I_C=2mA$ , $V_{CE}=5V$		120		MHz
Collector Base Capacitance	$C_{Cb}$	$I_E=0$ , $V_{CB}=0$ V, $f=1$ MHz	1.6		10	pF
Small Signal Current Gain	h <sub>fe</sub>	$V_{CE} = 10V, I_{C} = 10mA$ f=1kHz	100		750	

# **TO-92 Plastic Package**

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#### **TO-92 Transistors on Tape and Ammo Pack**





DIM	MIN.	MAX.
Α	4.32	5.33
В	4.45	5.20
С	3.18	4.19
D	0.41	0.55
Е	0.35	0.50
F	5 D	EG
G	1.14	1.40
Н	1.14	1.53
K	12.70	_
	1 982	2 082

# PIN CONFIGURATION

- 1. BASE
- 2. COLLECTOR
- **EMITTER**

DIM	MIN.	MAX.					
Α	4.32	5.33					
В	4.45	5.20					
С	3.18	4.19					
D	0.41	0.55					
Е	0.35	0.50					
F	5 DEG						
G	1.14	1.40					
Н	1.14	1.53					
K	12.70	_					
L	1.982	2.082					
A 11 - 12 2							

All diminsions in mm.

MECHANICAL DATA  P  A  A  A  A  B  A  A  B  A  B  A  B  B	Ammo Pack Style Adhesive Tape on Top Side  Carrier Strip  183
- → Po	Flat Side of Transistor and Adhesive Tape Visible 2000 pcs/Ammo Pack

			SPEC	IFICATI	ON	
ITEM	SYMBOL	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		%%P1	
FEED HOLE PITCH	Po		12.7		%%P0.3	CUMULATIVE PITCH ERROR 1.0 mm/20 PITCH
FEED HOLE CENTRE TO						
COMPONENT CENTRE	P2		6.35		%%P0.4	TO BE MEASURED AT BOTTOM OF CLINCH
DISTANCE BETWEEN OUTER					+0.6	
LEADS	F		5.08		-0.2	
COMPONENT ALIGNMENT SIDE VIEW	Δh		0	1.0		AT TOP OF BODY
COMPONENT ALIGNMENT FRONT VIEW	∆h1		0	1.3		AT TOP OF BODY
TAPE WIDTH	W		18		%%P0.5	
HOLD-DOWN TAPE WIDTH	Wo		6		%%P0.2	
HOLE POSITION	W1		9		+0.7	
					-0.5	
HOLD-DOWN TAPE POSITION	W2		0.5		%%P0.2	
LEAD WIRE CLINCH HEIGHT	Ho		16		%%P0.5	
COMPONENT HEIGHT	H1			23.25		
LENGTH OF SNIPPED LEADS	L			11.0		
FEED HOLE DIAMETER	Do		4		%%P0.2	
TOTAL TAPE THICKNESS	t			1.2		t1 0.3 - 0.6
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 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 IS PERMITTED.

  5. A TAPE TRAILER, HAVING AT LEAST THREE FEED HOLES IS 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

Notes 2N5172

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#### **Disclaimer**

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