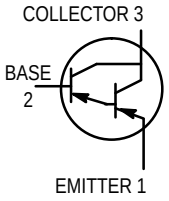
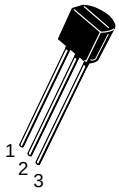
Darlington Transistors

PNP Silicon

MPSA75
MPSA77





CASE 29–04, STYLE 1
TO–92 (TO–226AA)

MAXIMUM RATINGS

Rating	Symbol	MPSA75	MPSA77	Unit
Collector–Emitter Voltage	V_{CES}	–40	–60	Vdc
Emitter–Base Voltage	V_{EBO}	–10		Vdc
Collector Current — Continuous	I_C	–500		Adc
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

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	—	—

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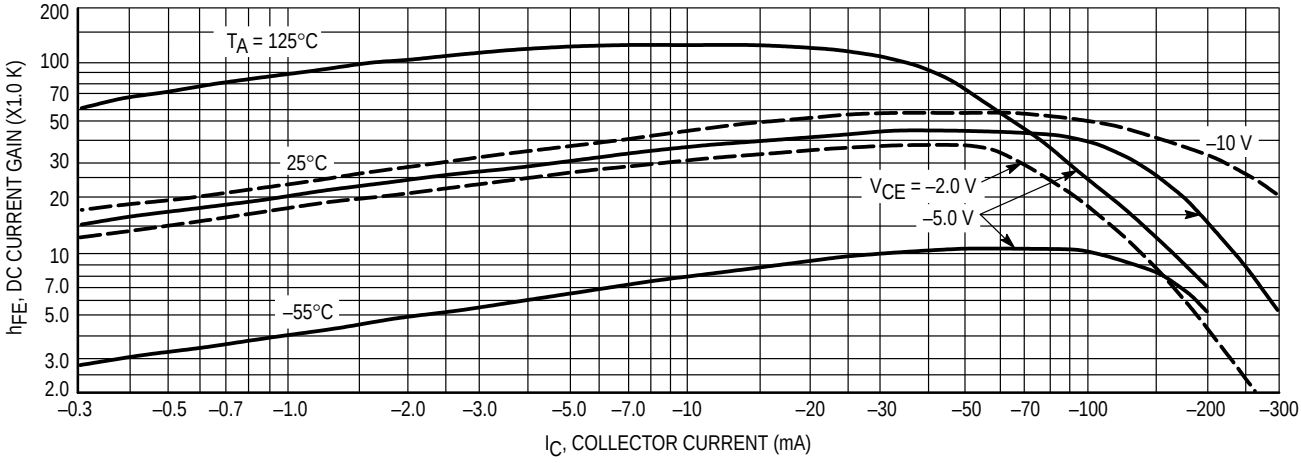


Figure 1. DC Current Gain

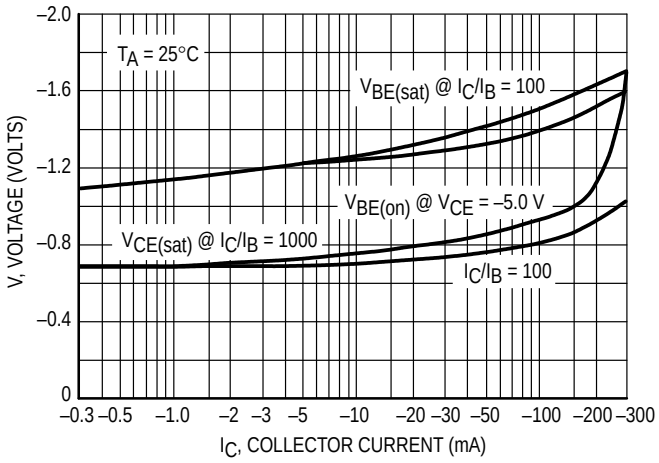


Figure 2. "On" Voltage

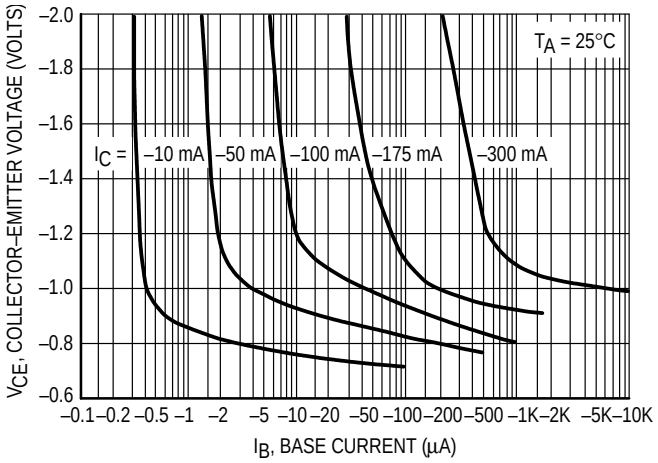


Figure 3. Collector Saturation Region

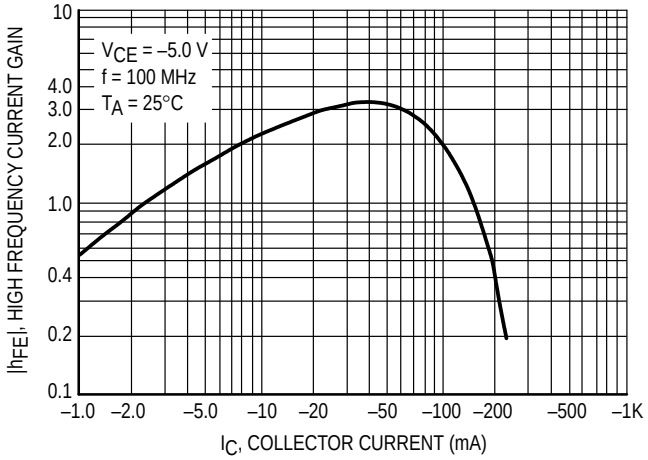


Figure 4. High Frequency Current Gain

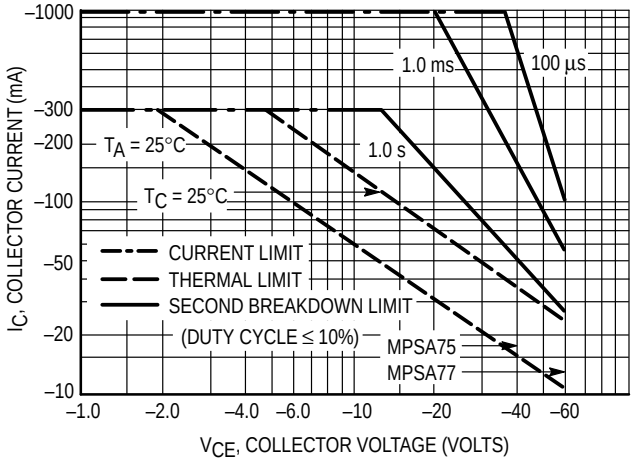
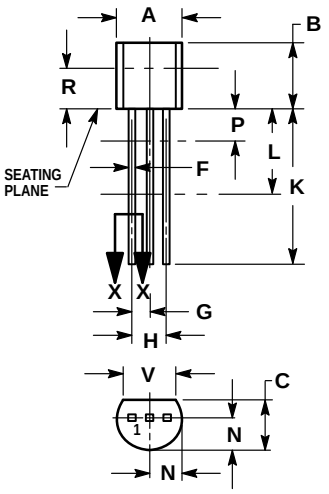
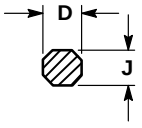


Figure 5. Active Region, Safe Operating Area

PACKAGE DIMENSIONS





SECTION X–X

CASE 029–04
(TO–226AA)
ISSUE AD

NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. DIMENSION F APPLIES BETWEEN P AND L. DIMENSION D AND J APPLY BETWEEN L AND K MINIMUM. 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	0.022	0.41	0.55
F	0.016	0.019	0.41	0.48
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

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