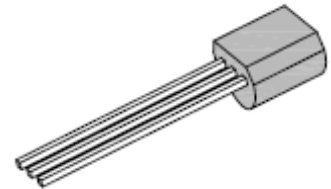


## Small Signal High Voltage Transistors (NPN)

### Features

- This device is designed for application as a video output to drive color CRT and other high voltage applications.
- RoHS Compliance



### Mechanical Data

<b>Case:</b>	TO-92, Plastic Package
<b>Terminals:</b>	Solderable per MIL-STD-202G, Method 208
<b>Weight:</b>	0.18 gram

TO-92



### Maximum Ratings *(T<sub>Ambient</sub>=25°C unless noted otherwise)*

Symbol	Description	MPSA44	MPSA45	Unit
<b>V<sub>CEO</sub></b>	Collector-Emitter Voltage	400	350	V
<b>V<sub>CBO</sub></b>	Collector-Base Voltage	500	400	V
<b>V<sub>EBO</sub></b>	Emitter-Base Voltage	6.0		V
<b>I<sub>C</sub></b>	Collector Current Continuous	300		mA
<b>P<sub>D</sub></b>	Power Dissipation at T <sub>A</sub> =25°C	625		mW
	Derate above 25°C	5.0		mW/° C
<b>P<sub>D</sub></b>	Power Dissipation at T <sub>C</sub> =25°C	1.5		W
	Derate above 25°C	12		mW/° C
<b>R<sub>θJA</sub></b>	Thermal Resistance Junction to Ambient Air	200		° C/W
<b>R<sub>θJC</sub></b>	Thermal Resistance Junction to Case	83.3		° C/W
<b>T<sub>J</sub> , T<sub>STG</sub></b>	Operation and Storage Junction Temperature Range	-55 to +150		° C

# Small Signal High Voltage Transistors (NPN)

## MPSA44/MPSA45

### Electrical Characteristics ( $T_{Ambient}=25^{\circ}C$ unless noted otherwise)

Symbol	Description	MPSA44		MPSA45		Unit	Conditions
		Min.	Max.	Min.	Max.		
<b>V<sub>(BR)CBO</sub></b>	Collector-Base Breakdown Voltage	500	-	400	-	V	I <sub>C</sub> =100μA, I <sub>E</sub> =0
<b>V<sub>(BR)CES</sub></b>	Collector-Emitter Breakdown Voltage	500	-	400	-	V	I <sub>C</sub> =100μA, V <sub>BE</sub> =0
<b>V<sub>(BR)CEO</sub></b>	Collector-Emitter Breakdown Voltage	400	-	350	-	V	I <sub>C</sub> =1mA, I <sub>B</sub> =0
<b>V<sub>(BR)EBO</sub></b>	Emitter-Base Breakdown Voltage	6.0	-	6.0	-	V	I <sub>E</sub> =10μA, I <sub>C</sub> =0
<b>V<sub>CE(sat)</sub>*</b>	Collector Emitter Saturation Voltage	-	0.40	-	0.40	V	I <sub>C</sub> =1mA, I <sub>B</sub> =0.1mA
		-	0.50	-	0.50	V	I <sub>C</sub> =10mA, I <sub>B</sub> =1mA
		-	0.75	-	0.75	V	I <sub>C</sub> =50mA, I <sub>B</sub> =5mA
<b>V<sub>BE(sat)</sub>*</b>	Base Emitter Saturation Voltage	-	0.75	-	0.75	V	I <sub>C</sub> =10mA, I <sub>B</sub> =1mA
<b>I<sub>CBO</sub></b>	Collector Cut-Off Current	-	100	-	100	nA	
		V <sub>CB</sub> =400V, I <sub>E</sub> =0		V <sub>CB</sub> =320V, I <sub>E</sub> =0			
<b>I<sub>CES</sub></b>	Collector Cut-Off Current	-	500	-	500	nA	
		V <sub>CB</sub> =400V, V <sub>BE</sub> =0		V <sub>CB</sub> =320V, V <sub>BE</sub> =0			
<b>I<sub>EBO</sub></b>	Emitter Cut-Off Current	-	100	-	100	nA	V <sub>EB</sub> =4V, I <sub>C</sub> =0
<b>h<sub>FE</sub>*</b>	D.C. Current Gain	40	-	40	-		V <sub>CE</sub> =10V, I <sub>C</sub> =1mA
		50	200	50	200		V <sub>CE</sub> =10V, I <sub>C</sub> =10mA
		45	-	45	-		V <sub>CE</sub> =10V, I <sub>C</sub> =50mA
		40	-	40	-		V <sub>CE</sub> =10V, I <sub>C</sub> =100mA
<b>C<sub>OB0</sub></b>	Output Capacitance	-	7	-	7	pF	V <sub>CB</sub> =20V, I <sub>E</sub> =0 f=1MHz
<b>C<sub>IB0</sub></b>	Input Capacitance	-	130	-	130	pF	V <sub>EB</sub> =0.5V, I <sub>C</sub> =0 f=1MHz
<b>h<sub>fe</sub></b>	Small Signal Current Gain	2	-	2	-		V <sub>CE</sub> =10V, I <sub>C</sub> =10mA, f=10MHz

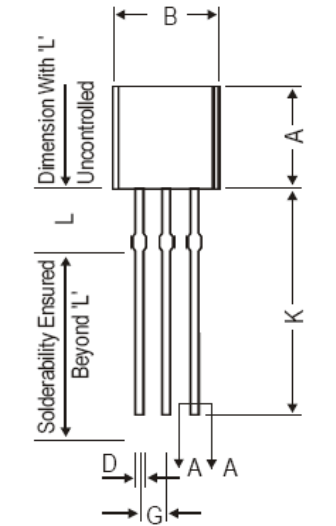
\*Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%

# Small Signal High Voltage Transistors (NPN)

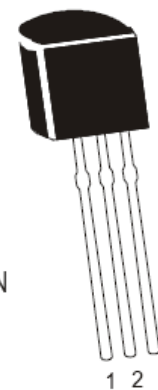
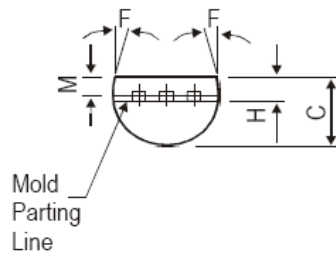
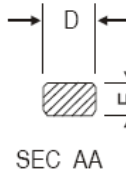
## MPSA44/MPSA45

### Dimensions in mm

### TO-92



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



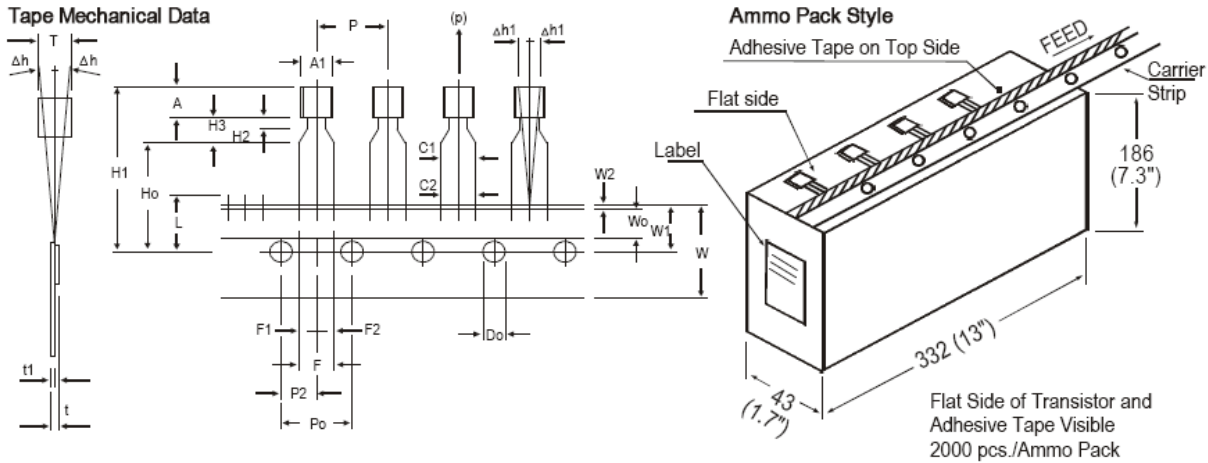
### PIN CONFIGURATION

1. EMITTER
2. BASE
3. COLLECTOR

# Small Signal High Voltage Transistors (NPN)

## MPSA44/MPSA45

### Packing Information in mm



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

- Maximum alignment deviation between leads will not be greater than 0.2mm.
- Maximum non-cumulative variation between tape feed holes shall not exceed 1 mm in 20 pitches.
- Holddown tape will not exceed beyond the edge(s) of carrier tape and there shall be no exposure of adhesive.
- There will be no more than three (3) consecutive missing components in a tape.
- A tape trailer, having at least three feed holes are provided after the last component in a tape.
- 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

# Small Signal High Voltage Transistors (NPN)

## MPSA44/MPSA45

### Packing Quantity Information:

Package	Quantity	PCS per Inner Box	PCS per Carton
Bulk	1000/poly bag	5000	80000
Ammo Pack	2000/ammo box	2000	32000

### Carton Size Information:

Package	Inner Box in mm	Carton in mm
Bulk	76.2x190.5x190.5	431.8x381.0x342.9
Ammo Pack	317.5x203.2x45.7	431.8x381.0x342.9

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