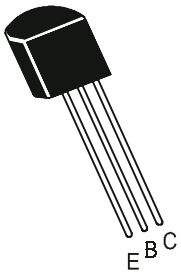
PNP SILICON PLANAR EPITAXIAL TRANSISTORS

MPS2907
MPS2907A

TO-92
Plastic Package



General Purpose Transistors

ABSOLUTE MAXIMUM RATINGS(Ta=25ºC unless specified otherwise)

DESCRIPTION	SYMBOL	MPS2907	MPS2907A	UNITS
Collector Emitter Voltage	V_{CEO}	40	60	V
Collector Base Voltage	V_{CBO}	60	75	V
Emitter Base Voltage	V_{EBO}	5		V
Collector Current Continuous	I_C	600		mA
Power Dissipation @ Ta=25ºC	P_D	625		mW
Derate Above 25ºC		5		mW/ºC
Power Dissipation @ Tc=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 ambient	$R_{th(j-a)}$	200		ºC/W
Junction to case	$R_{th(j-c)}$	83.3		ºC/W

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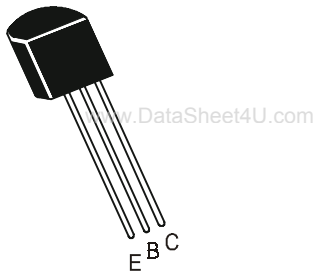

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ELECTRICAL CHARACTERISTICS (Ta=25ºC Unless Specified Otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MPS2907		MPS2907A		UNITS
			MIN	MAX	MIN	MAX	
Collector Emitter Voltage	BV_{CEO} *	I_C=10mA,I_B=0	40		60		V
Collector Base Voltage	BV_{CBO}	I_C=10µA,I_E=0	60		60		V
Emitter-Base Voltage	BV_{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^{0}C		20		10	µA
Collector-Cut off Current	I_{CEX}	V_{CE}=30V, V_{EB}(off)=0.5V		50		50	nA
Collector-Cut off Current	I_{CEO}	V_{CE}=10V		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	V
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	V
DC Current Gain							µA
	h_{FE}	V_{CE}=10V,I_C=0.1mA	35		75		
		V_{CE}=10V,I_C=1mA	50		100		
		V_{CE}=10V,I_C=10mA	75		100		
		V_{CE}=10V*,I_C=150mA	100	300	100	300	
		V_{CE}=10V*,I_C=500mA	30		50		

ELECTRICAL CHARACTERISTICS (Ta=25ºC Unless Specified Otherwise)

DYNAMIC CHARACTERISTICS	SYMBOL	TEST CONDITION	MPS2907		MPS2907A		UNITS
			MIN	MAX	MIN	MAX	
Transition Frequency	f_T*(1)	I_C=50mA, V_{CE}=20V					
		f=100MHz	200		200		MHz
Output Capacitance	C_{ob}	I_E=0, V_{CB}=10V					
		f=1MHz		8		8	pF
Input Capacitance	Ci_b	Ic=0, V_{EB}=2V					
		f=1MHz		30		30	pF

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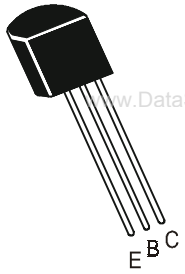

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Plastic Package

SWITCHING CHARCTERISTICS	SYMBOL	TEST CONDITION	MPS2907		MPS2907A		UNITS
		I_C =150mA,I_{B1} =15mA, V_{CC} =30V	MIN	MAX	MIN	MAX	
Delay Time	t_d			10		10	ns
Rise Time	t_r			40		40	ns
Turn On Time	t_{on}			45		45	ns
		I_C =150mA, I_{B1}= I_{B2} 15mA, V_{CC} =6V					
Storage Time	t_s			80		80	ns
Fall Time	t_f			30		30	ns
Turn Off Time	t_{off}			100		100	ns

***Pulse Condition: Width ≤ 300us, Duty Cycle ≤ 2%.**

(1)f_T is defined as the frequency at which $|h_{fe}|$ extrapolates to unity.

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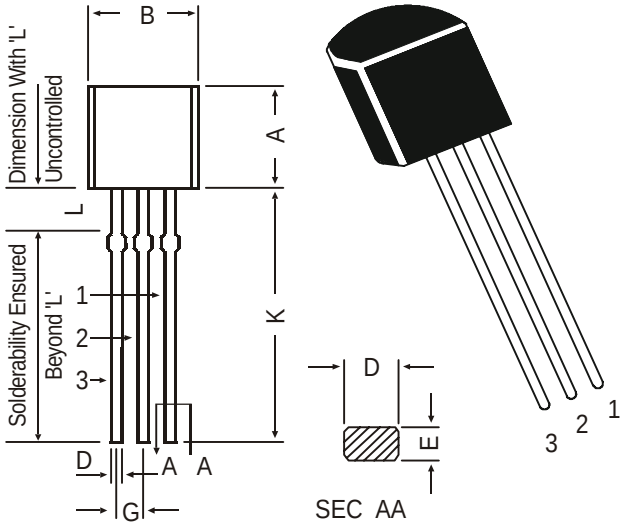
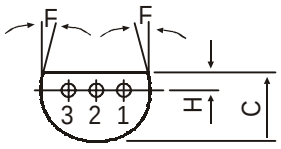


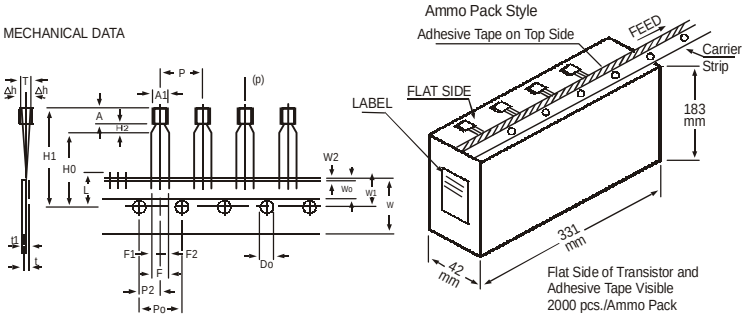


PIN CONFIGURATION
1. COLLECTOR
2. BASE
3. EMITTER

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 diminsions in mm.

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		
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	CUMULATIVE PITCH ERROR 1.0 mm/20 PITCH
FEED HOLE CENTRE TO COMPONENT CENTRE	P2		6.35		±0.4	TO BE MEASURED AT BOTTOM OF CLINCH
DISTANCE BETWEEN OUTER LEADS	F		5.08		+0.6 -0.2	
COMPONENT ALIGNMENT	△h		0	1		AT TOP OF BODY
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	
TOTAL TAPE THICKNESS	t			1.2		t1 0.3 - 0.6
LEAD - TO - LEAD DISTANCEF1,	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.

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