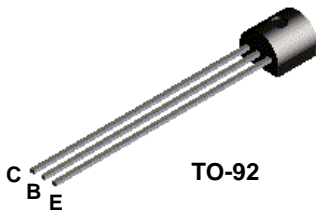
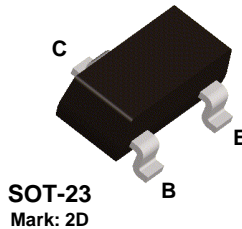


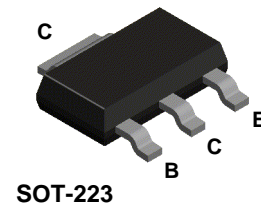
MPSA92



MMBTA92



PZTA92



PNP High Voltage Amplifier

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

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V _{CEO}	Collector-Emitter Voltage	300	V
V _{CBO}	Collector-Base Voltage	300	V
V _{EBO}	Emitter-Base Voltage	5.0	V
I _C	Collector Current - Continuous	100	mA
T _J , T _{stg}	Operating and Storage Junction Temperature Range	-55 to +150	°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

TA = 25°C unless otherwise noted

Symbol	Characteristic	Max			Units
		MPSA92	*MMBTA92	**PZTA92	
P _D	Total Device Dissipation Derate above 25°C	625	350	1,000	mW
		5.0	2.8	8.0	mW/°C
R _{θJC}	Thermal Resistance, Junction to Case	83.3			°C/W
R _{θJA}	Thermal Resistance, Junction to Ambient	200	357	125	°C/W

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

** Device mounted on FR-4 PCB 36 mm X 18 mm X 1.5 mm; mounting pad for the collector lead min. 6 cm².

PNP High Voltage Amplifier

(continued)

MPSA92 / NMBTA92 / PZTA92

Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
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OFF CHARACTERISTICS

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	$I_C = 1.0 \text{ mA}, I_B = 0$	300		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100 \text{ } \mu\text{A}, I_E = 0$	300		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 100 \text{ } \mu\text{A}, I_C = 0$	5.0		V
I_{CBO}	Collector-Cutoff Current	$V_{CB} = 200 \text{ V}, I_E = 0$		0.25	μA
I_{EBO}	Emitter-Cutoff Current	$V_{EB} = 3.0 \text{ V}, I_C = 0$		0.1	μA

ON CHARACTERISTICS*

h_{FE}	DC Current Gain	$I_C = 1.0 \text{ mA}, V_{CE} = 10 \text{ V}$ $I_C = 10 \text{ mA}, V_{CE} = 10 \text{ V}$ $I_C = 30 \text{ mA}, V_{CE} = 10 \text{ V}$	25 40 25		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 20 \text{ mA}, I_B = 2.0 \text{ mA}$		0.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 20 \text{ mA}, I_B = 2.0 \text{ mA}$		0.9	V

SMALL SIGNAL CHARACTERISTICS

f_T	Current Gain - Bandwidth Product	$I_C = 10 \text{ mA}, V_{CE} = 20 \text{ V},$ $f = 100 \text{ MHz}$	50		MHz
C_{cb}	Collector-Base Capacitance	$V_{CB} = 20 \text{ V}, I_E = 0, f = 1.0 \text{ MHz}$		6.0	pF

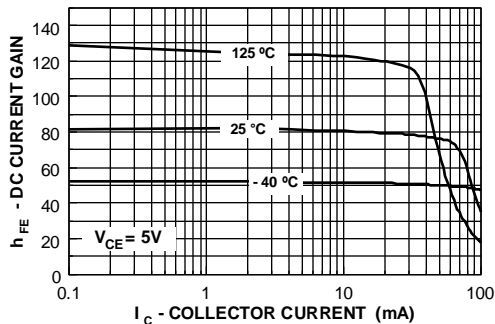
*Pulse Test: Pulse Width $\leq 300 \text{ } \mu\text{s}$, Duty Cycle $\leq 2.0\%$

Spice Model

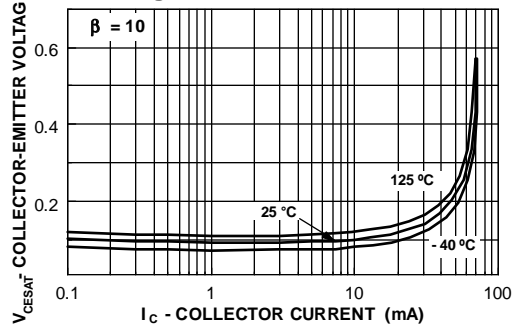
PNP (Is=218.9f Xti=3 Eg=1.11 Vaf=100 Bf=99 Ne=1.307 Ise=218.9f Ikf=.2016 Xtb=1.5 Br=24.67 Nc=2 Isc=0 Ikr=0 Rc=7 Cjc=19.88p Mjc=.4876 Vjc=.75 Fc=.5 Cje=81.49p Mje=.3493 Vje=.75 Tr=516.9p Tf=1.395n Itf=1.5 Vtf=22 Xtf=270 Rb=10)

Typical Characteristics

DC Current Gain vs Collector Current



Collector-Emitter Saturation Voltage vs Collector Current



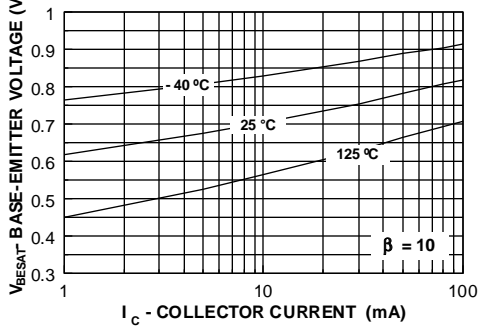
PNP High Voltage Amplifier

(continued)

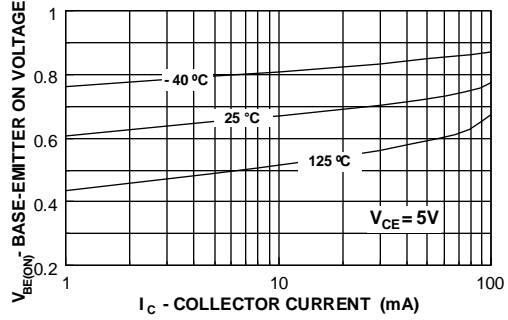
MPSA92 / NMBTA92 / PZTA92

Typical Characteristics (continued)

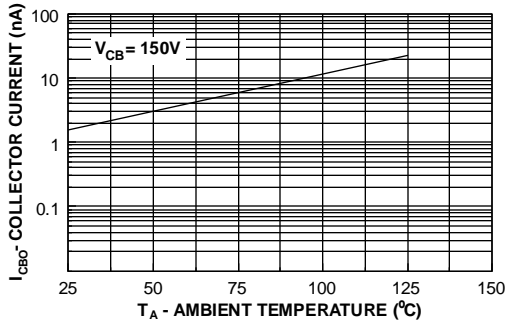
Base-Emitter Saturation Voltage vs Collector Current



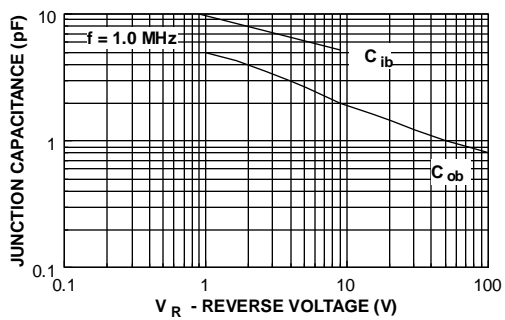
Base-Emitter ON Voltage vs Collector Current



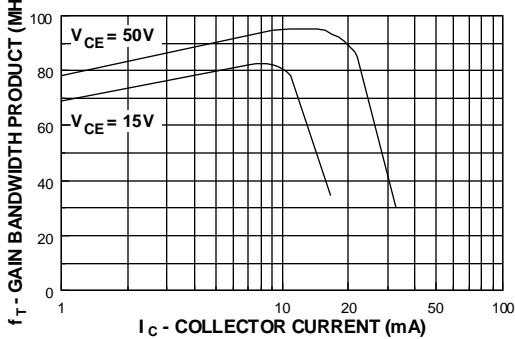
Collector-Cutoff Current vs Ambient Temperature



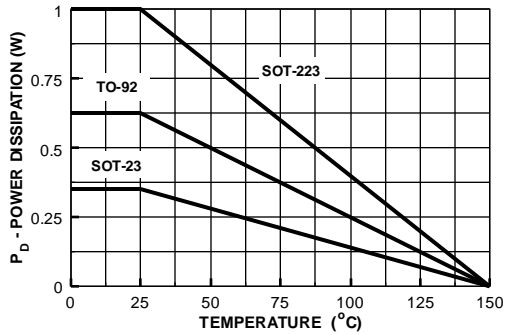
Junction Capacitance vs Reverse Bias Voltage



Gain Bandwidth Product vs Collector Current



Power Dissipation vs Ambient Temperature



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