

MPSA75, MPSA77

Darlington Transistors

PNP Silicon

Features

- Pb-Free Packages are Available*

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°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

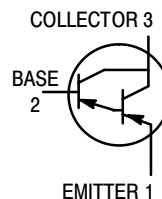
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	200	$^\circ\text{C/W}$

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.

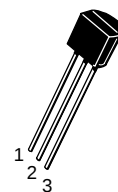


ON Semiconductor®

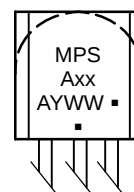
<http://onsemi.com>



MARKING DIAGRAM



TO-92
CASE 29-11
STYLE 1



MPSAxx = Device Code
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 [†]
MPSA75RLRA	TO-92	2,000/Tape & Reel
MPSA75RLRAG	TO-92 (Pb-Free)	2,000/Tape & Reel
MPSA75RLRP	TO-92	2,000/Ammo Pack
MPSA75RLRPG	TO-92 (Pb-Free)	2,000/Ammo Pack
MPSA77	TO-92	5,000 Units/Box
MPSA77G	TO-92 (Pb-Free)	5,000 Units/Box
MPSA77RLRA	TO-92	2,000/Ammo Pack
MPSA77RLRAG	TO-92 (Pb-Free)	2,000/Ammo Pack

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

[†]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.

MPSA75, MPSA77

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage ($I_C = -100\ \mu\text{Adc}$, $V_{BE} = 0$)	MPSA75 MPSA77	$V_{(BR)CES}$	-40 -60	- -	- -	Vdc
Collector–Base Breakdown Voltage ($I_C = 100\ \mu\text{Adc}$, $I_E = 0$)	MPSA75 MPSA77	$V_{(BR)CBO}$	-40 -60	- -	- -	Vdc
Collector Cutoff Current ($V_{CB} = -30\ \text{V}$, $I_E = 0$) ($V_{CB} = -50\ \text{V}$, $I_E = 0$)	MPSA75 MPSA77	I_{CBO}	- -	- -	-100 -100	nAdc
Collector Cutoff Current ($V_{CE} = -30\ \text{V}$, $V_{BE} = 0$) ($V_{CE} = -50\ \text{V}$, $V_{BE} = 0$)	MPSA75 MPSA77	I_{CES}	- -	- -	-500 -500	nAdc
Emitter Cutoff Current ($V_{EB} = -10\ \text{Vdc}$)		I_{EBO}	-	-	-100	nAdc

ON CHARACTERISTICS

DC Current Gain ($I_C = -10\ \text{mA}$, $V_{CE} = -5.0\ \text{V}$) ($I_C = -100\ \text{mA}$, $V_{CE} = -5.0\ \text{V}$)	h_{FE}	10,000 10,000	- -	- -	-
Collector–Emitter Saturation Voltage ($I_C = -100\ \text{mA}$, $I_B = -0.1\ \text{mAdc}$)	$V_{CE(sat)}$	-	-	-1.5	Vdc
Base–Emitter On Voltage ($I_C = -100\ \text{mA}$, $V_{CE} = -5.0\ \text{Vdc}$)	V_{BE}	-	-	-2.0	Vdc

SMALL–SIGNAL CHARACTERISTICS

Current–Gain – High Frequency ($I_C = -10\ \text{mA}$, $V_{CE} = -5.0\ \text{V}$, $f = 100\ \text{MHz}$)	$ h_{fe} $	1.25	2.4	-	-
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MPSA75, MPSA77

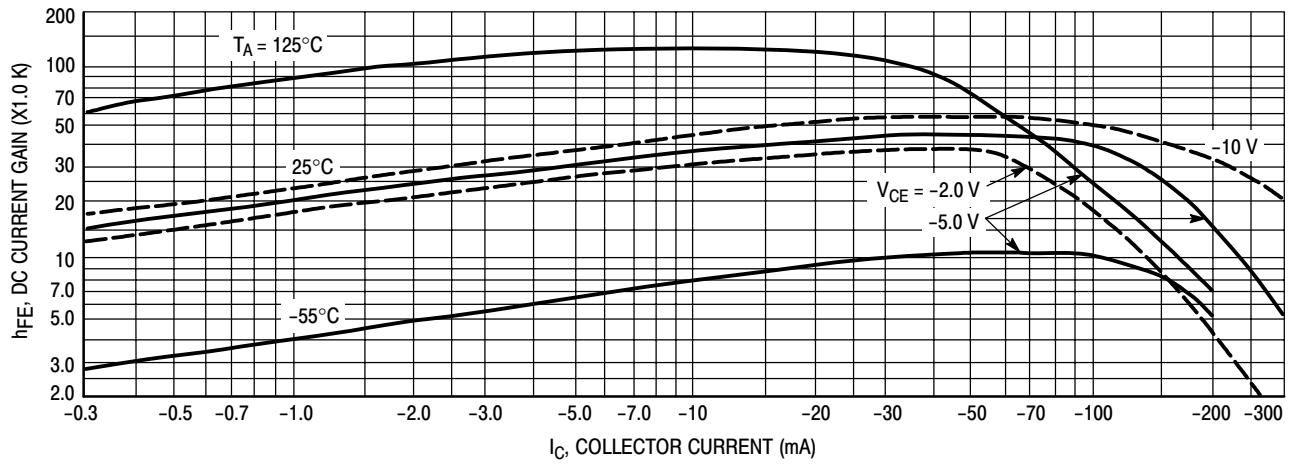


Figure 1. DC Current Gain

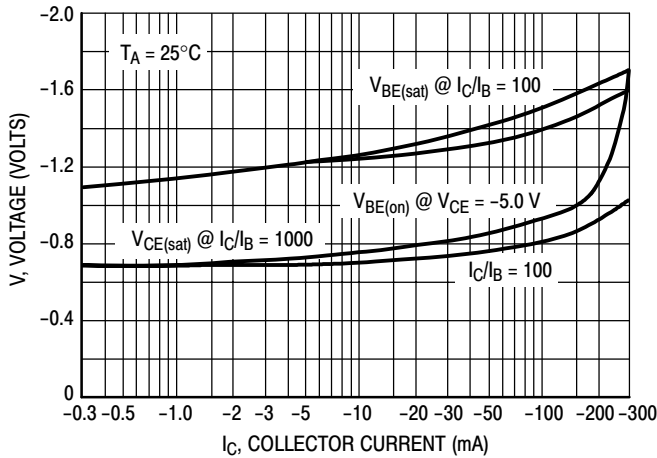


Figure 2. "On" Voltage

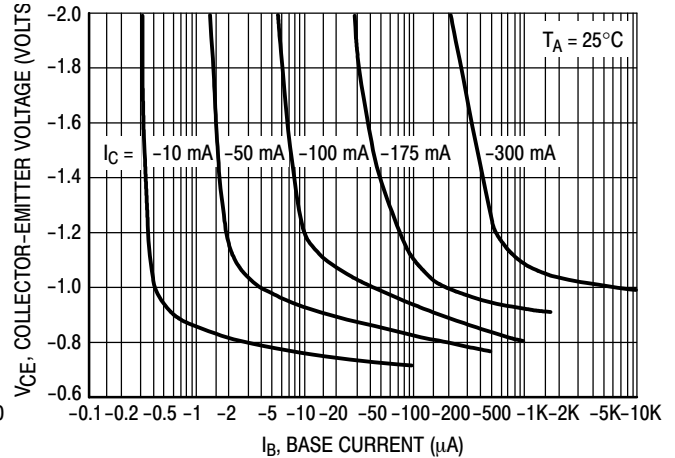


Figure 3. Collector Saturation Region

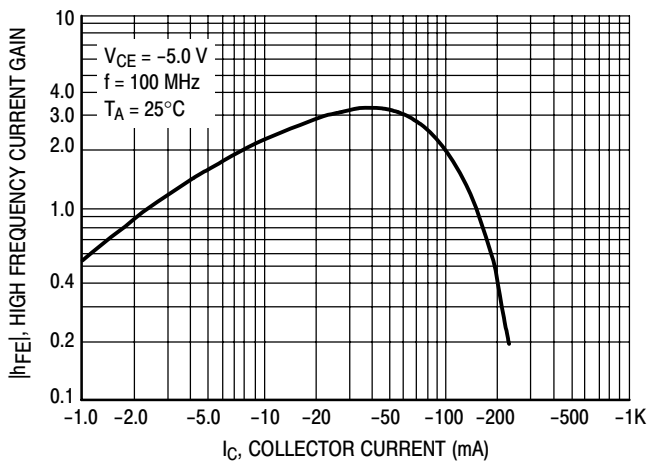


Figure 4. High Frequency Current Gain

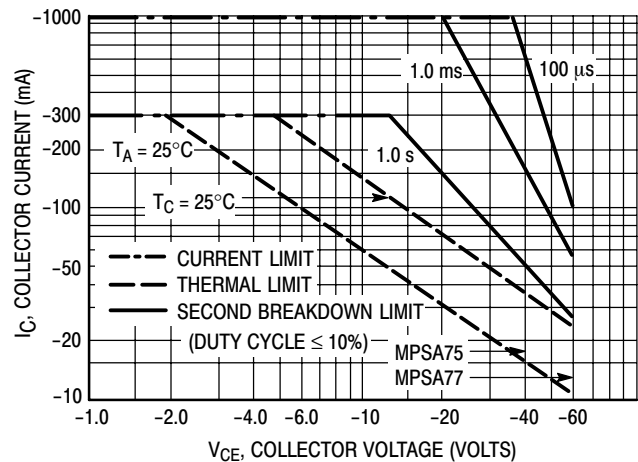
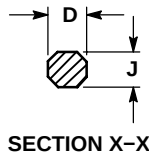
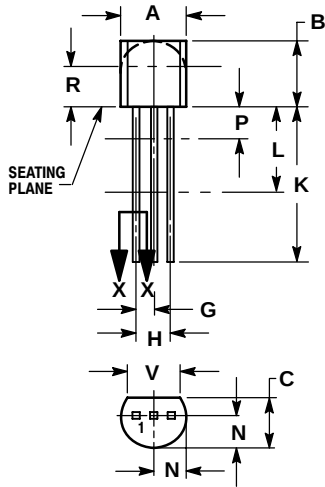


Figure 5. Active Region, Safe Operating Area

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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.

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	---

STYLE 1:

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

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