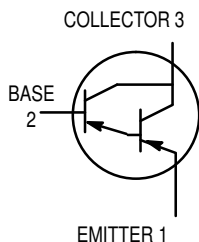


Darlington Transistors

PNP Silicon



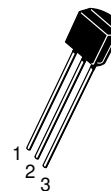
MPSA62 thru MPSA64*

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 mAdc, V _{CE} = −5.0 Vdc)	h _{FE}	5,000	—	—
MPSA63		10,000	—	
MPSA62		20,000	—	
(I _C = −100 mAdc, V _{CE} = −5.0 Vdc)		10,000	—	
MPSA63		20,000	—	
Collector–Emitter Saturation Voltage (I _C = −10 mAdc, I _B = −0.01 mAdc)	V _{CE(sat)}	—	−1.0	Vdc
(I _C = −100 mAdc, I _B = −0.1 mAdc)		—	−1.5	
Base–Emitter On Voltage (I _C = −10 mAdc, V _{CE} = −5.0 Vdc)	V _{BE(on)}	—	−1.4	Vdc
(I _C = −100 mAdc, V _{CE} = −5.0 Vdc)		—	−2.0	
SMALL–SIGNAL CHARACTERISTICS				
Current–Gain — Bandwidth Product(2) (I _C = −100 mAdc, V _{CE} = −5.0 Vdc, f = 100 MHz)	f _T	125	—	MHz
MPSA63, MPSA64				

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

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

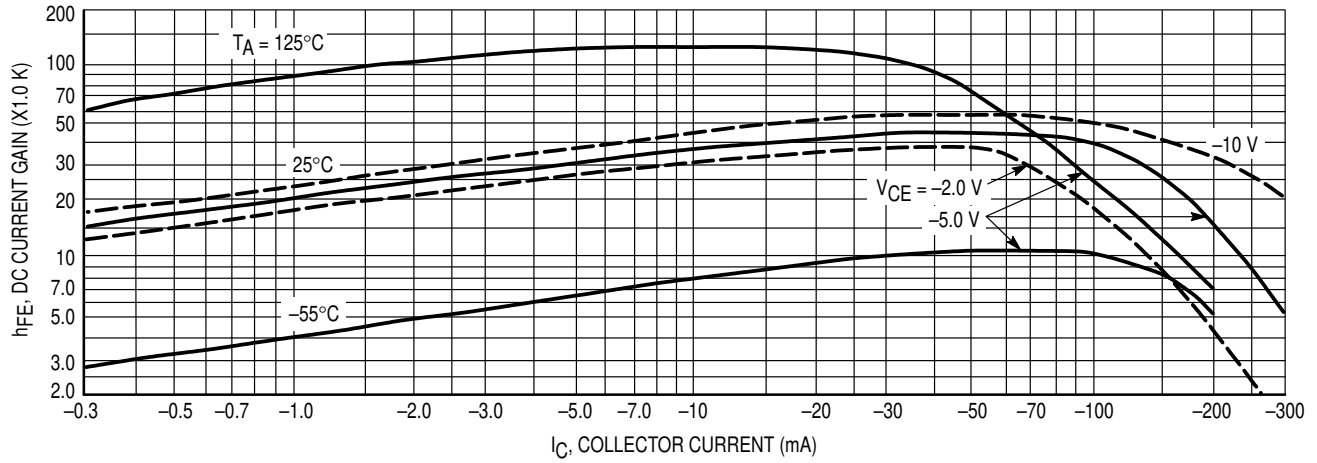


Figure 1. DC Current Gain

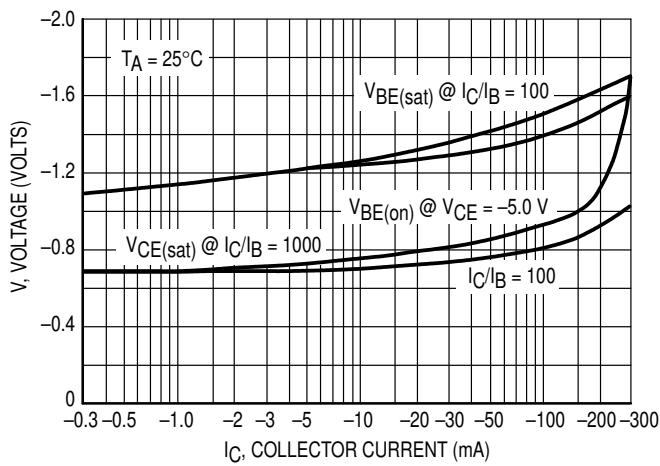


Figure 2. "On" Voltage

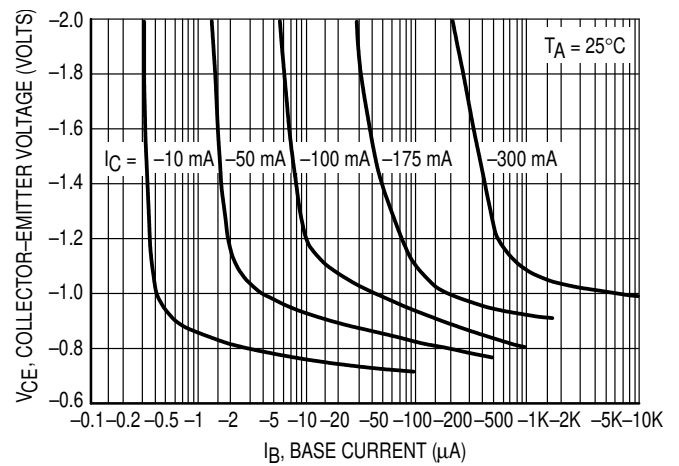


Figure 3. Collector Saturation Region

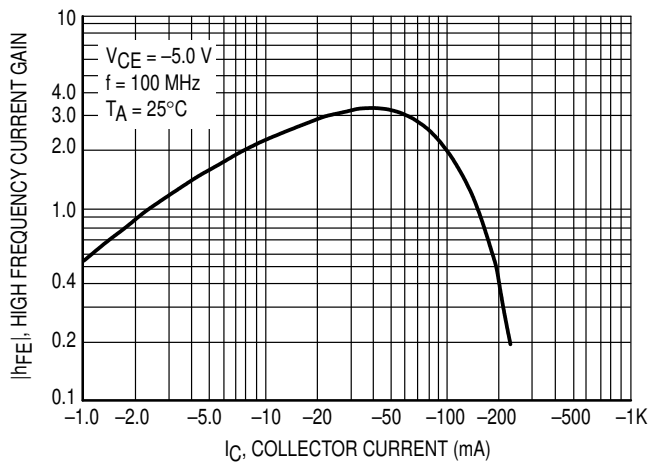


Figure 4. High Frequency Current Gain

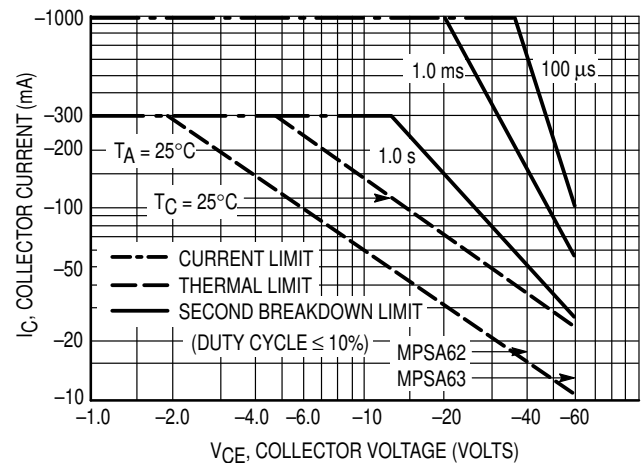
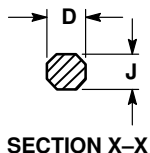
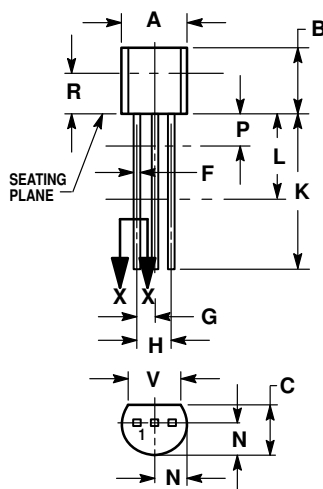


Figure 5. Active Region, Safe Operating Area

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. PIN 1. EMITTER
2. BASE
3. COLLECTOR

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How to reach us:

USA/EUROPE/Locations Not Listed: Motorola Literature Distribution;
P.O. Box 20912; Phoenix, Arizona 85036. 1-800-441-2447 or 602-303-5454

MFAX: RMFAX0@email.sps.mot.com – TOUCHTONE 602-244-6609
INTERNET: <http://Design-NET.com>

JAPAN: Nippon Motorola Ltd.; Tatsumi-SPD-JLDC, 6F Seibu-Butsuryu-Center,
3-14-2 Tatsumi Koto-Ku, Tokyo 135, Japan. 03-81-3521-8315

ASIA/PACIFIC: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,
51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852-26629298

