MPSA62, MPSA63, MPSA64

MPSA64 is a Preferred Device

Darlington Transistors

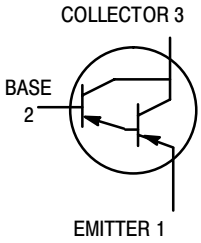
PNP Silicon

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

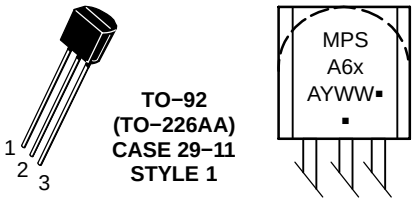
THERMAL CHARACTERISTICS

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.

© Semiconductor Components Industries, LLC, 2005

Downloaded from Elcodis.com electronic components distributor

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

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

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.

Downloaded from Elcodis.com electronic components distributor

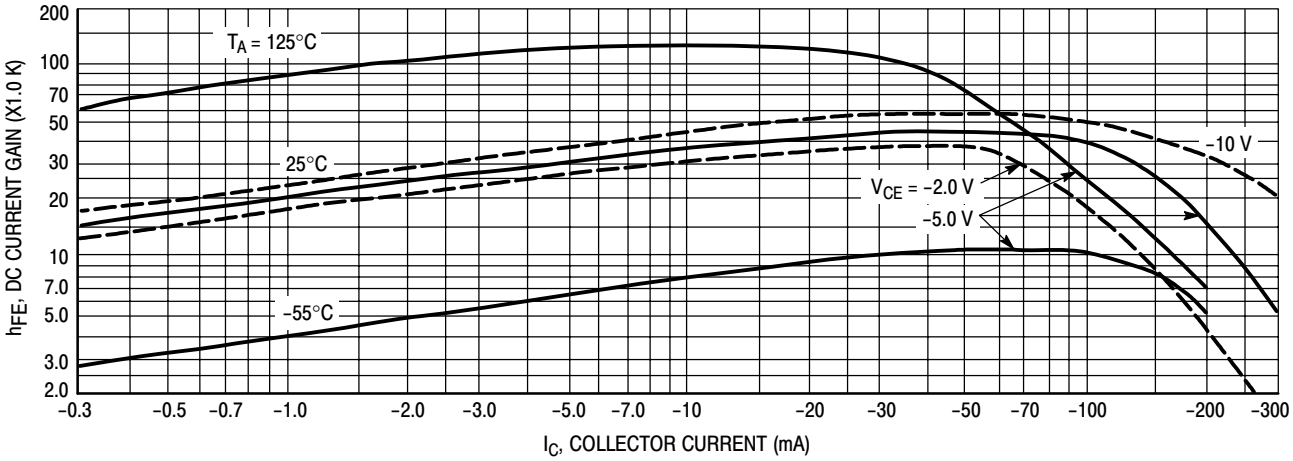


Figure 1. DC Current Gain

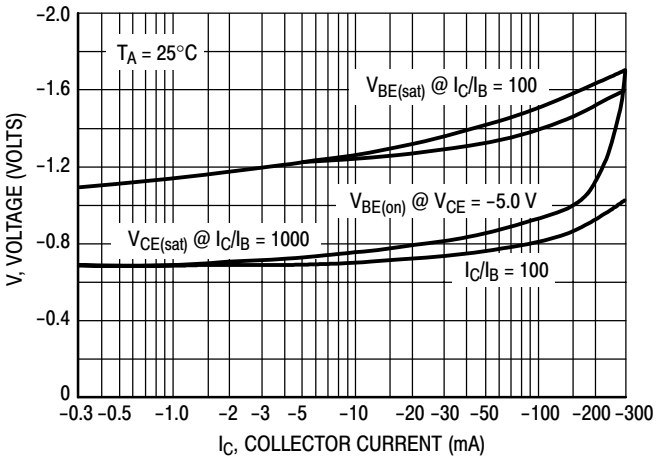


Figure 2. “On” Voltage

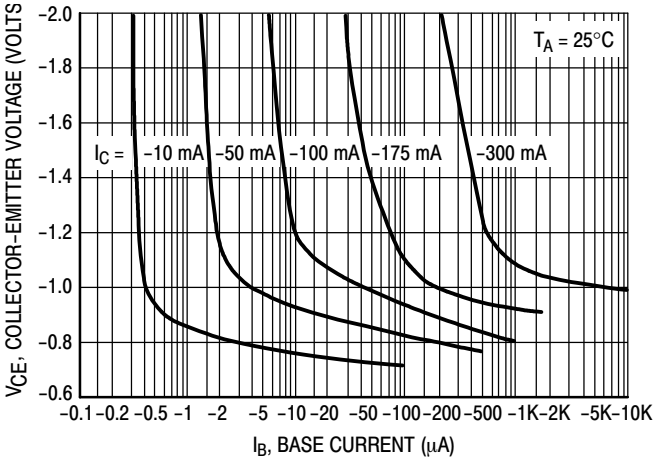


Figure 3. Collector Saturation Region

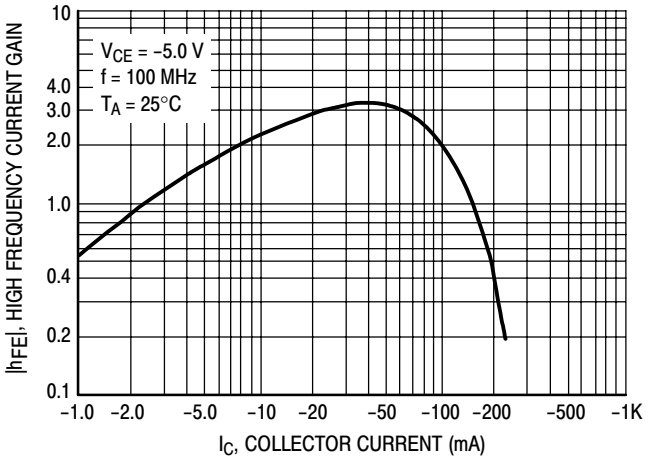


Figure 4. High Frequency Current Gain

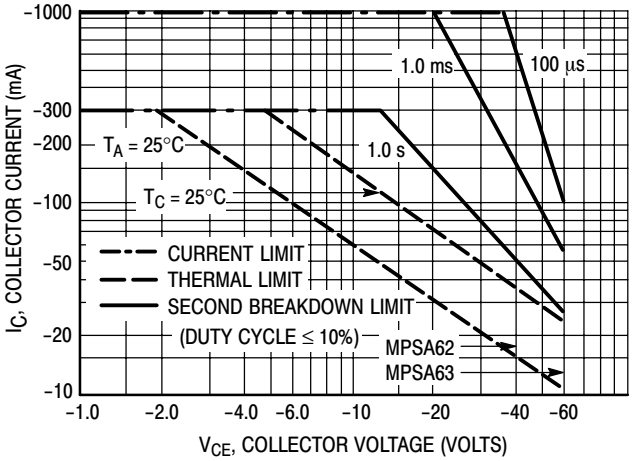
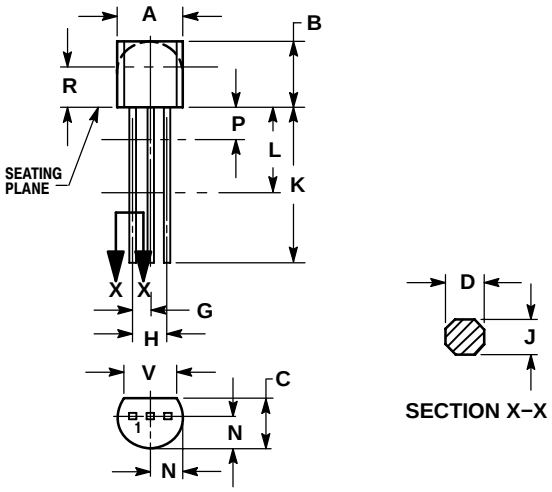


Figure 5. Active Region, Safe Operating Area

Downloaded from Elcodis.com electronic components distributor

PACKAGE DIMENSIONS

TO−92 (TO−226)
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

ON Semiconductor and ON are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. “Typical” parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including “Typicals” must be validated for each customer application by customer’s technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

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

Downloaded from Elcodis.com electronic components distributor