

MPSA92, MPSA93

MPSA92 is a Preferred Device

High Voltage Transistors

PNP Silicon



ON Semiconductor®

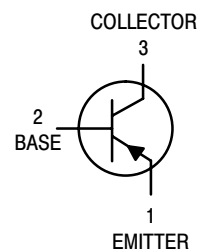
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MAXIMUM RATINGS

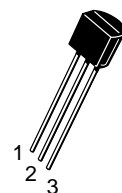
Rating	Symbol	Value	Unit
Collector–Emitter Voltage MPSA93 MPSA92	V_{CEO}	–200 –300	Vdc
Collector–Base Voltage MPSA93 MPSA92	V_{CBO}	–200 –300	Vdc
Emitter–Base Voltage	V_{EBO}	–5.0	Vdc
Collector Current – Continuous	I_C	–500	mA _{dc}
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	625 5.0	mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	1.5 12	W mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	–55 to +150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction–to–Ambient	$R_{\theta JA}$	200	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction–to–Case	$R_{\theta JC}$	83.3	$^\circ\text{C}/\text{W}$

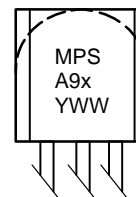


STYLE 1
MPSA92, MPSA93



TO-92
CASE 29
STYLES 1, 14

MARKING DIAGRAM



MPSA9 = Specific Device Code
x = 2 or 2
Y = Year
W = Work Week

ORDERING INFORMATION

Device	Package	Shipping
MPSA92	TO-92	5000 Units/Box
MPSA92RLRA	TO-92	2000/Tape & Reel
MPSA92RLRE	TO-92	2000/Tape & Reel
MPSA92RLRM	TO-92	2000/Ammo Pack
MPSA92RLRP	TO-92	2000/Ammo Pack
MPSA93	TO-92	5000 Units/Box
MPSA93RLRA	TO-92	2000/Tape & Reel
MPSA93RLRM	TO-92	2000/Ammo Pack

Preferred devices are recommended choices for future use and best overall value.

MPSA92, MPSA93

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector–Emitter Breakdown Voltage (Note 1) (I _C = –1.0 mA _{dc} , I _B = 0)	MPSA92 MPSA93	V _{(BR)CEO}	–300 –200	– –	V _{dc}
Collector–Base Breakdown Voltage (I _C = –100 μA _{dc} , I _E = 0)	MPSA92 MPSA93	V _{(BR)CBO}	–300 –200	– –	V _{dc}
Emitter–Base Breakdown Voltage (I _E = –100 μA _{dc} , I _C = 0)		V _{(BR)EBO}	–5.0	–	V _{dc}
Collector Cutoff Current (V _{CB} = –200 V _{dc} , I _E = 0) (V _{CB} = –160 V _{dc} , I _E = 0)	MPSA92 MPSA93	I _{CBO}	– –	–0.25 –0.25	μA _{dc}
Emitter Cutoff Current (V _{EB} = –3.0 V _{dc} , I _C = 0)		I _{EBO}	–	–0.1	μA _{dc}
ON CHARACTERISTICS (Note 1)					
DC Current Gain (I _C = –1.0 mA _{dc} , V _{CE} = –10 V _{dc}) (I _C = –10 mA _{dc} , V _{CE} = –10 V _{dc}) (I _C = –30 mA _{dc} , V _{CE} = –10 V _{dc})	All Types All Types MPSA92 MPSA93	h _{FE}	25 40 25 25	– – – –	–
Collector–Emitter Saturation Voltage (I _C = –20 mA _{dc} , I _B = –2.0 mA _{dc})	MPSA92 MPSA93	V _{CE(sat)}	– –	–0.5 –0.4	V _{dc}
Base–Emitter Saturation Voltage (I _C = –20 mA _{dc} , I _B = –2.0 mA _{dc})		V _{BE(sat)}	–	–0.9	V _{dc}
SMALL–SIGNAL CHARACTERISTICS					
Current–Gain – Bandwidth Product (I _C = –10 mA _{dc} , V _{CE} = –20 V _{dc} , f = 100 MHz)		f _T	50	–	MHz
Collector–Base Capacitance (V _{CB} = –20 V _{dc} , I _E = 0, f = 1.0 MHz)	MPSA92 MPSA93	C _{cb}	– –	6.0 8.0	pF

1. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.

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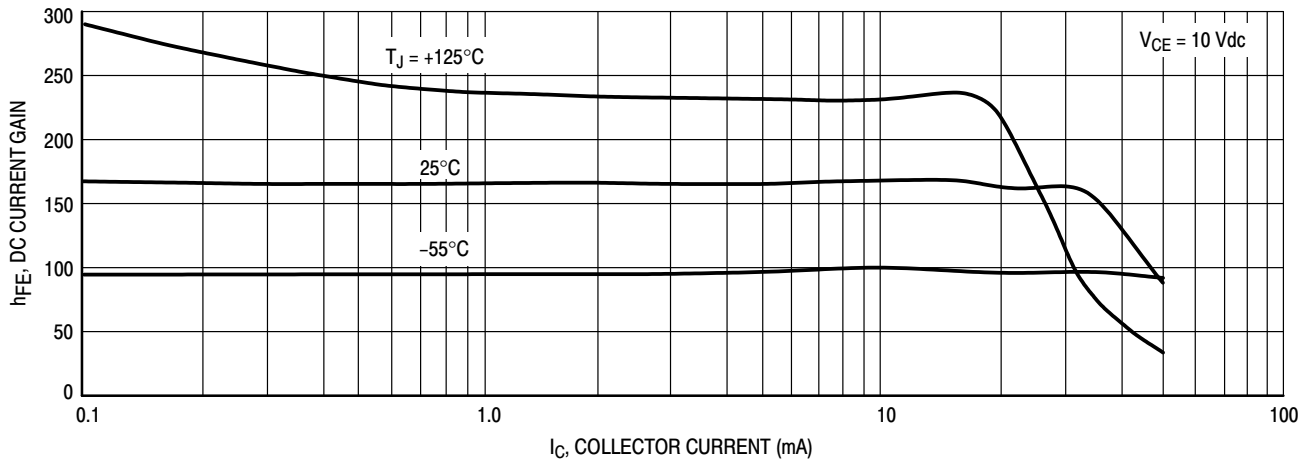


Figure 1. DC Current Gain

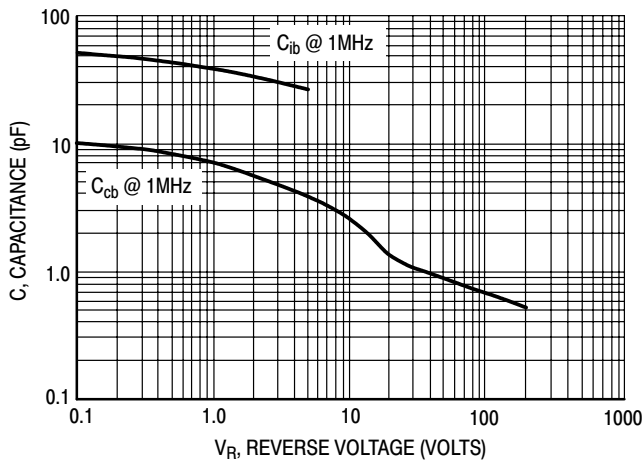


Figure 2. Capacitance

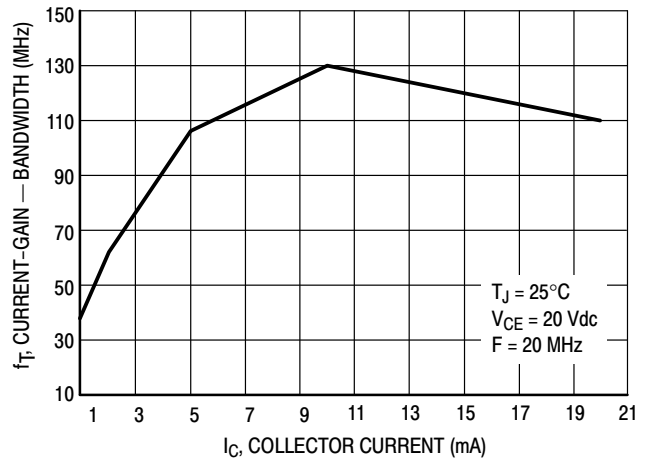


Figure 3. Current-Gain - Bandwidth

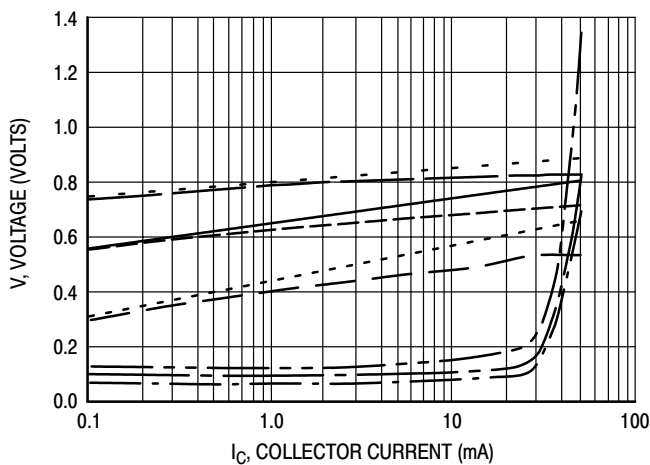


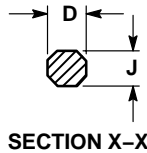
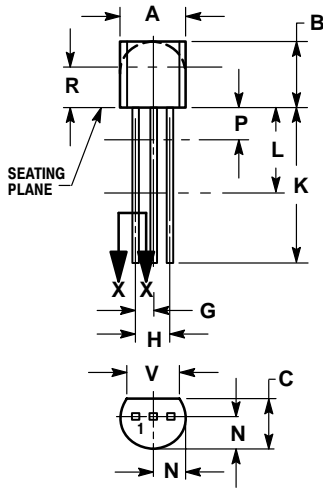
Figure 4. "ON" Voltages

- $V_{CE(sat)}$ @ 25°C , $I_C/I_B = 10$
- $V_{CE(sat)}$ @ 125°C , $I_C/I_B = 10$
- $V_{CE(sat)}$ @ -55°C , $I_C/I_B = 10$
- $V_{BE(sat)}$ @ 25°C , $I_C/I_B = 10$
- $V_{BE(sat)}$ @ 125°C , $I_C/I_B = 10$
- $V_{BE(sat)}$ @ -55°C , $I_C/I_B = 10$
- $V_{BE(on)}$ @ 25°C , $V_{CE} = 10 \text{ V}$
- $V_{BE(on)}$ @ 125°C , $V_{CE} = 10 \text{ V}$
- $V_{BE(on)}$ @ -55°C , $V_{CE} = 10 \text{ V}$

MPSA92, MPSA93

PACKAGE DIMENSIONS

TO-92
TO-226AA
CASE 29-11
ISSUE AL



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.


DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.175	0.205	4.45	5.20
B	0.170	0.210	4.32	5.33
C	0.125	0.165	3.18	4.19
D	0.016	0.021	0.407	0.533
G	0.045	0.055	1.15	1.39
H	0.095	0.105	2.42	2.66
J	0.015	0.020	0.39	0.50
K	0.500	---	12.70	---
L	0.250	---	6.35	---
N	0.080	0.105	2.04	2.66
P	---	0.100	---	2.54
R	0.115	---	2.93	---
V	0.135	---	3.43	---

STYLE 1:

- PIN 1. EMITTER
2. BASE
3. COLLECTOR

STYLE 14:

- PIN 1. EMITTER
2. COLLECTOR
3. BASE

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