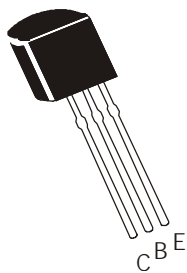


**PNP SILICON PLANAR EPITAXIAL TRANSISTORS**

**P2N2907  
P2N2907A**



**TO-92  
Plastic Package**

Designed for switching and linear applications, DC amplifier and driver for industrial applications

**ABSOLUTE MAXIMUM RATINGS (T<sub>a</sub>=25°C Unless Specified Otherwise)**

DESCRIPTION	SYMBOL	P2N2907	P2N2907A	UNIT
Collector Emitter Voltage	V <sub>CEO</sub>	40	60	V
Collector Base Voltage	V <sub>CBO</sub>	60	60	V
Emitter Base Voltage	V <sub>EBO</sub>	5		V
Collector Current	I <sub>CM</sub>	600		mA
Total Power Dissipation @ T <sub>a</sub> =25°C	P <sub>D</sub>	625		mW
Derate above 25°C		5		mW/°C
Total Power Dissipation @ T <sub>C</sub> =25°C	P <sub>D</sub>	1.5		W
Derate above 25°C		12		mW/°C
Operating and Storage Junction Temperature Range	T <sub>j</sub> , T <sub>stg</sub>	- 55 to +150		°C

**THERMAL RESISTANCE**

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

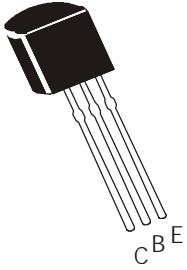
**ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C Unless Specified Otherwise)**

DESCRIPTION	SYMBOL	TEST CONDITION	P2N2907	P2N2907A	UNIT
Collector Emitter Voltage	*V <sub>CEO</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =0	>40	>60	V
Collector Base Voltage	V <sub>CBO</sub>	I <sub>C</sub> =10μA, I <sub>E</sub> =0	>60	>60	V
Emitter Base Voltage	V <sub>EBO</sub>	I <sub>E</sub> =10μA, I <sub>C</sub> =0	>5	>5	V
Collector Cut off Current	I <sub>CBO</sub>	V <sub>CB</sub> =50V, I <sub>E</sub> =0	<20	<10	nA
	I <sub>CEX</sub>	V <sub>CB</sub> =50V, I <sub>E</sub> =0, T <sub>a</sub> =150°C	<20	<10	μA
	I <sub>CEO</sub>	V <sub>CE</sub> =30V, V <sub>EB(off)</sub> =0.5V	<50	<50	nA
Emitter Cut off Current	I <sub>EBO</sub>	V <sub>CE</sub> =10V, I <sub>B</sub> =0	<10	<10	nA
		V <sub>EB</sub> =3V, I <sub>C</sub> =0	<10	<10	nA
Base Cut off Current	I <sub>BEX</sub>	V <sub>CE</sub> =30V, V <sub>EB(off)</sub> =0.5V	<50	<50	nA
Collector Emitter Saturation Voltage	*V <sub>CE(sat)</sub>	I <sub>C</sub> =150mA, I <sub>B</sub> =15mA	<0.4	<0.4	V
		I <sub>C</sub> =500mA, I <sub>B</sub> =50mA	<1.6	<1.6	V
Base Emitter Saturation Voltage	*V <sub>BE(sat)</sub>	I <sub>C</sub> =150mA, I <sub>B</sub> =15mA	<1.3	<1.3	V
		I <sub>C</sub> =500mA, I <sub>B</sub> =50mA	<2.6	<2.6	V

# PNP SILICON PLANAR EPITAXIAL TRANSISTORS

**P2N2907**  
**P2N2907A**

**TO-92**  
**Plastic Package**



## ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$ Unless Specified Otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	P2N2907	P2N2907A	UNIT
DC Current Gain	$h_{FE}$	$I_C=0.1\text{mA}, V_{CE}=10\text{V}$	>35	>75	
		$I_C=1\text{mA}, V_{CE}=10\text{V}$	>50	>100	
		$I_C=10\text{mA}, V_{CE}=10\text{V}$	>75	>100	
		$I_C=150\text{mA}, V_{CE}=10\text{V}^*$	100 - 300	100 - 300	
		$I_C=500\text{mA}, V_{CE}=10\text{V}^*$	>30	>50	
<b>DYNAMIC CHARACTERISTICS</b>					
Transition Frequency	$f_T$	$I_C=50\text{mA}, V_{CE}=20\text{V},$ $f=100\text{MHz}$	>200	>200	MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$	<8	<8	pF
Input Capacitance	$C_{ib}$	$V_{EB}=2\text{V}, I_C=0, f=1\text{MHz}$	<30	<30	pF

## SWITCHING CHARACTERISTICS

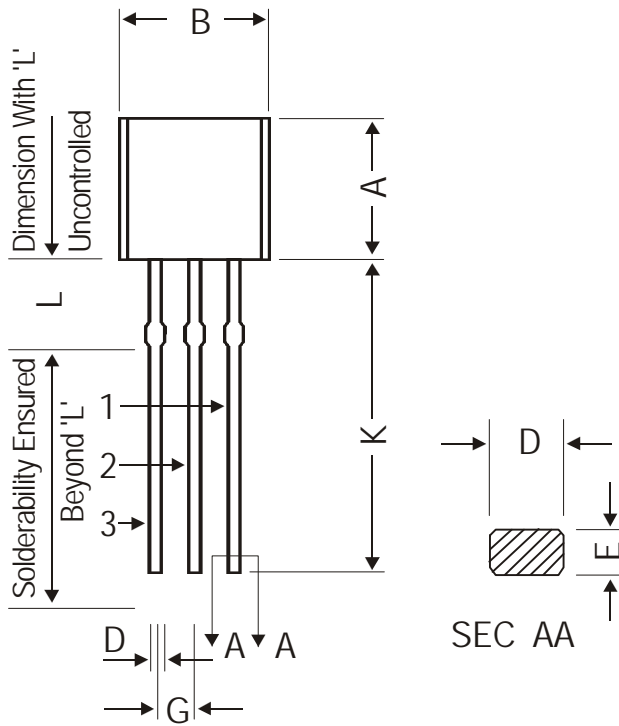
Delay Time	$t_d$	$I_C=150\text{mA}, I_{B1}=15\text{mA},$ $V_{CC}=30\text{V}$	<10	<10	ns
Rise Time	$t_r$		<40	<40	ns
Turn-on Time	$t_{on}$		<50	<50	ns
Storage Time	$t_s$	$I_C=150\text{mA}, I_{B1}=15\text{mA},$ $I_{B2}=15\text{mA}, V_{CC}=6\text{V}$	<80	<80	ns
Fall Time	$t_f$		<30	<30	ns
Turn-off Time	$t_{off}$		<110	<110	ns

\* Pulse condition: Pulse Width  $\leq 300\mu\text{s}$ , Duty cycle  $\leq 1\%$

**P2N2907  
P2N2907A**

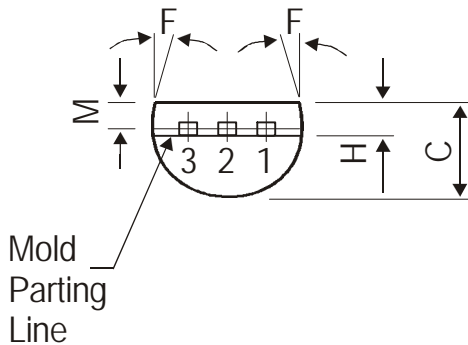
**TO-92  
Plastic Package**

**TO-92 Plastic Package**



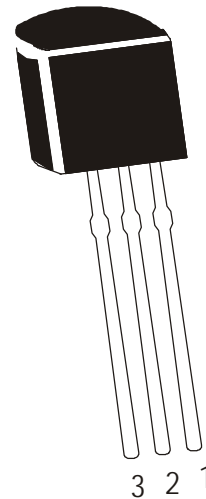
DIM	MIN.	MAX.
A	4.32	5.33
B	4.45	5.20
C	3.18	4.19
D	0.41	0.55
E	0.35	0.50
F	5 DEG	
G	1.14	1.40
H	1.20	1.40
K	12.70	—
L	1.982	2.082
M	1.03	1.20

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

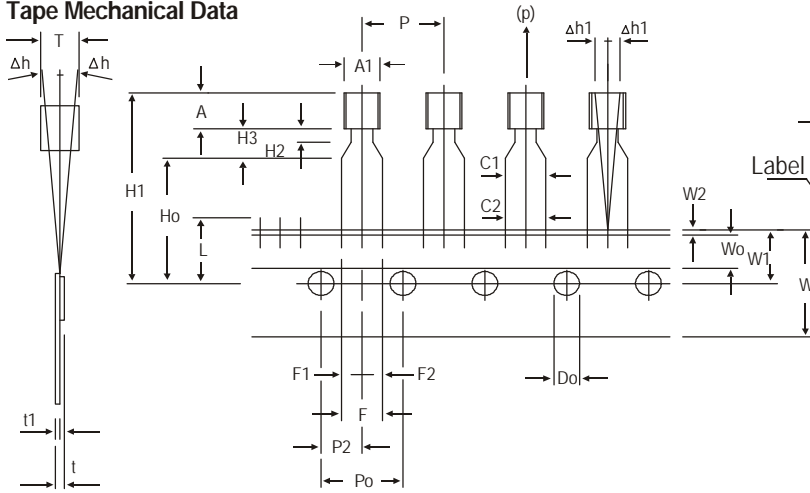
Packing Section of the Product Catalogue.

**Packing Details**

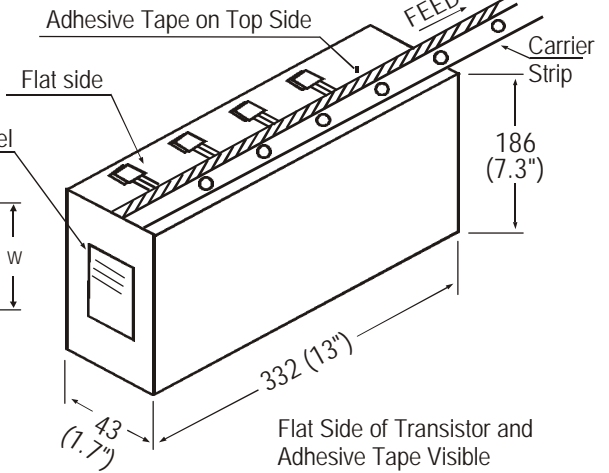
PACKAGE	STANDARD PACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr/Wt
TO-92 Bulk	1K/polybag	200 gm/1K pcs	3" x 7.5" x 7.5"	5K	17" x 15" x 13.5"	80K	23 kgs
TO-92 T&A	2K/ammo box	645 gm/2K pcs	12.5" x 8" x 1.8"	2K	17" x 15" x 13.5"	32K	12.5 kgs

**TO-92 Tape and Ammo Pack**

**Tape Mechanical Data**



**Ammo Pack Style**



Flat Side of Transistor and Adhesive Tape Visible  
2000 pcs./Ammo Pack

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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