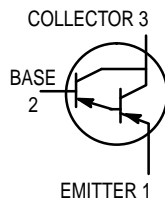
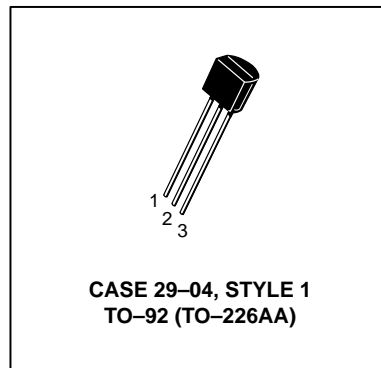


Darlington Transistors

PNP Silicon



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 @ $T_A = 25^\circ\text{C}$ 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	$^\circ\text{C}/\text{W}$

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

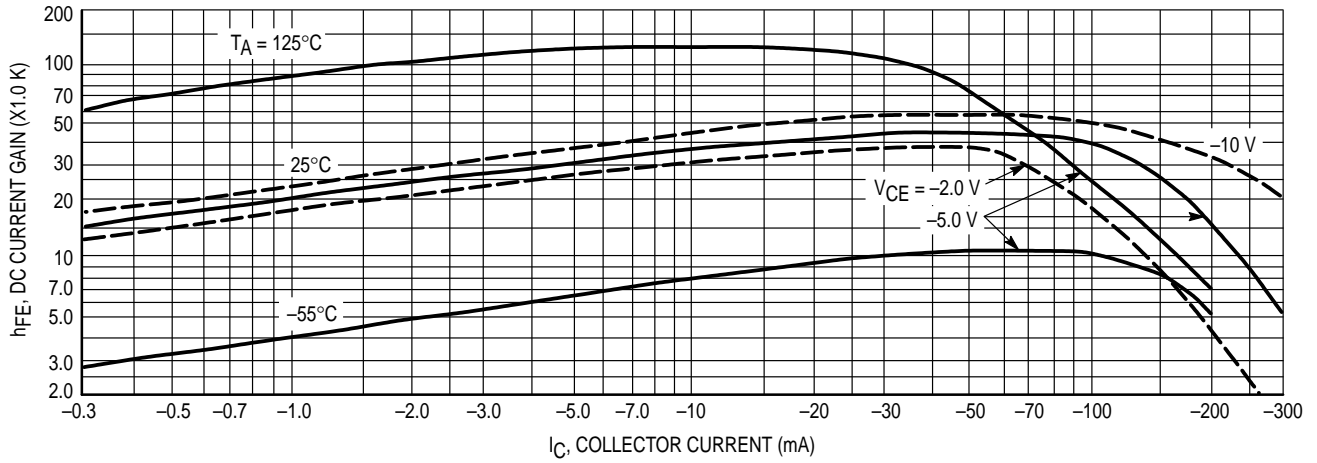


Figure 1. DC Current Gain

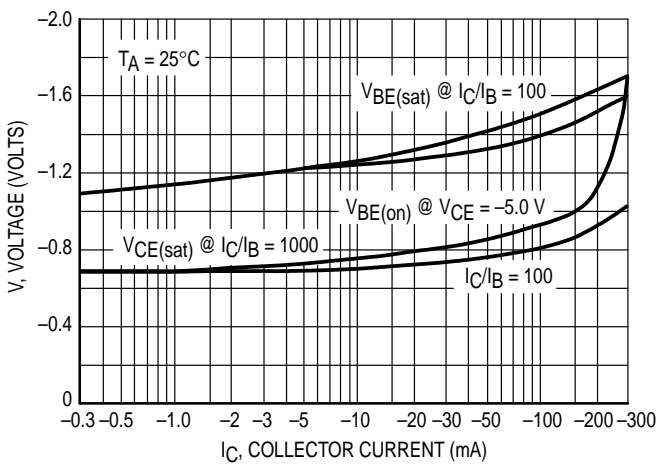


Figure 2. "On" Voltage

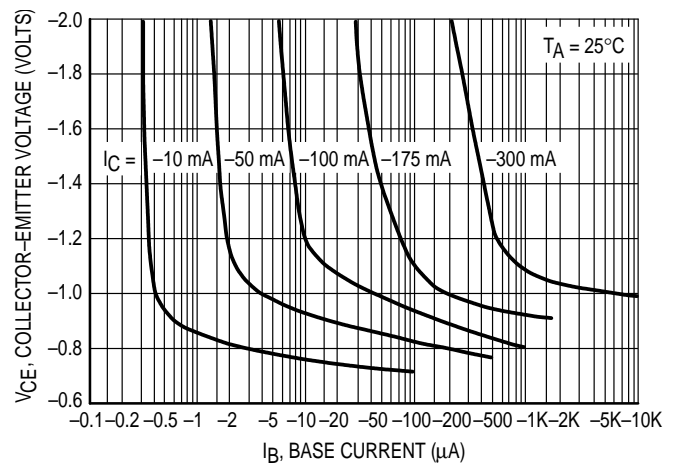


Figure 3. Collector Saturation Region

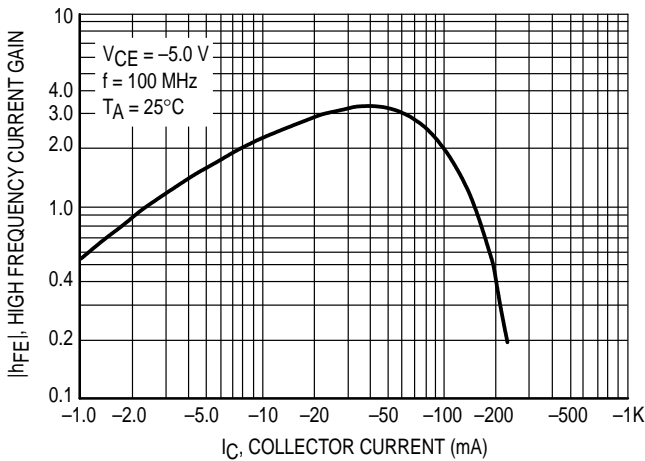


Figure 4. High Frequency Current Gain

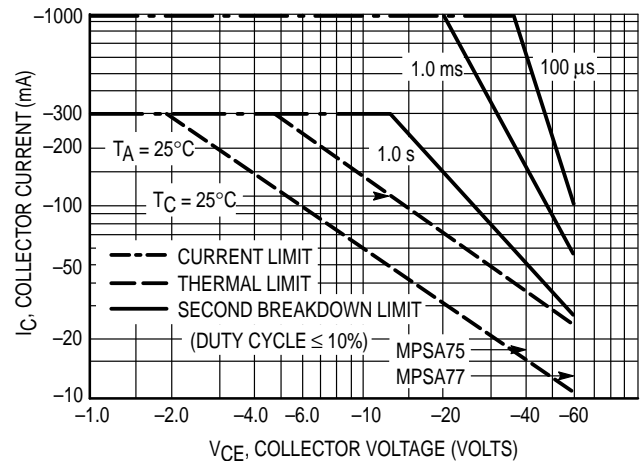
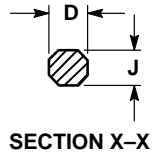
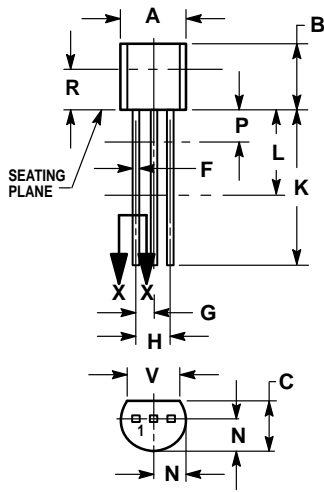


Figure 5. Active Region, Safe Operating Area

PACKAGE DIMENSIONS




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.

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	0.022	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:
1. EMITTER
 2. BASE
 3. COLLECTOR

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