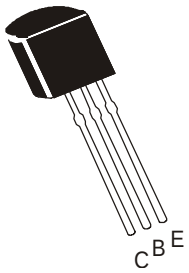
PNP SILICON PLANAR EPITAXIAL TRANSISTORS

P2N2907
P2N2907A



TO-92
Plastic Package

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

ABSOLUTE MAXIMUM RATINGS (T_a=25ºC Unless Specified Otherwise)

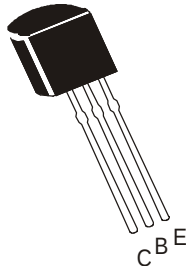
DESCRIPTION	SYMBOL	P2N2907	P2N2907A	UNIT
Collector Emitter Voltage	V_{CEO}	40	60	V
Collector Base Voltage	V_{CBO}	60	60	V
Emitter Base Voltage	V_{EBO}	5		V
Collector Current	I_{CM}	600		mA
Total Power Dissipation @ T_a=25ºC	P_D	625		mW
Derate above 25ºC		5		mW/ºC
Total Power Dissipation @ T_C=25ºC	P_D	1.5		W
Derate above 25ºC		12		mW/ºC
Operating and Storage Junction Temperature Range	T_j, T_{stg}	- 55 to +150		ºC

THERMAL RESISTANCE

Junction to Case	$R_{th\ (j\text{-}c)}$	83.3	ºC/W
Junction to Ambient	$R_{th\ (j\text{-}a)}$	200	ºC/W

ELECTRICAL CHARACTERISTICS (T_a=25ºC Unless Specified Otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	P2N2907	P2N2907A	UNIT
Collector Emitter Voltage	*V_{CEO}	I_C=10mA, I_B=0	>40	>60	V
Collector Base Voltage	V_{CBO}	I_C=10µA, I_E=0	>60	>60	V
Emitter Base Voltage	V_{EBO}	I_E=10µA, I_C=0	>5	>5	V
Collector Cut off Current	I_{CBO}	V_{CB}=50V, I_E=0	<20	<10	nA
		V_{CB}=50V, I_E=0, T_a=150°C	<20	<10	µA
	I_{CEX}	V_{CE}=30V, $V_{EB(off)}$=0.5V	<50	<50	nA
	I_{CEO}	V_{CE}=10V, I_B=0	<10	<10	nA
Emitter Cut off Current	I_{EBO}	V_{EB}=3V, I_C=0	<10	<10	nA
Base Cut off Current	I_{BEX}	V_{CE}=30V, $V_{EB(off)}$=0.5V	<50	<50	nA
Collector Emitter Saturation Voltage	*$V_{CE\ (sat)}$	I_C=150mA, I_B=15mA	<0.4	<0.4	V
		I_C=500mA, I_B=50mA	<1.6	<1.6	
Base Emitter Saturation Voltage	*$V_{BE\ (sat)}$	I_C=150mA, I_B=15mA	<1.3	<1.3	V
		I_C=500mA, I_B=50mA	<2.6	<2.6	



TO-92
Plastic Package

ELECTRICAL CHARACTERISTICS (T_a=25ºC Unless Specified Otherwise)

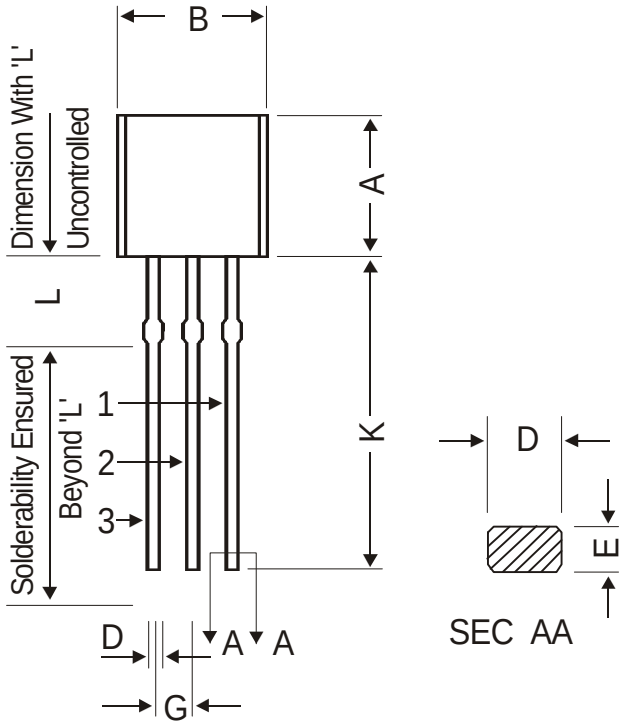
DESCRIPTION	SYMBOL	TEST CONDITION	P2N2907	P2N2907A	UNIT
DC Current Gain	h_{FE}	I_C=0.1mA, V_{CE}=10V	>35	>75	
		I_C=1mA, V_{CE}=10V	>50	>100	
		I_C=10mA, V_{CE}=10V	>75	>100	
		I_C=150mA, V_{CE}=10V*	100 - 300	100 - 300	
		I_C=500mA, V_{CE}=10V*	>30	>50	
DYNAMIC CHARACTERISTICS					
Transition Frequency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

SWITCHING CHARACTERISTICS

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

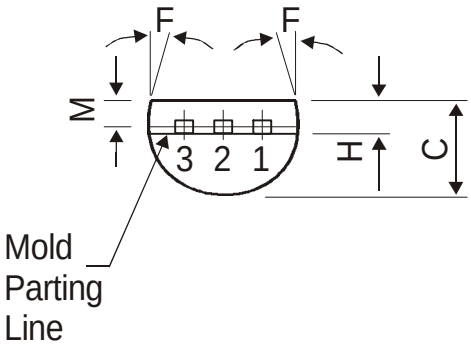
*** Pulse condition: Pulse Width ≤ 300ms, Duty cycle ≤ 1%**

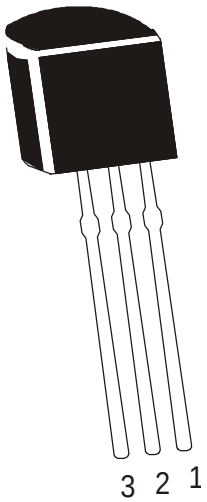
TO-92 Plastic Package



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.

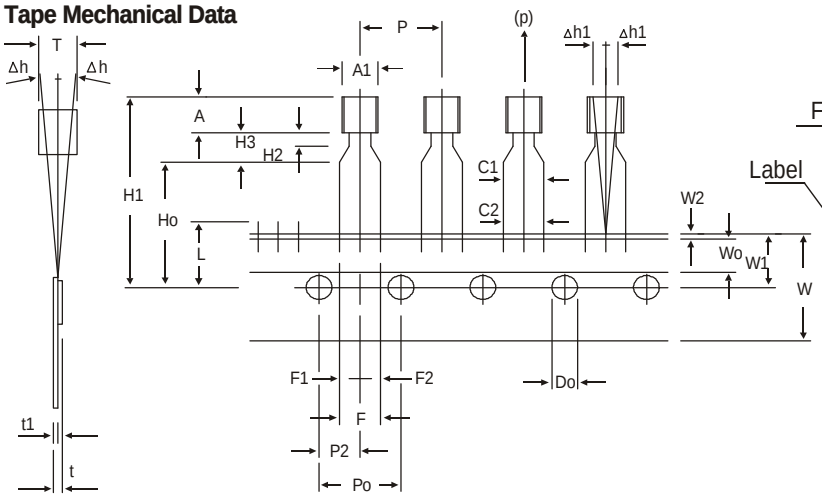
The currently valild dimensions and information, may please be confirmed from the TO-92 Drawing in the Packages and Packing Section of the Product Catalogue.

Packing Details

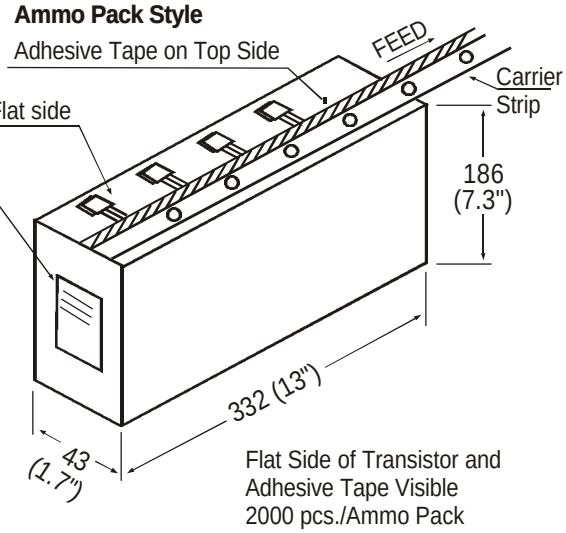
PACKAGE	STANDARD PACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr Wt
TO-92 Bulk	1K/polybag	200 gm/1K pcs	3" x 7.5" x 7.5"	5K	17" x 15" x 13.5"	80K	23 kgs
TO-92 T&A	2K/ammo box	645 gm/2K pcs	12.5" x 8" x 1.8"	2K	17" x 15" x 13.5"	32K	12.5 kgs

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	△h		0	1.0	
*4 COMPONENT ALIGNMENT FRONT VIEW	△h1		0	1.3	
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
*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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