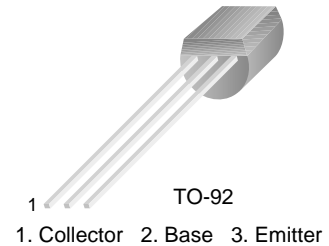


# MPSA93

## PNP High Voltage Amplifier

- This device is designed for high voltage driver applications.
- Sourced from Process 76.



### Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$V_{CEO}$	Collector-Emitter Voltage	200	V
$V_{CBO}$	Collector-Base Voltage	200	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current (DC)	500	mA
$T_J, T_{STG}$	Operating and Storage Junction Temperature Range	-55 ~ +150	$^\circ\text{C}$

\* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

#### NOTES:

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

### Thermal Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Max.	Units
$P_D$	Total Device Dissipation	625	mW
	Derate above $25^\circ\text{C}$	5.0	mW/ $^\circ\text{C}$
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	$^\circ\text{C}/\text{W}$

\* Device mounted on FR-4 PCB 1.6" X 1.6" X 0.06".

**Electrical Characteristics**  $T_C=25^\circ\text{C}$  unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
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**Off Characteristics**

$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100\mu\text{A}, I_E = 0$	200			V
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	$I_C = 1\text{ mA}, I_B = 0$	200			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 100\mu\text{A}, I_C = 0$	5			V
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = 3\text{V}, I_C = 0$			0.1	$\mu\text{A}$
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = 200\text{V}, I_E = 0$			0.25	$\mu\text{A}$

**On Characteristics**

$h_{FE}$	DC Current Gain	$V_{CE} = 10\text{V}, I_C = 1\text{mA}$ $V_{CE} = 10\text{V}, I_C = 10\text{mA}$ $V_{CE} = 10\text{V}, I_C = 30\text{mA}$	25 40 25			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 20\text{ mA}, I_B = 2\text{ mA}$			0.4	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 20\text{ mA}, I_B = 2\text{ mA}$			0.9	V

**Small Signal Characteristics**

$C_{cb}$	Collector-Base Capacitance	$V_{CB} = 20\text{ V}, I_E = 0, f = 1.0\text{ MHz}$			8	pF
$f_T$	Current Gain Bandwidth Product	$V_{CE} = 5.0\text{V}, I_C = 10\text{mA}, f = 100\text{MHz}$	50			MHz

\* Pulse Test: Pulse Width 300  $\mu\text{s}$ , Duty Cycle 2.0%



**Notes:**

1) All voltages (V) and currents (A) are negative polarity for PNP transistors.



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