MPSA75, MPSA77

Darlington Transistors

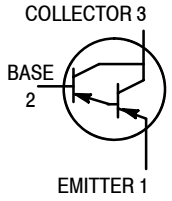
PNP Silicon

ON Semiconductor®

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Features

- These are Pb-Free Devices*



MAXIMUM RATINGS

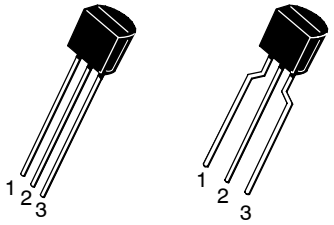
Rating		Symbol	Value	Unit
Collector-Emitter Voltage	MPSA75 MPSA77	V_{CES}	-40 -60	Vdc
Emitter-Base Voltage		V_{EBO}	-10	Vdc
Collector Current - Continuous		I_C	-500	mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C		P_D	625 5.0	mW mW/°C
Operating and Storage Junction Temperature Range		T_J,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

THERMAL CHARACTERISTICS

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

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.

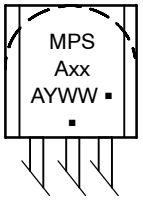
TO-92
CASE 29
STYLE 1



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.

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

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Collector−Emitter Breakdown Voltage (I_C = −100 μAdc, V_{BE} = 0)	MPSA75 MPSA77	$V_{(BR)CES}$	−40 −60	− −	− −	Vdc
Collector−Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)	MPSA75 MPSA77	$V_{(BR)CBO}$	−40 −60	− −	− −	Vdc
Collector Cutoff Current (V_{CB}= −30 V, I_E = 0) (V_{CB} = −50 V, I_E = 0)	 MPSA75 MPSA77	I_{CBO}	 − −	 − −	 −100 −100	nAdc
Collector Cutoff Current (V_{CE} = −30 V, V_{BE} = 0) (V_{CE} = −50 V, V_{BE} = 0)	 MPSA75 MPSA77	I_{CES}	 − −	 − −	 −500 −500	nAdc
Emitter Cutoff Current (V_{EB} = −10 Vdc)		I_{EBO}	−	−	−100	nAdc
ON CHARACTERISTICS						
DC Current Gain (I_C = −10 mA, V_{CE} = −5.0 V) (I_C = −100 mA, V_{CE} = −5.0 V)		h_{FE}	 10,000 10,000	 − −	 − −	−
Collector−Emitter Saturation Voltage (I_C = −100 mA, I_B = −0.1 mAdc)		$V_{CE(sat)}$	−	−	−1.5	Vdc
Base−Emitter On Voltage (I_C = −100 mA, V_{CE} = −5.0 Vdc)		V_{BE}	−	−	−2.0	Vdc
SMALL−SIGNAL CHARACTERISTICS						
Current−Gain − High Frequency (I_C = −10 mA, V_{CE} = −5.0 V, f = 100 MHz)		$\|h_{fe}\|$	1.25	2.4	−	−

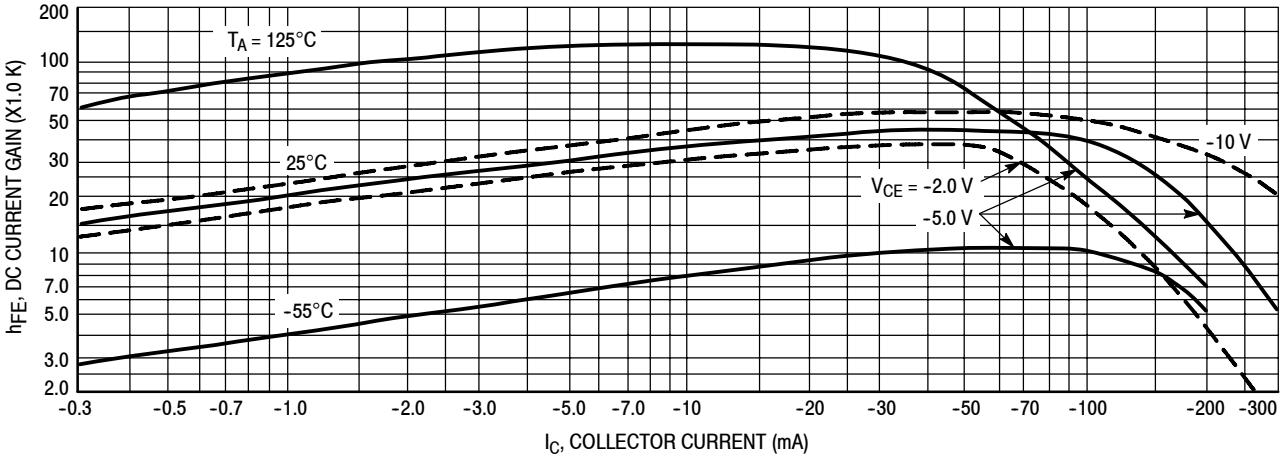


Figure 1. DC Current Gain

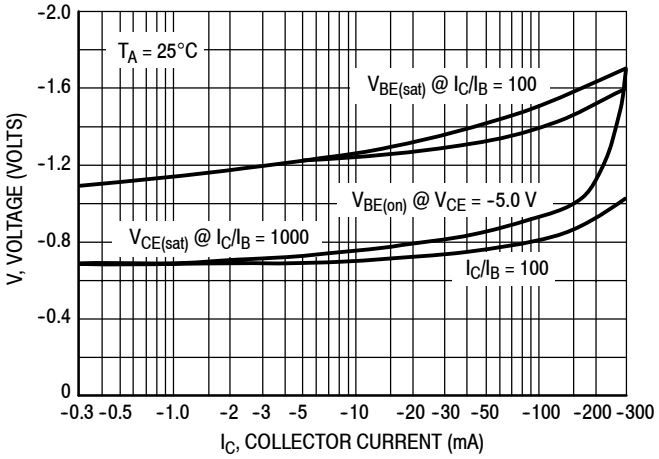


Figure 2. "On" Voltage

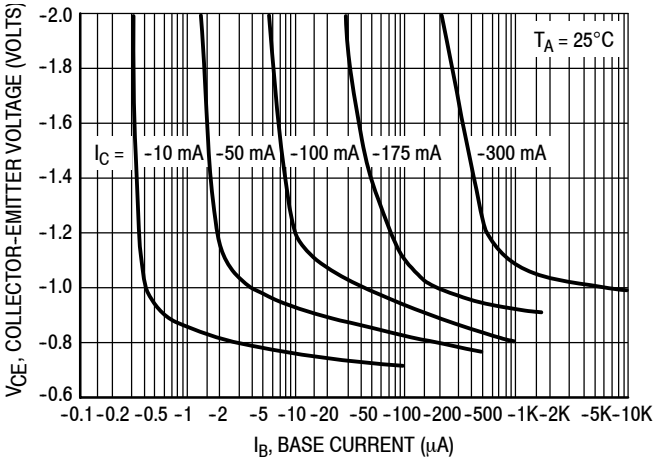


Figure 3. Collector Saturation Region

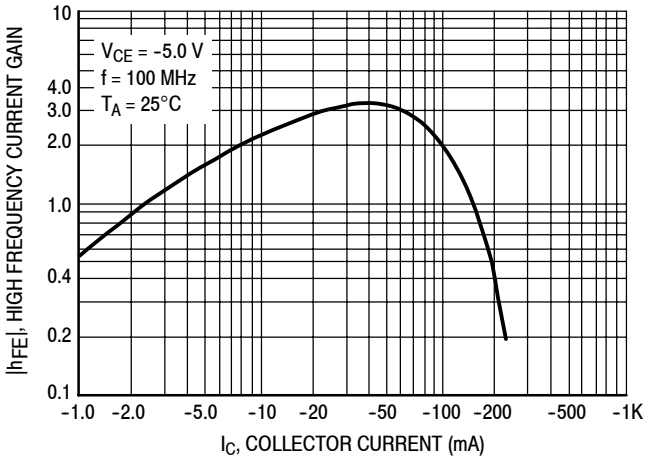


Figure 4. High Frequency Current Gain

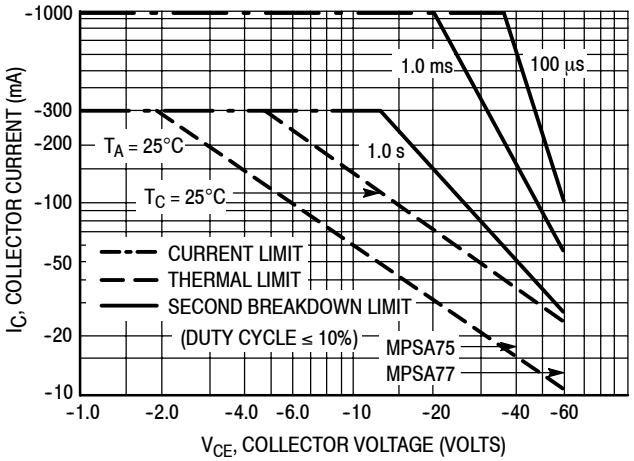
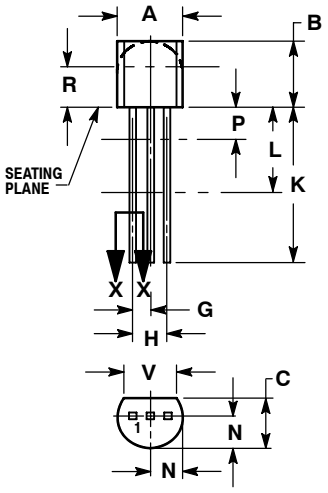


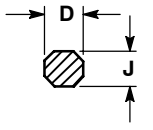
Figure 5. Active Region, Safe Operating Area

PACKAGE DIMENSIONS

TO−92 (TO−226)
CASE 29−11
ISSUE AM



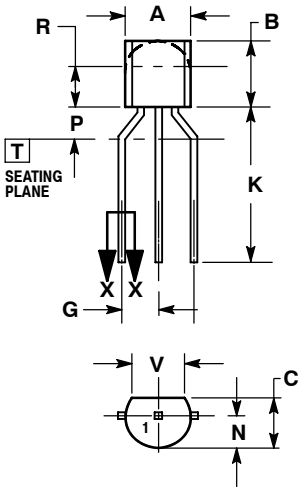
STRAIGHT LEAD
BULK PACK



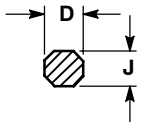
SECTION X−X

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

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