MPSA62, MPSA63, MPSA64

MPSA64 is a Preferred Device

Darlington Transistors

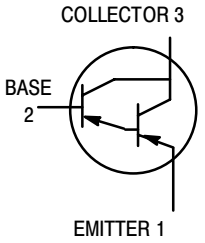
PNP Silicon

ON Semiconductor®

http://onsemi.com

Features

- Pb−Free Packages are Available*



MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector−Emitter Voltage MPSA62 MPSA63/64	V_{CES}	 −20 −30	Vdc
Collector−Base Voltage MPSA62 MPSA63/64	V_{CBO}	 −20 −30	Vdc
Emitter−Base Voltage	V_{EBO}	−10	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

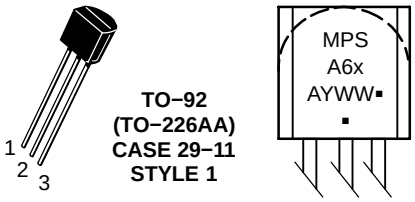
THERMAL CHARACTERISTICS

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
STYLE 1

x = 2, 3, or 4
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 2 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		$V_{(BR)CES}$			Vdc
(I_C = −100 μAdc, V_{BE} = 0)	MPSA62		−20	−	
	MPSA63, MPSA64		−30	−	
Collector Cutoff Current		I_{CBO}			nAdc
(V_{CB}= −15 Vdc, I_E = 0)	MPSA62		−	−100	
(V_{CB} = −30 Vdc, I_E = 0)	MPSA63, MPSA64		−	−100	
Emitter Cutoff Current		I_{EBO}	−	−100	nAdc
(V_{EB} = −10 Vdc, I_C = 0)					
ON CHARACTERISTICS (Note 1)					
DC Current Gain		h_{FE}			−
(I_C = −10 mAdc, V_{CE} = −5.0 Vdc)	MPSA63		5,000	−	
	MPSA64		10,000	−	
	MPSA62		20,000	−	
(I_C = −100 mAdc, V_{CE} = −5.0 Vdc)	MPSA63		10,000	−	
	MPSA64		20,000	−	
Collector−Emitter Saturation Voltage		$V_{CE(sat)}$			Vdc
(I_C = −10 mAdc, I_B = −0.01 mAdc)	MPSA62		−	−1.0	
(I_C = −100 mAdc, I_B = −0.1 mAdc)	MPSA63, MPSA64		−	−1.5	
Base−Emitter On Voltage		$V_{BE(on)}$			Vdc
(I_C = −10 mAdc, V_{CE} = −5.0 Vdc)	MPSA62		−	−1.4	
(I_C = −100 mAdc, V_{CE} = −5.0 Vdc)	MPSA63, MPSA64		−	−2.0	
SMALL−SIGNAL CHARACTERISTICS					
Current−Gain — Bandwidth Product (Note 2)		f_T	125	−	MHz
(I_C = −100 mAdc, V_{CE} = −5.0 Vdc, f = 100 MHz)	MPSA63, MPSA64				

1. Pulse Test: Pulse Width ≤ 300 μs; Duty Cycle ≤ 2.0%.
2. $f_T = |h_{fe}| \bullet f_{test}$.

ORDERING INFORMATION

Device	Package	Shipping†
MPSA62	TO−92	5000 Units / Bulk
MPSA63	TO−92	5000 Units / Bulk
MPSA63G	TO−92 (Pb−Free)	5000 Units / Bulk
MPSA63RLRA	TO−92	2000 / Tape & Reel
MPSA63RLRAG	TO−92 (Pb−Free)	2000 / Tape & Reel
MPSA63RLRM	TO−92	2000 / Ammo Pack
MPSA63RLRMG	TO−92 (Pb−Free)	2000 / Ammo Pack
MPSA63RLRP	TO−92	2000 / Ammo Pack
MPSA63RLRPG	TO−92 (Pb−Free)	2000 / Ammo Pack
MPSA63ZL1	TO−92	2000 / Ammo Pack
MPSA63ZL1G	TO−92 (Pb−Free)	2000 / Ammo Pack
MPSA64	TO−92	5000 Units / Bulk
MPSA64G	TO−92 (Pb−Free)	5000 Units / Bulk
MPSA64RLRA	TO−92	2000 / Tape & Reel
MPSA64RLRAG	TO−92 (Pb−Free)	2000 / Tape & Reel
MPSA64RLRM	TO−92	2000 / Ammo Pack
MPSA64RLRMG	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.

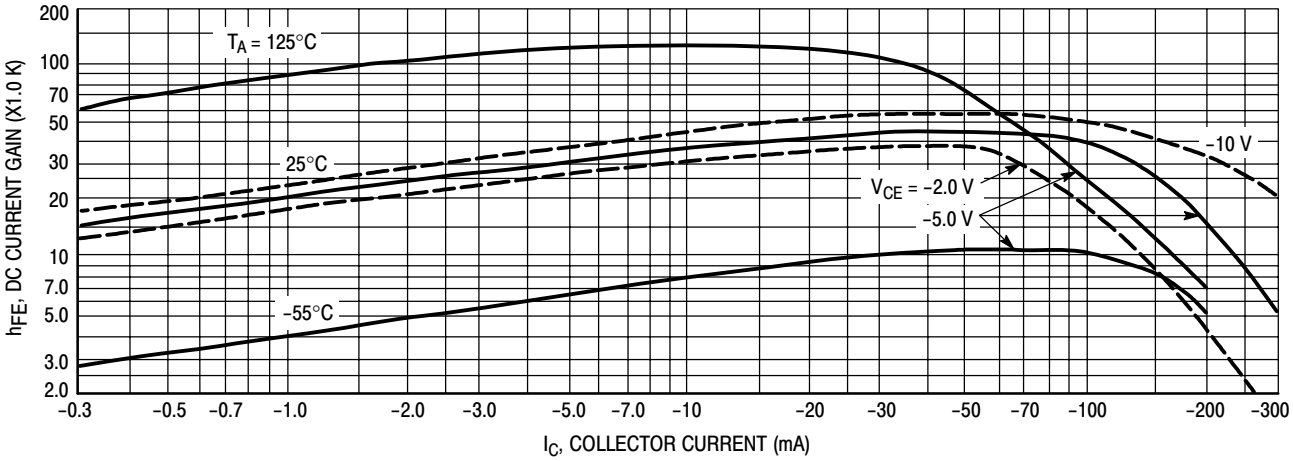


Figure 1. DC Current Gain

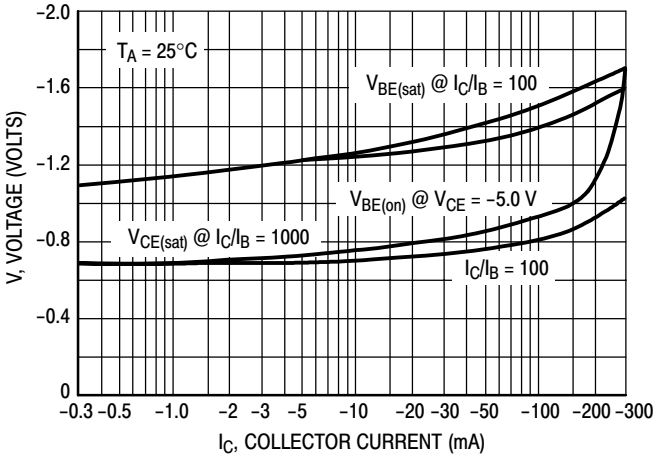


Figure 2. “On” Voltage

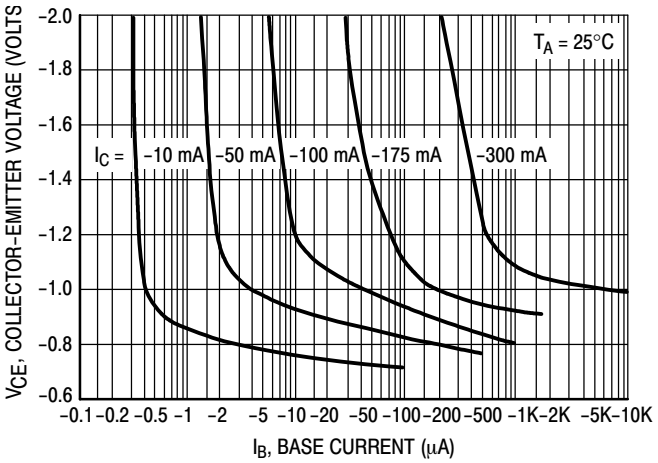


Figure 3. Collector Saturation Region

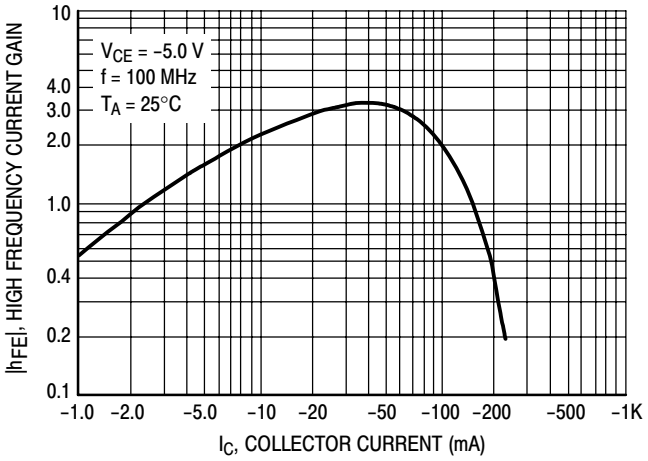


Figure 4. High Frequency Current Gain

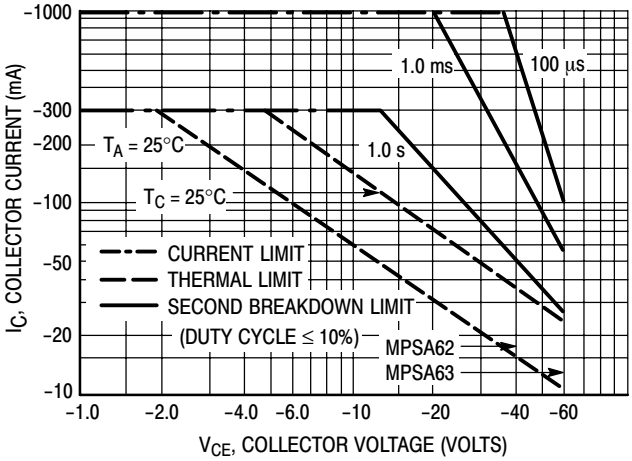
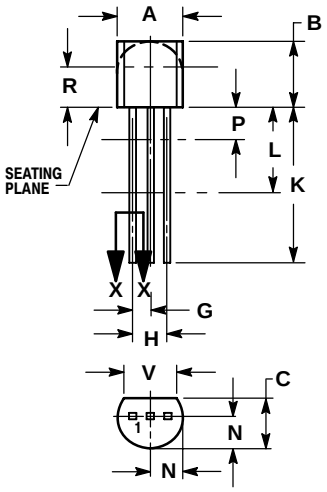
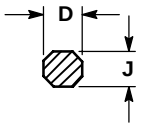


Figure 5. Active Region, Safe Operating Area

PACKAGE DIMENSIONS

TO−92 (TO−226)
CASE 29−11
ISSUE AL





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

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
Fax: 480−829−7709 or 800−344−3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800−282−9855 Toll Free USA/Canada

Japan: ON Semiconductor, Japan Customer Focus Center
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.

MPSA62/D