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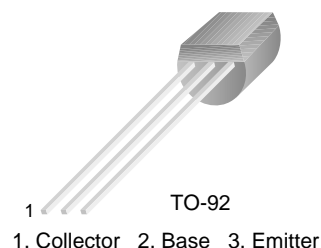


September 2007

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 Derate above 25°C	625 5.0	mW mW/ $^\circ\text{C}$
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3	$^\circ\text{C/W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	$^\circ\text{C/W}$

* 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	μA
I_{CBO}	Collector Cut-off Current	$V_{CB} = 200\text{V}, I_E = 0$			0.25	μA

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 s, Duty Cycle 2.0%

Notes:

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

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