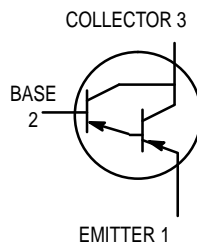


Darlington Transistors

PNP Silicon



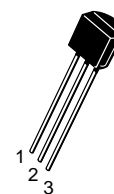
MPSA62 thru MPSA64*

MPSA55, MPSA56
For Specifications,
See MPSA05, MPSA06 Data

*Motorola Preferred Device

MAXIMUM RATINGS

Rating	Symbol	MPSA62	MPSA63 MPSA64	Unit
Collector–Emitter Voltage	V_{CES}	-20	-30	Vdc
Collector–Base Voltage	V_{CBO}	-20	-30	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/ $^\circ\text{C}$
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	1.5	12	Watts mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-55 to +150		$^\circ\text{C}$



CASE 29-04, STYLE 1
TO-92 (TO-226AA)

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	200	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	83.3	$^\circ\text{C}/\text{W}$

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

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage ($I_C = -100 \mu\text{Adc}$, $V_{BE} = 0$)	MPSA62 MPSA63, MPSA64	$V_{(BR)CES}$	-20 -30	— —	Vdc
Collector Cutoff Current ($V_{CB} = -15 \text{Vdc}$, $I_E = 0$) ($V_{CB} = -30 \text{Vdc}$, $I_E = 0$)	MPSA62 MPSA63, MPSA64	I_{CBO}	— —	-100 -100	nAdc
Emitter Cutoff Current ($V_{EB} = -10 \text{Vdc}$, $I_C = 0$)		I_{EBO}	—	-100	nAdc

Preferred devices are Motorola recommended choices for future use and best overall value.

MPSA62 thru MPSA64

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

Characteristic		Symbol	Min	Max	Unit
ON CHARACTERISTICS(1)					
DC Current Gain ($I_C = -10\text{ mAdc}$, $V_{CE} = -5.0\text{ Vdc}$)	MPSA63	h_{FE}	5,000	—	—
	MPSA64		10,000	—	
	MPSA62		20,000	—	
($I_C = -100\text{ mAdc}$, $V_{CE} = -5.0\text{ Vdc}$)	MPSA63	10,000	—		
	MPSA64	20,000	—		
Collector–Emitter Saturation Voltage ($I_C = -10\text{ mAdc}$, $I_B = -0.01\text{ mAdc}$) ($I_C = -100\text{ mAdc}$, $I_B = -0.1\text{ mAdc}$)	MPSA62	$V_{CE(sat)}$	—	-1.0	Vdc
	MPSA63, MPSA64		—	-1.5	
Base–Emitter On Voltage ($I_C = -10\text{ mAdc}$, $V_{CE} = -5.0\text{ Vdc}$) ($I_C = -100\text{ mAdc}$, $V_{CE} = -5.0\text{ Vdc}$)	MPSA62	$V_{BE(on)}$	—	-1.4	Vdc
	MPSA63, MPSA64		—	-2.0	
SMALL–SIGNAL CHARACTERISTICS					
Current–Gain — Bandwidth Product(2) ($I_C = -100\text{ mAdc}$, $V_{CE} = -5.0\text{ Vdc}$, $f = 100\text{ MHz}$)	MPSA63, MPSA64	f_T	125	—	MHz

1. Pulse Test: Pulse Width $\leq 300\ \mu\text{s}$; Duty Cycle $\leq 2.0\%$.

2. $f_T = |h_{fe}| \cdot f_{test}$.

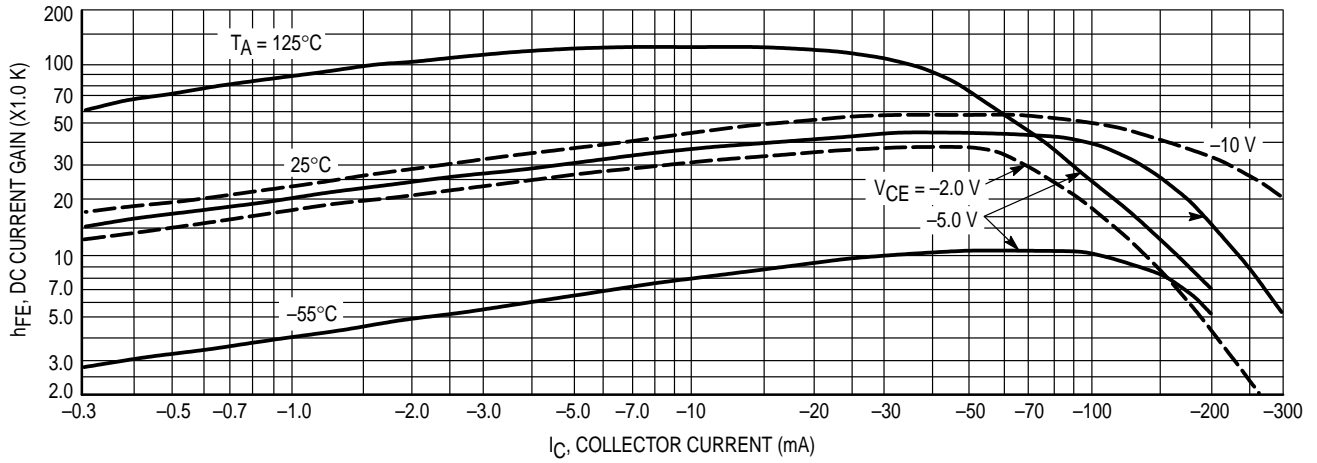


Figure 1. DC Current Gain

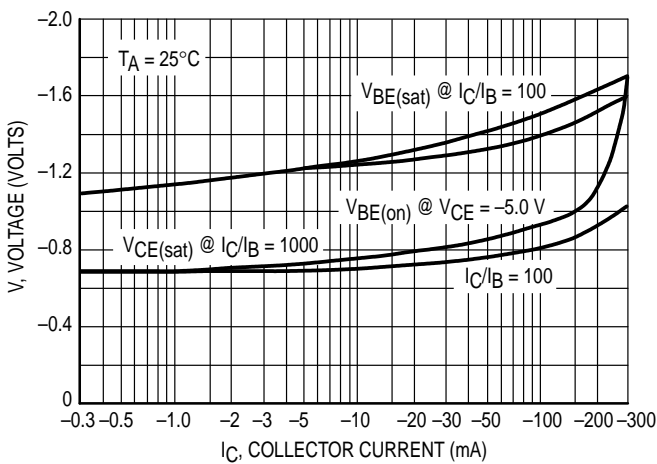


Figure 2. "On" Voltage

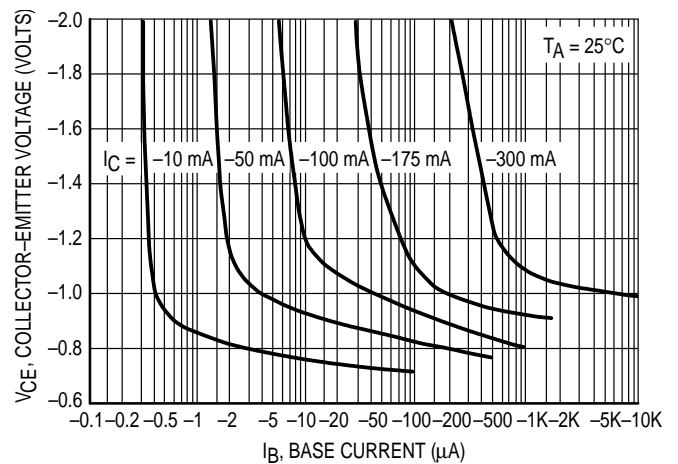


Figure 3. Collector Saturation Region

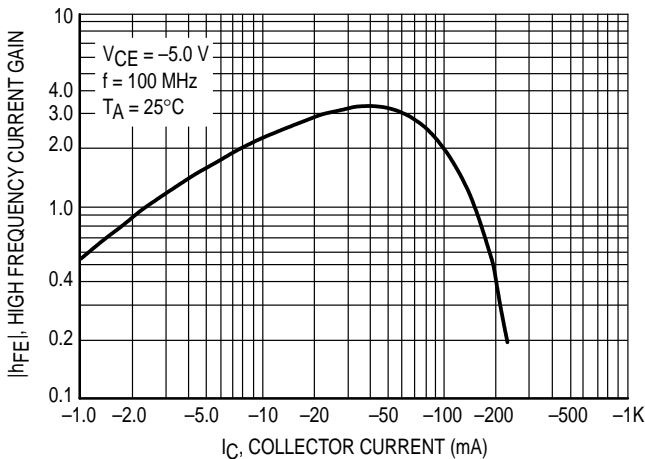


Figure 4. High Frequency Current Gain

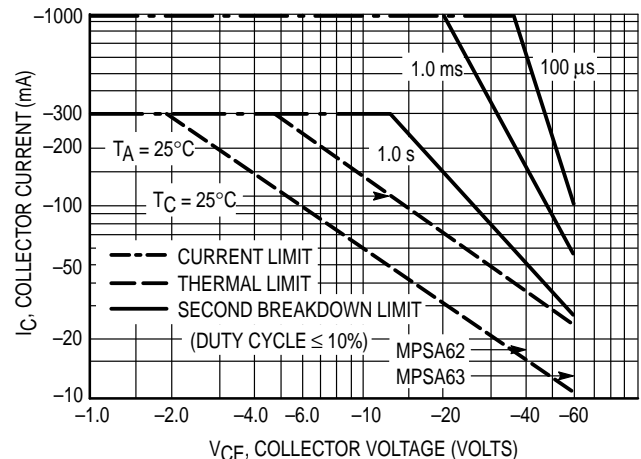
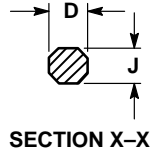
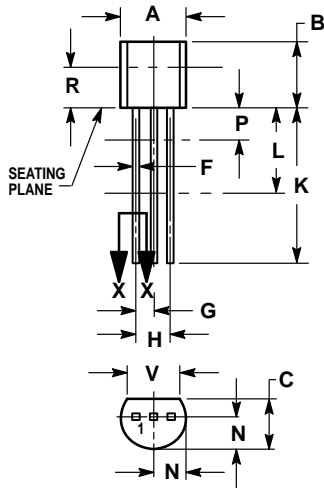


Figure 5. Active Region, Safe Operating Area

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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