MPSA92, MPSA93

MPSA92 is a Preferred Device

High Voltage Transistors

PNP Silicon

ON Semiconductor®

http://onsemi.com

Features

- Pb−Free Packages are Available*

MAXIMUM RATINGS

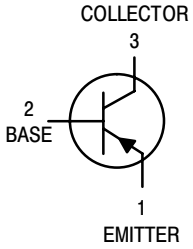
Rating	Symbol	Value	Unit
Collector−Emitter Voltage MPSA93 MPSA92	V_{CEO}	 −200 −300	Vdc
Collector−Base Voltage MPSA93 MPSA92	V_{CBO}	 −200 −300	Vdc
Emitter−Base Voltage	V_{EBO}	−5.0	Vdc
Collector Current − Continuous	I_C	−500	mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	 625 5.0	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

THERMAL CHARACTERISTICS

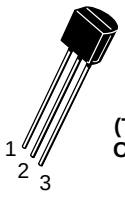
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	200	°C/W
Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	83.3	°C/W

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

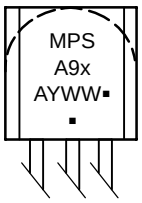
*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



MARKING DIAGRAM



TO−92
(TO−226AA)
CASE 29−11



x = 2 or 3
A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 3 of this data sheet.

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

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 mAdc, I_B = 0)	 MPSA92 MPSA93	$V_{(BR)CEO}$	 −300 −200	 − −	Vdc
Collector−Base Breakdown Voltage (I_C = −100 μAdc, I_E = 0)	 MPSA92 MPSA93	$V_{(BR)CBO}$	 −300 −200	 − −	Vdc
Emitter−Base Breakdown Voltage (I_E = −100 μAdc, I_C = 0)		$V_{(BR)EBO}$	−5.0	−	Vdc
Collector Cutoff Current (V_{CB} = −200 Vdc, I_E = 0) (V_{CB} = −160 Vdc, I_E = 0)	 MPSA92 MPSA93	I_{CBO}	 − −	 −0.25 −0.25	μAdc
Emitter Cutoff Current (V_{EB} = −3.0 Vdc, I_C = 0)		I_{EBO}	−	−0.1	μAdc
ON CHARACTERISTICS (Note 1)					
DC Current Gain (I_C = −1.0 mAdc, V_{CE} = −10 Vdc) (I_C = −10 mAdc, V_{CE} = −10 Vdc) (I_C = −30 mAdc, V_{CE} = −10 Vdc)	 All Types All Types MPSA92 MPSA93	h_{FE}	 25 40 25 25	 − − − −	−
Collector−Emitter Saturation Voltage (I_C = −20 mAdc, I_B = −2.0 mAdc)	 MPSA92 MPSA93	$V_{CE(sat)}$	 − −	 −0.5 −0.4	Vdc
Base−Emitter Saturation Voltage (I_C = −20 mAdc, I_B = −2.0 mAdc)		$V_{BE(sat)}$	−	−0.9	Vdc
SMALL−SIGNAL CHARACTERISTICS					
Current−Gain − Bandwidth Product (I_C = −10 mAdc, V_{CE} = −20 Vdc, f = 100 MHz)		f_T	50	−	MHz
Collector−Base Capacitance (V_{CB} = −20 Vdc, 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%.

ORDERING INFORMATION

Device	Package	Shipping†
MPSA92	TO−92	5000 Units / Box
MPSA92G	TO−92 (Pb−Free)	5000 Units / Box
MPSA92RL1	TO−92	2000 / Tape & Reel
MPSA92RL1G	TO−92 (Pb−Free)	2000 / Tape & Reel
MPSA92RLRA	TO−92	2000 / Tape & Reel
MPSA92RLRAG	TO−92 (Pb−Free)	2000 / Tape & Reel
MPSA92RLRM	TO−92	2000 / Ammo Pack
MPSA92RLRMG	TO−92 (Pb−Free)	2000 / Ammo Pack
MPSA92RLRP	TO−92	2000 / Ammo Pack
MPSA92RLRPG	TO−92 (Pb−Free)	2000 / Ammo Pack
MPSA92ZL1	TO−92	2000 / Ammo Pack
MPSA92ZL1G	TO−92 (Pb−Free)	2000 / Ammo Pack
MPSA93	TO−92	5000 Units / Box
MPSA93G	TO−92 (Pb−Free)	5000 Units / Box
MPSA93RLRM	TO−92	2000 / Ammo Pack
MPSA93RLRMG	TO−92 (Pb−Free)	2000 / Ammo Pack

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

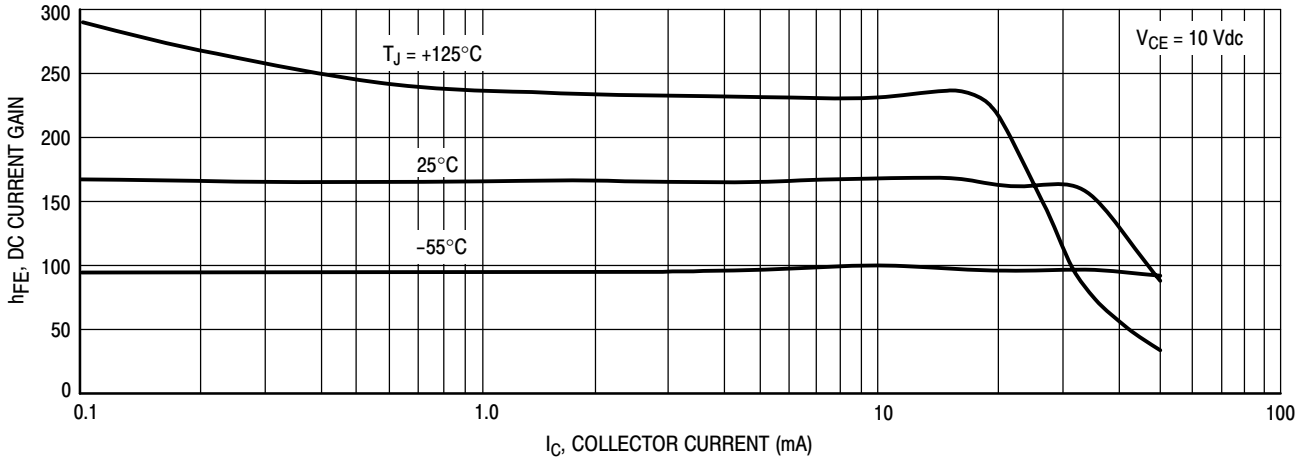


Figure 1. DC Current Gain

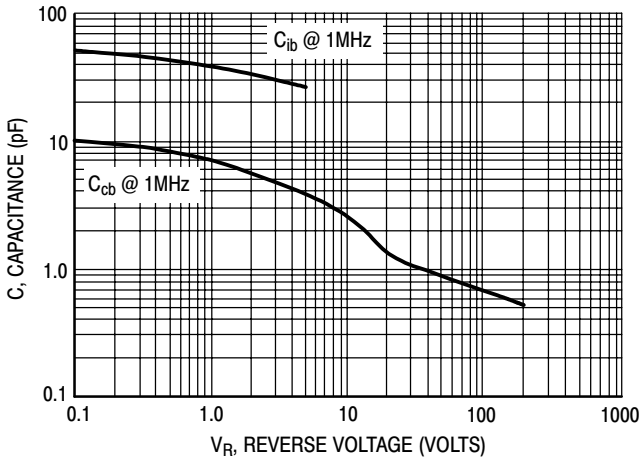


Figure 2. Capacitance

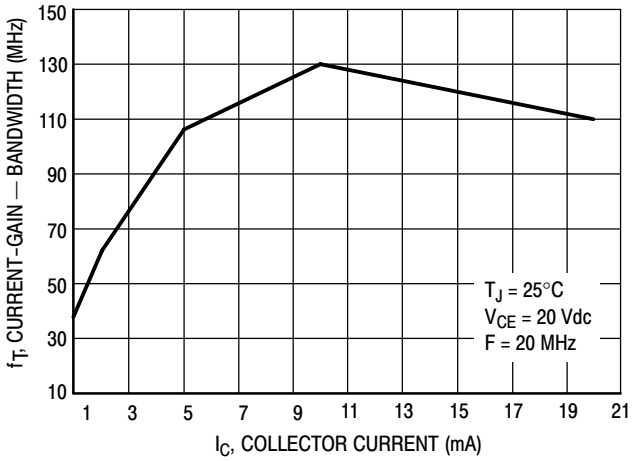


Figure 3. Current−Gain − Bandwidth

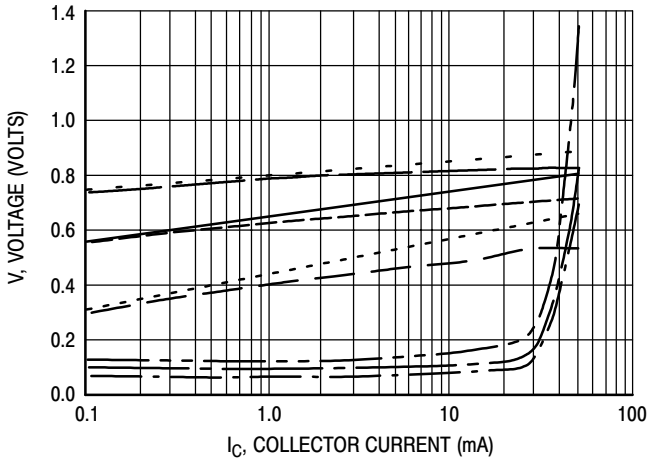
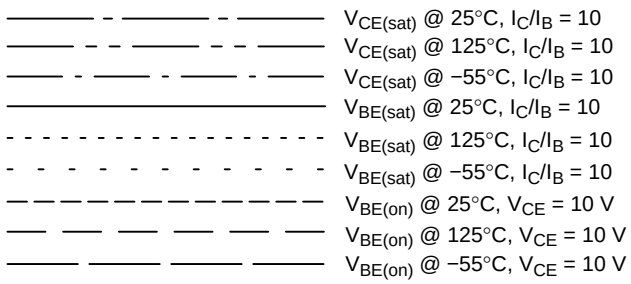
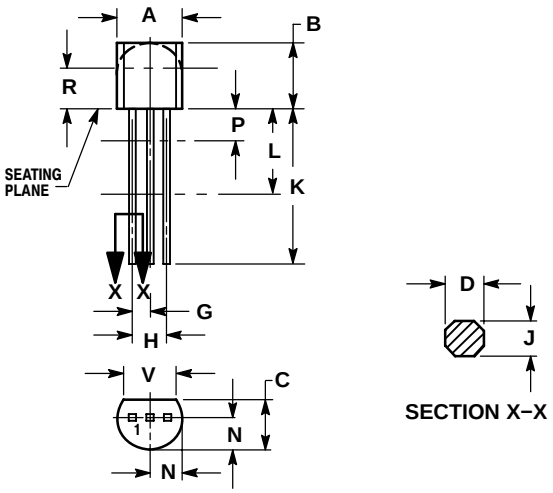


Figure 4. "ON" Voltages



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.

	INCHES		MILLIMETERS	
DIM	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

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 61312, Phoenix, Arizona 85082−1312 USA
Phone: 480−829−7710 or 800−344−3860 Toll Free USA/Canada
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2−9−1 Kamimeguro, Meguro−ku, Tokyo, Japan 153−0051
Phone: 81−3−5773−3850

ON Semiconductor Website: http://onsemi.com

Order Literature: http://www.onsemi.com/litorder

For additional information, please contact your local Sales Representative.

MPSA92/D