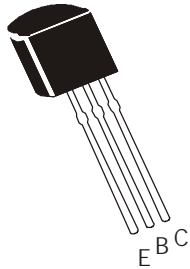


## NPN/PNP SILICON PLANAR EPITAXIAL TRANSISTORS



**MPSA05, MPSA06  
MPSA55, MPSA56**

**TO-92  
Plastic Package**

### Amplifier Transistors

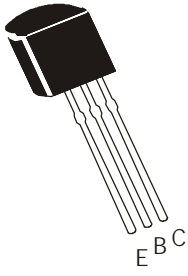
#### ABSOLUTE MAXIMUM RATINGS(Ta=25°C unless otherwise specified)

DESCRIPTION	SYMBOL	MPSA05 MPSA55	MPSA06 MPSA56	UNITS
Collector Emitter Voltage	$V_{CEO}$	60	80	V
Collector Base Voltage	$V_{CBO}$	60	80	V
Emitter Base Voltage	$V_{EBO}$		4	V
Collector Current Continuous	$I_C$		500	mA
Total Device Dissipation@Ta=25°C	$P_D$		625	mW
Derate Above 25°C			5.0	mW/°C
Total Device Dissipation@ Tc=25°C	$P_D$		1.5	W
Derate Above 25°C			12	mW/°C
Operating And Storage Junction Temperature Range	$T_j, T_{stg}$		-55 to +150	°C
<b>THERMAL RESISTANCE</b>				
Junction to ambient	$R_{th(j-a)} (1)$		200	°C/mW
Junction to case	$R_{th(j-c)}$		83.3	°C/mW

**(1)  $R_{th(j-a)}$  is measured with the device soldered into a typical printed circuit board.**

**NPN SILICON PLANAR EPITAXIAL TRANSISTORS**

**MPSA05,MPSA06  
MPSA55,MPSA56**



**TO-92  
Plastic Package**

**ELECTRICAL CHARACTERISTICS (Ta=25°C Unless Otherwise Specified)**

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
<b>Collector Emitter Voltage</b>	$V_{CEO}$ *	$I_C=1mA, I_B=0$				
			MPSA05/55	60		V
			80			V
<b>Emitter-Base Voltage</b>	$V_{EBO}$	$I_E=100\mu A, I_C=0$	4.0			V
<b>Collector-Cut off Current</b>	$I_{CBO}$	$V_{CB}=60V, I_E = 0$			0.1	$\mu A$
			MPSA05/55			0.1
		$V_{CB}=80V, I_E = 0$				$\mu A$
					0.1	$\mu A$
<b>Collector-Cut off Current</b>	$I_{CEO}$	$V_{CE}=60V, I_B = 0$				$\mu A$
<b>Collector-Emitter (sat) Voltage</b>	$V_{CE(sat)}$	$I_C=100mA, I_B=10mA$			0.25	V
<b>Base-Emitter(on) Voltage</b>	$V_{BE(on)}$	$I_C=100mA, V_{CE}=1V$			1.2	V
<b>DC Current Gain</b>	$h_{FE}$	$V_{CE}=1V, I_C=10mA$		100		
				$V_{CE}=1V, I_C=100mA$	100	

**ELECTRICAL CHARACTERISTICS (Ta=25°C Unless Otherwise Specified)**

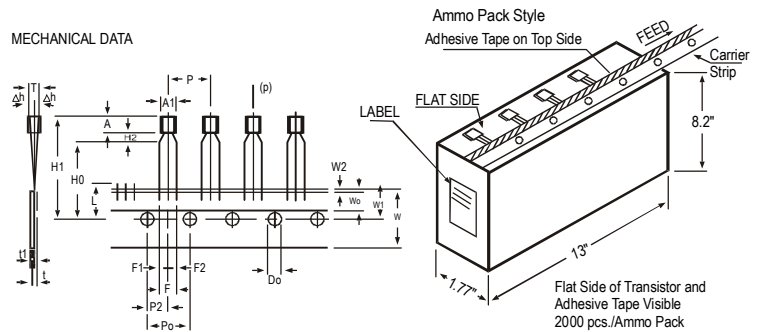
DESCRIPTION	SYMBOL	TEST CONDITION	MIN	MAX	UNITS
<b>DYNAMIC CHARACTERISTICS</b>					
<b>Transition Frequency</b>	<b>NPN</b>	$f_T^{**}$	$I_C=10mA, V_{CE}=2V$	100	MHz
			$f=100MHz$		
	<b>PNP</b>		$I_C=100mA, V_{CE}=1V$	50	MHz
			$f=100MHz$		

\*Pulse Test : Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .

\*\*  $f_T$  is defined as the frequency at which  $|h_{fe}|$  extrapolates to unity.

**TO-92 Plastic Package**

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

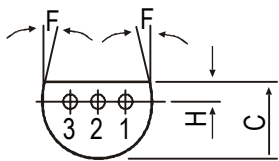
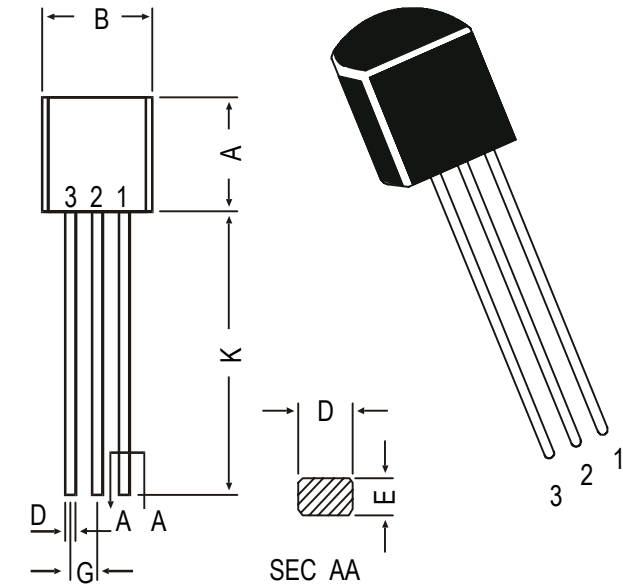


All dimensions in mm unless specified otherwise

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	Δh		0	1		AT TOP OF BODY
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	
TOTAL TAPE THICKNESS	t			1.2		t1 0.3 - 0.6
LEAD - TO - LEAD DISTANCE F1,	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.



- PIN CONFIGURATION**
1. COLLECTOR
  2. BASE
  3. EMITTER

All dimensions in mm.

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	—

**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"	5.0K	17" x 15" x 13.5"	80.0K	23 kgs
TO-92 T&A	2K/ammo box	645 gm/2K pcs	12.5" x 8" x 1.8"	2.0K	17" x 15" x 13.5"	32.0K	12.5 kgs

### **Disclaimer**

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