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MPSA92, MPSA93

High Voltage Transistors

PNP Silicon

ON Semiconductor®

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Features

- Pb−Free Packages are Available*

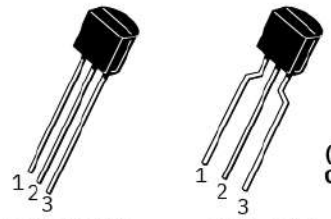
MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector−Emitter Voltage MPSA93 MPSA92	VCEO	−200 −300	Vdc
Collector−Base Voltage MPSA93 MPSA92	VCBO	−200 −300	Vdc
Emitter−Base Voltage	VEBO	−5.0	Vdc
Collector Current − Continuous	IC	−500	mAdc
Total Device Dissipation @ TA = 25°C Derate above 25°C	PD	625 5.0	mW mW/°C
Total Device Dissipation @ TC = 25°C Derate above 25°C	PD	1.5 12	W mW/°C
Operating and Storage Junction Temperature Range	TJ, Tstg	−55 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction−to−Ambient	RJA	200	°C/W
Thermal Resistance, Junction−to−Case	RJC	83.3	°C/W

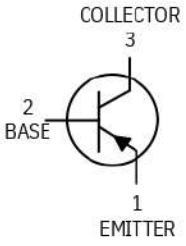
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.



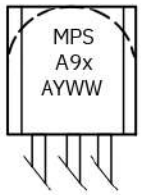
STRAIGHT LEAD BULK PACK

BENT LEAD TAPE & REEL AMMO PACK

TO−92 (TO−226AA) CASE 29−11



MARKING DIAGRAM



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.

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

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

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector–Emitter Breakdown Voltage (Note 1) (IC = −1.0 mAdc, IB = 0)	MPSA92 MPSA93	$V_{(BR)CEO}$	−300 −200	– –	Vdc
Collector–Base Breakdown Voltage (IC = −100 Adc, IE = 0)	MPSA92 MPSA93	$V_{(BR)CBO}$	−300 −200	– –	Vdc
Emitter–Base Breakdown Voltage (IE = −100 Adc, IC = 0)		$V_{(BR)EBO}$	−5.0	–	Vdc
Collector Cutoff Current (VCB = −200 Vdc, IE = 0) (VCB = −160 Vdc, IE = 0)	 MPSA92 MPSA93	ICBO	 – –	 −0.25 −0.25	Adc
Emitter Cutoff Current (VEB = −3.0 Vdc, IC = 0)		IEBO	–	−0.1	Adc
ON CHARACTERISTICS (Note 1)					
DC Current Gain (IC = −1.0 mAdc, VCE = −10 Vdc) (IC = −10 mAdc, VCE = −10 Vdc) (IC = −30 mAdc, VCE = −10 Vdc)	 All Types All Types MPSA92 MPSA93	hFE	 25 40 25 –	 – – – –	–
Collector–Emitter Saturation Voltage (IC = −20 mAdc, IB = −2.0 mAdc)	MPSA92 MPSA93	VCE(sat)	–	−0.5 −0.4	Vdc
Base–Emitter Saturation Voltage (IC = −20 mAdc, IB = −2.0 mAdc)		VBE(sat)	–	−0.9	Vdc
SMALL−SIGNAL CHARACTERISTICS					
Current–Gain – Bandwidth Product (IC = −10 mAdc, VCE = −20 Vdc, f = 100 MHz)		f_T	50	–	MHz
Collector–Base Capacitance (VCB = −20 Vdc, IE = 0, f = 1.0 MHz)	 MPSA92 MPSA93	C_{cb}	 – –	 6.0 8.0	pF

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

ORDERING INFORMATION

Device Package Shipping†		
MPSA92GTO−925000 Units / Box (Pb−Free)		
MPSA92RL1GTO−922000 / Tape & Reel (Pb−Free)		
MPSA92RLRATO−922000 / Tape & Reel		
MPSA92RLRAGTO−922000 / Tape & Reel (Pb−Free)		
MPSA92RLRMGTO−922000 / Ammo Pack (Pb−Free)		
MPSA92RLRPGTO−922000 / Ammo Pack (Pb−Free)		
MPSA92ZL1GTO−922000 / Ammo Pack (Pb−Free)		
MPSA93GTO−925000 Units / Box (Pb−Free)		
MPSA93RLRMGTO−922000 / Ammo Pack (Pb−Free)		
†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.		

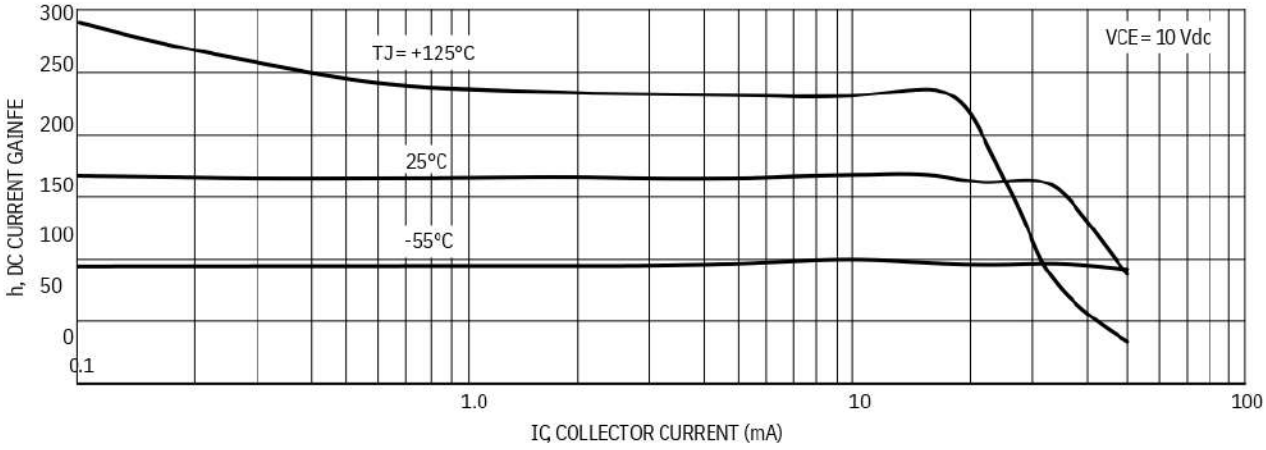


Figure 1. DC Current Gain

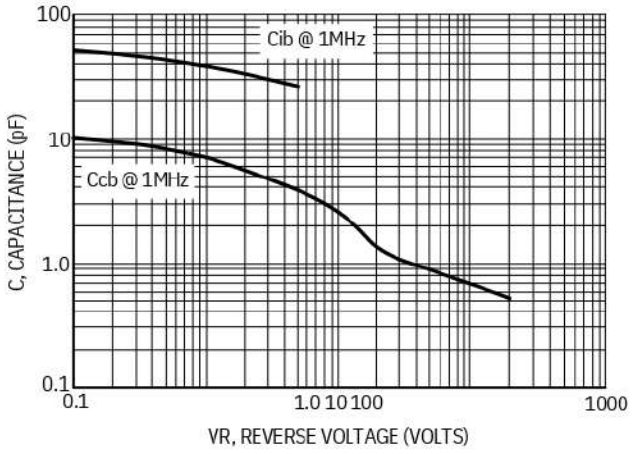


Figure 2. Capacitance

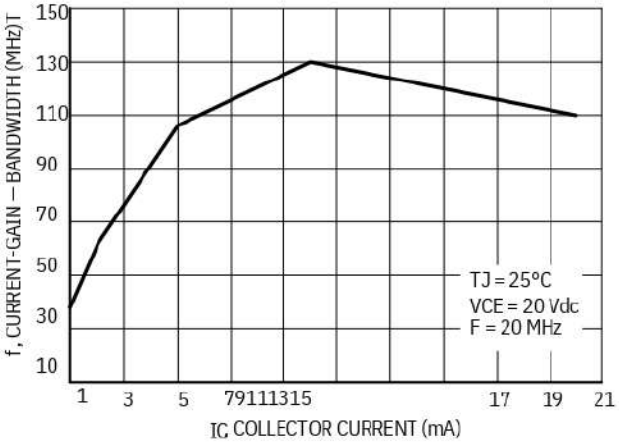
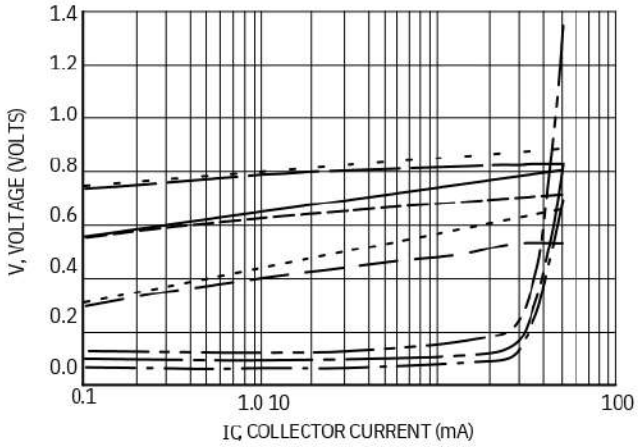


Figure 3. Current–Gain – Bandwidth



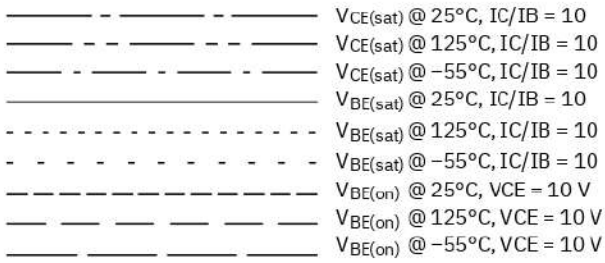


Figure 4. "ON" Voltages

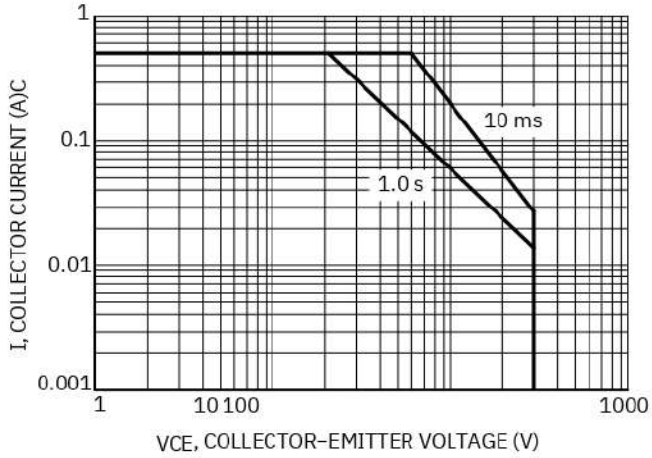
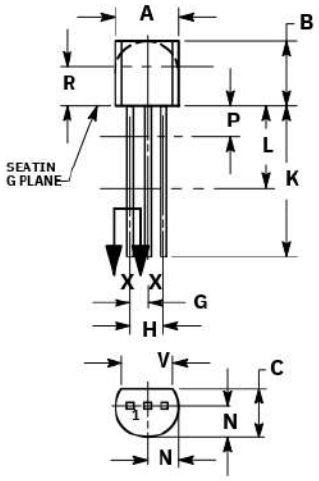


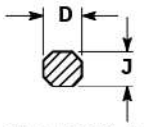
Figure 5. Safe Operating Area

PACKAGE DIMENSIONS

TO−92 (TO−226)
CASE 029−11
ISSUE AM



STRAIGHT LEAD
BULK PACK

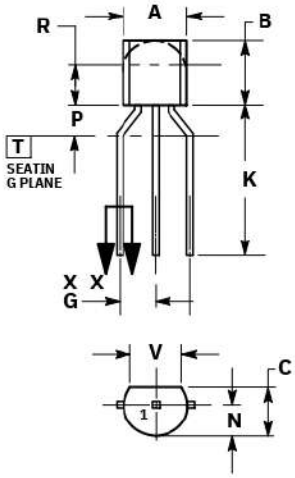


SECTION X−X

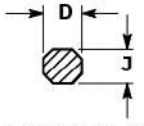
NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

	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 14:
PIN 1. EMITTER
2. COLLECTOR
3. BASE



BENT LEAD
TAPE & REEL
AMMO PACK



SECTION X−X

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

	MILLIMETERS	
DIM	MIN	MAX
A	4.45	5.20
B	4.32	5.33
C	3.18	4.19
D	0.40	0.54
G	2.40	2.80
J	0.39	0.50
K	12.70	---
N	2.04	2.66
P	1.50	4.00
R	2.93	---
V	3.43	---

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303−675−2175 or 800−344−3860 Toll Free USA/Canada
Fax: 303−675−2176 or 800−344−3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

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ON Semiconductor Website: www.onsemi.com

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