



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



# MPSA75, MPSA77

## Darlington Transistors

### PNP Silicon

#### Features

- These are Pb-Free Devices\*

#### MAXIMUM RATINGS

Rating	Symbol	Value	Unit	
Collector-Emitter Voltage	MPSA75 MPSA77	$V_{CES}$	-40 -60	Vdc
Emitter-Base Voltage		$V_{EBO}$	-10	Vdc
Collector Current - Continuous		$I_C$	-500	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$		$P_D$	625 5.0	mW mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range		$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

#### THERMAL CHARACTERISTICS

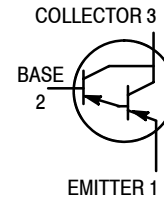
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	200	$^\circ\text{C}/\text{W}$

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.

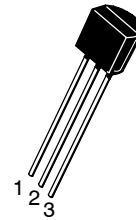


**ON Semiconductor®**

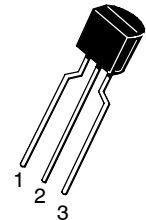
<http://onsemi.com>



**TO-92  
CASE 29  
STYLE 1**

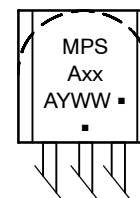


STRAIGHT LEAD  
BULK PACK



BENT LEAD  
TAPE & REEL  
AMMO PACK

#### MARKING DIAGRAM



xx = 75, or 77  
A = Assembly Location  
Y = Year  
WW = Work Week  
▪ = Pb-Free Package

(Note: Microdot may be in either location)

#### ORDERING INFORMATION

Device	Package	Shipping†
MPSA75RLRPG	TO-92 (Pb-Free)	2000 / Ammo Pack
MPSA77G	TO-92 (Pb-Free)	5000 Units / Bulk

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

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

## MPSA75, MPSA77

### ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>						
Collector-Emitter Breakdown Voltage (I <sub>C</sub> = -100 μA <sub>dc</sub> , V <sub>BE</sub> = 0)	MPSA75 MPSA77	V <sub>(BR)CES</sub>	-40 -60	- -	- -	V <sub>dc</sub>
Collector-Base Breakdown Voltage (I <sub>C</sub> = 100 μA <sub>dc</sub> , I <sub>E</sub> = 0)	MPSA75 MPSA77	V <sub>(BR)CBO</sub>	-40 -60	- -	- -	V <sub>dc</sub>
Collector Cutoff Current (V <sub>CB</sub> = -30 V, I <sub>E</sub> = 0) (V <sub>CB</sub> = -50 V, I <sub>E</sub> = 0)	MPSA75 MPSA77	I <sub>CBO</sub>	- -	- -	-100 -100	nA <sub>dc</sub>
Collector Cutoff Current (V <sub>CE</sub> = -30 V, V <sub>BE</sub> = 0) (V <sub>CE</sub> = -50 V, V <sub>BE</sub> = 0)	MPSA75 MPSA77	I <sub>CES</sub>	- -	- -	-500 -500	nA <sub>dc</sub>
Emitter Cutoff Current (V <sub>EB</sub> = -10 V <sub>dc</sub> )		I <sub>EBO</sub>	-	-	-100	nA <sub>dc</sub>
<b>ON CHARACTERISTICS</b>						
DC Current Gain (I <sub>C</sub> = -10 mA, V <sub>CE</sub> = -5.0 V) (I <sub>C</sub> = -100 mA, V <sub>CE</sub> = -5.0 V)		h <sub>FE</sub>	10,000 10,000	- -	- -	-
Collector-Emitter Saturation Voltage (I <sub>C</sub> = -100 mA, I <sub>B</sub> = -0.1 mA <sub>dc</sub> )		V <sub>CE(sat)</sub>	-	-	-1.5	V <sub>dc</sub>
Base-Emitter On Voltage (I <sub>C</sub> = -100 mA, V <sub>CE</sub> = -5.0 V <sub>dc</sub> )		V <sub>BE</sub>	-	-	-2.0	V <sub>dc</sub>
<b>SMALL-SIGNAL CHARACTERISTICS</b>						
Current-Gain - High Frequency (I <sub>C</sub> = -10 mA, V <sub>CE</sub> = -5.0 V, f = 100 MHz)		h <sub>fe</sub>	1.25	2.4	-	-

# MPSA75, MPSA77

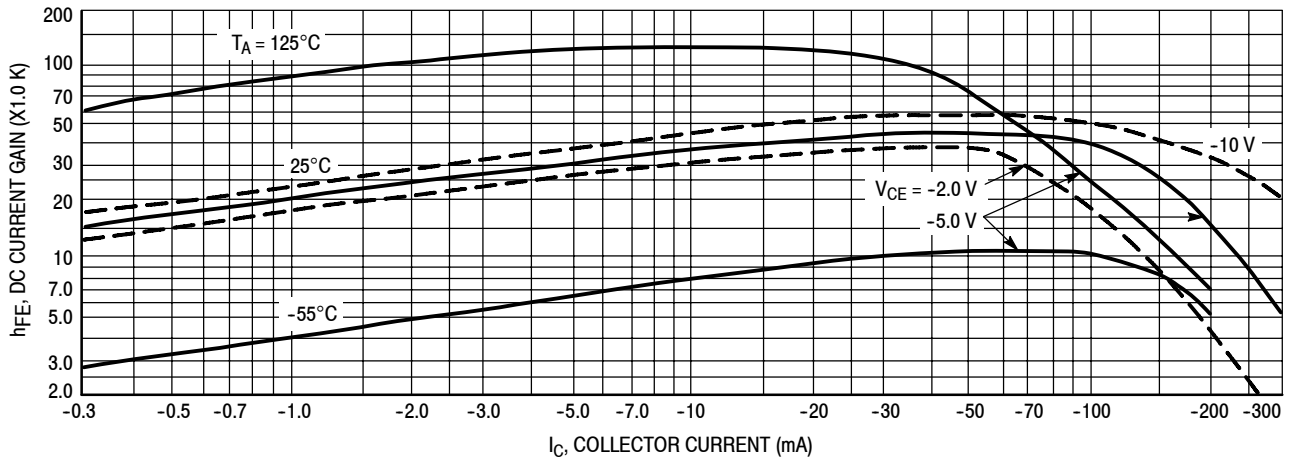


Figure 1. DC Current Gain

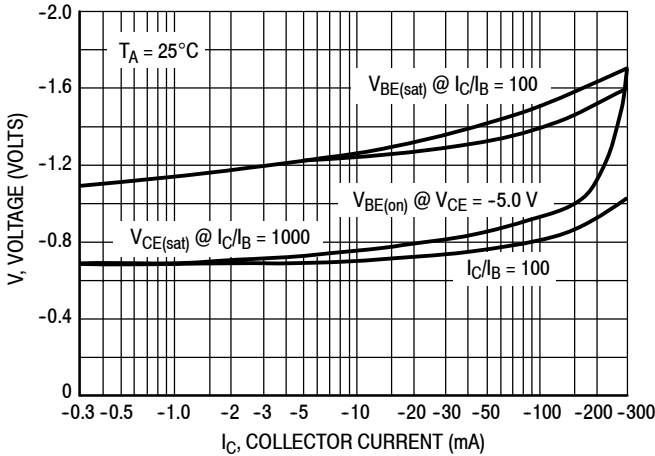


Figure 2. "On" Voltage

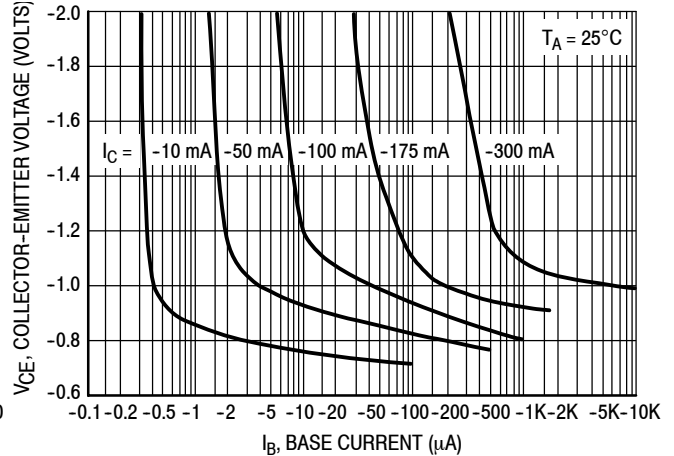


Figure 3. Collector Saturation Region

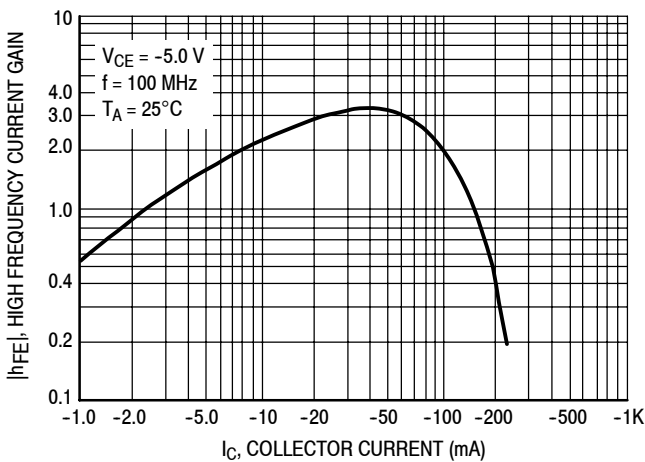


Figure 4. High Frequency Current Gain

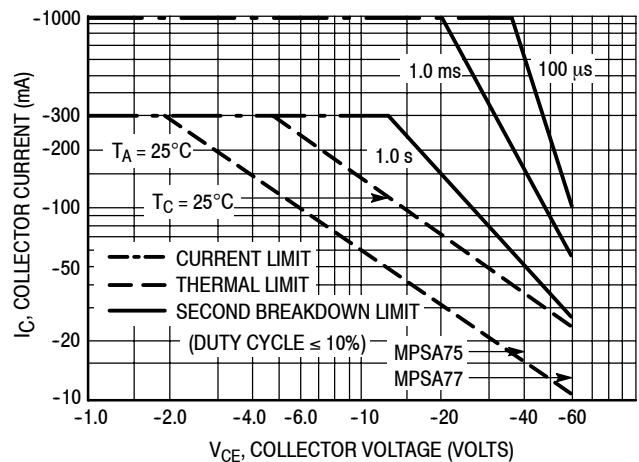
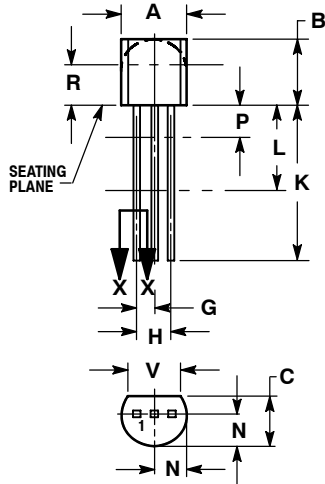


Figure 5. Active Region, Safe Operating Area

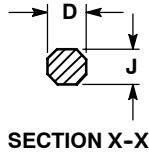
# MPSA75, MPSA77

## PACKAGE DIMENSIONS

TO-92 (TO-226)  
CASE 29-11  
ISSUE AM



STRAIGHT LEAD  
BULK PACK

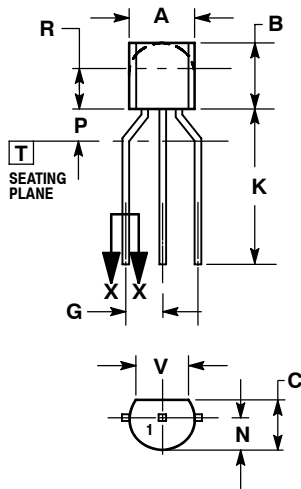


SECTION X-X

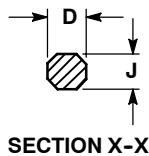
NOTES:

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.

DIM	INCHES		MILLIMETERS	
	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.

DIM	MILLIMETERS	
	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:

1. EMITTER
2. BASE
3. COLLECTOR

ON Semiconductor and 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 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](mailto: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](http://www.onsemi.com)

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

For additional information, please contact your local Sales Representative