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MPSA63, MPSA64

MPSA64 is a Preferred Device

Darlington Transistors

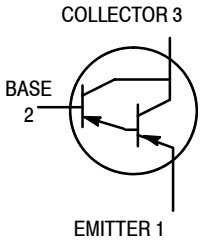
PNP Silicon

ON Semiconductor®

http://onsemi.com

Features

- These are Pb-Free Devices*



MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CES}	-30	Vdc
Collector-Base Voltage	V_{CBO}	-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

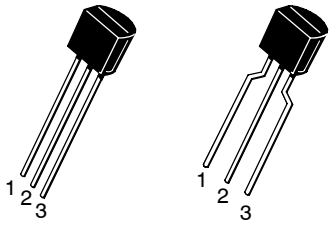
THERMAL CHARACTERISTICS

Rating	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

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.

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

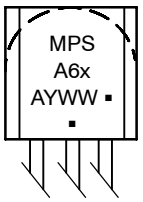
TO-92
CASE 29
STYLE 1



STRAIGHT LEAD
BULK PACK

BENT LEAD
TAPE & REEL
AMMO PACK

MARKING DIAGRAM



xx = 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 (I_C = −100 μAdc, V_{BE} = 0)		$V_{(BR)CES}$	−30	−	Vdc
Collector Cutoff Current (V_{CB} = −30 Vdc, I_E = 0)		I_{CBO}	−	−100	nAdc
Emitter Cutoff Current (V_{EB} = −10 Vdc, I_C = 0)		I_{EBO}	−	−100	nAdc
ON CHARACTERISTICS (Note 1)					
DC Current Gain		h_{FE}			−
(I_C = −10 mAdc, V_{CE} = −5.0 Vdc)	MPSA63		5,000	−	
	MPSA64		10,000	−	
(I_C = −100 mAdc, V_{CE} = −5.0 Vdc)	MPSA63		10,000	−	
	MPSA64		20,000	−	
Collector−Emitter Saturation Voltage (I_C = −100 mAdc, I_B = −0.1 mAdc)		$V_{CE(sat)}$	−	−1.5	Vdc
Base−Emitter On Voltage (I_C = −100 mAdc, V_{CE} = −5.0 Vdc)		$V_{BE(on)}$	−	−2.0	Vdc
SMALL−SIGNAL CHARACTERISTICS					
Current−Gain — Bandwidth Product (Note 2) (I_C = −100 mAdc, V_{CE} = −5.0 Vdc, f = 100 MHz)		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†
MPSA63G	TO−92 (Pb−Free)	5000 Units / Bulk
MPSA63RLRAG	TO−92 (Pb−Free)	2000 / Tape & Reel
MPSA64G	TO−92 (Pb−Free)	5000 Units / Bulk
MPSA64RLRAG	TO−92 (Pb−Free)	2000 / Tape & Reel
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.

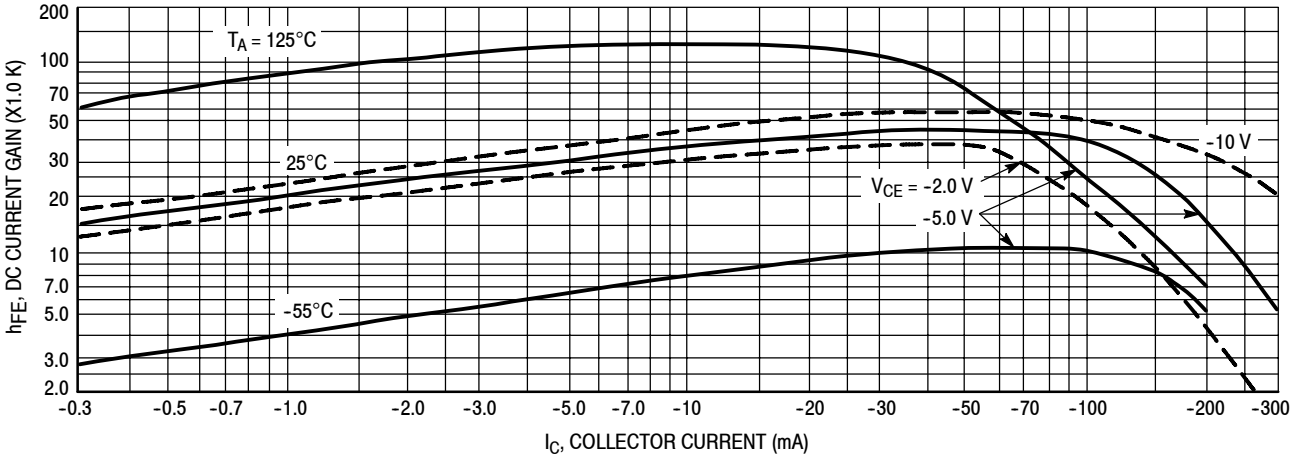


Figure 1. DC Current Gain

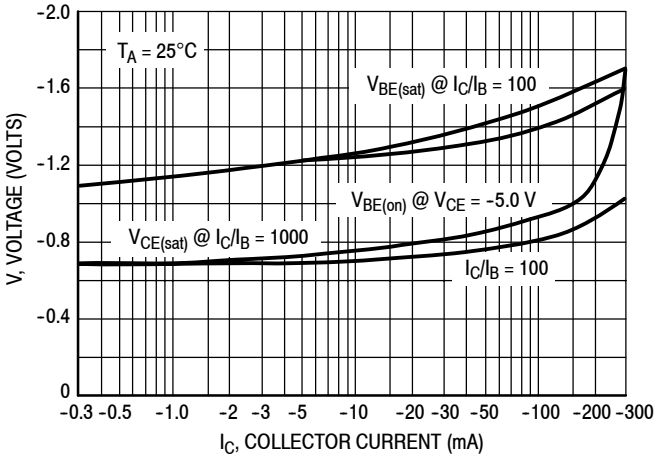


Figure 2. "On" Voltage

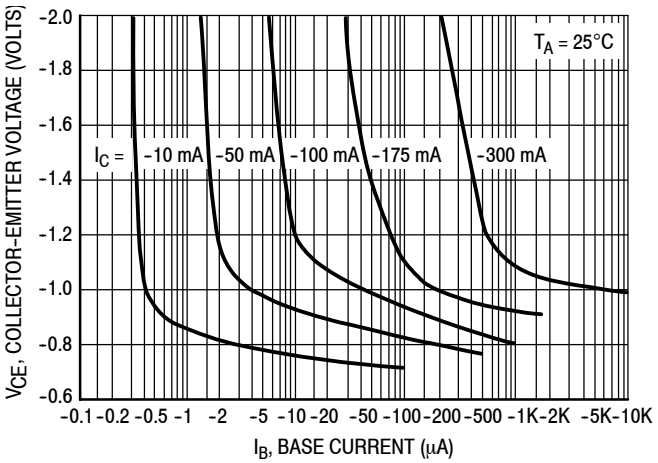


Figure 3. Collector Saturation Region

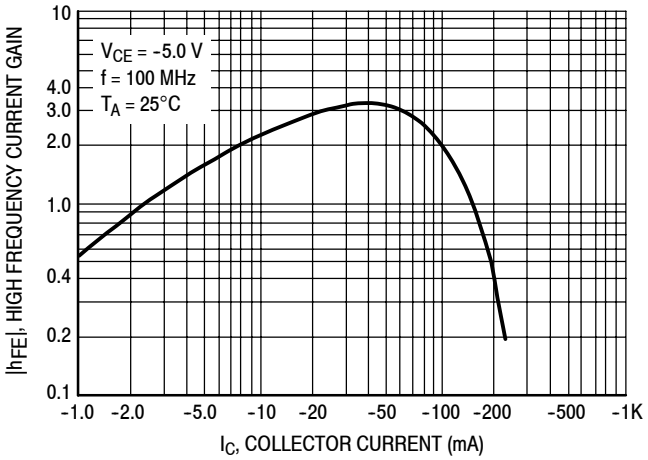


Figure 4. High Frequency Current Gain

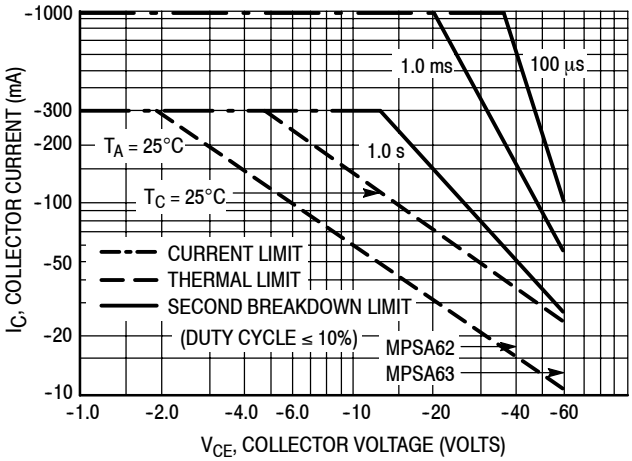
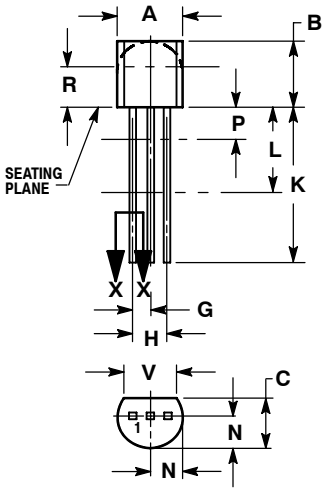


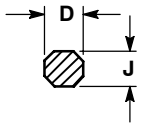
Figure 5. Active Region, Safe Operating Area

PACKAGE DIMENSIONS

TO−92 (TO−226)
CASE 29−11
ISSUE AM



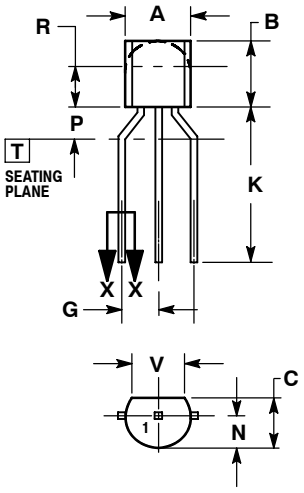
STRAIGHT LEAD
BULK PACK



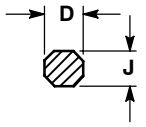
SECTION X−X

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	---



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	---

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

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

N. American Technical Support: 800−282−9855 Toll Free USA/Canada
Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81−3−5773−3850

ON Semiconductor Website: **www.onsemi.com**

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

For additional information, please contact your local Sales Representative

MPSA63/D