

Darlington Transistors

PNP Silicon

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		$^\circ\text{C}$

THERMAL CHARACTERISTICS

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

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

Characteristic	Symbol	Min	Max	Unit
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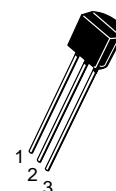
OFF CHARACTERISTICS

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

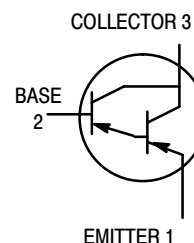
MPSA62 MPSA63 MPSA64*

MPSA55, MPSA56
For Specifications,
See MPSA05, MPSA06 Data

*ON Semiconductor Preferred Device



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



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

MPSA62 MPSA63 MPSA64

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

Characteristic	Symbol	Min	Max	Unit
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ON CHARACTERISTICS⁽¹⁾

DC Current Gain ($I_C = -10\text{ mA}$, $V_{CE} = -5.0\text{ Vdc}$)	MPSA63	h_{FE}	5,000	—	—
	MPSA64		10,000	—	
($I_C = -100\text{ mA}$, $V_{CE} = -5.0\text{ Vdc}$)	MPSA62		20,000	—	
	MPSA63		10,000	—	
	MPSA64		20,000	—	
Collector–Emitter Saturation Voltage ($I_C = -10\text{ mA}$, $I_B = -0.01\text{ mA}$)	MPSA62	$V_{CE(sat)}$	—	–1.0	Vdc
($I_C = -100\text{ mA}$, $I_B = -0.1\text{ mA}$)	MPSA63, MPSA64		—	–1.5	
Base–Emitter On Voltage ($I_C = -10\text{ mA}$, $V_{CE} = -5.0\text{ Vdc}$)	MPSA62	$V_{BE(on)}$	—	–1.4	Vdc
($I_C = -100\text{ mA}$, $V_{CE} = -5.0\text{ Vdc}$)	MPSA63, MPSA64		—	–2.0	

SMALL–SIGNAL CHARACTERISTICS

Current–Gain — Bandwidth Product ⁽²⁾ ($I_C = -100\text{ mA}$, $V_{CE} = -5.0\text{ Vdc}$, $f = 100\text{ MHz}$)	MPSA63, MPSA64	f_T	125	—	MHz
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1. Pulse Test: Pulse Width $\leq 300\text{ }\mu\text{s}$; Duty Cycle $\leq 2.0\%$.

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

MPSA62 MPSA63 MPSA64

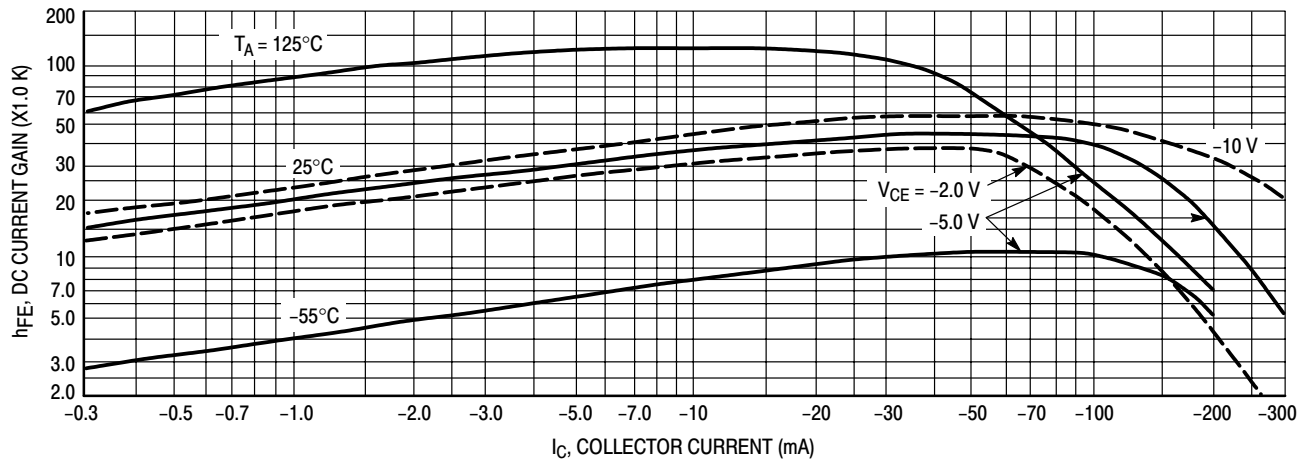


Figure 1. DC Current Gain

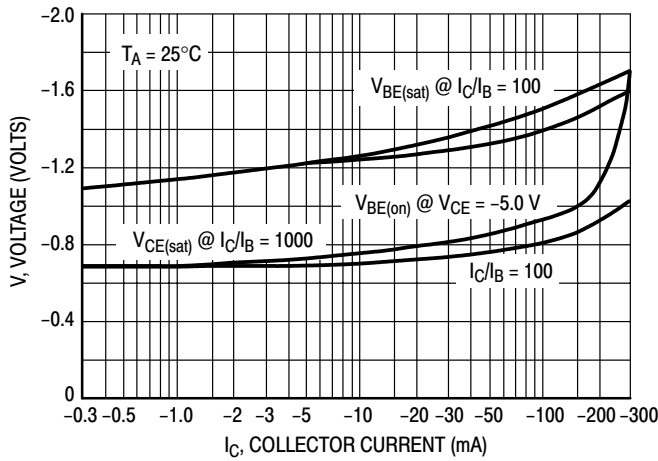


Figure 2. "On" Voltage

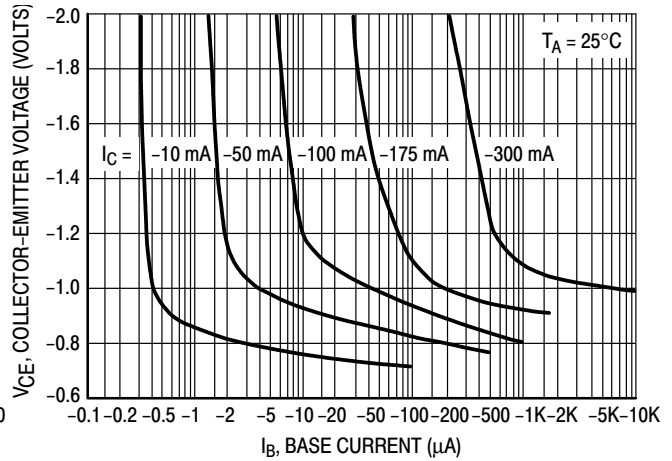


Figure 3. Collector Saturation Region

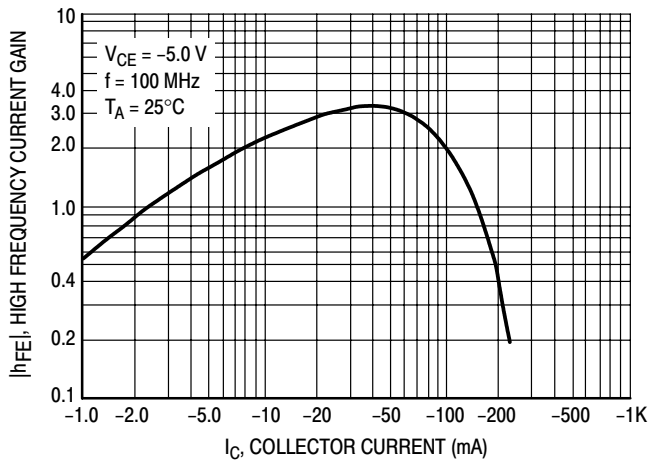


Figure 4. High Frequency Current Gain

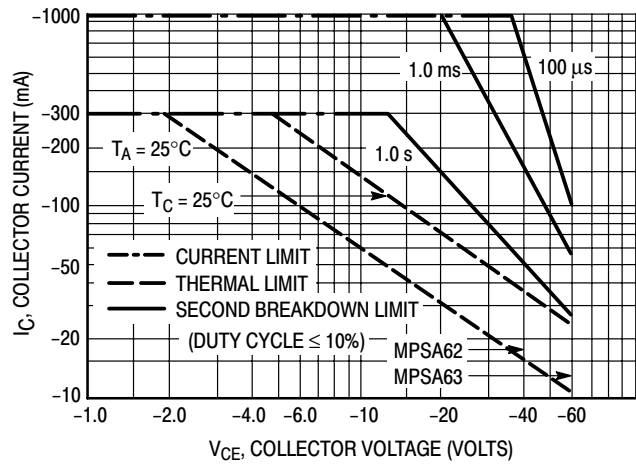
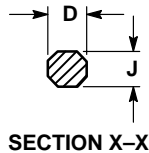
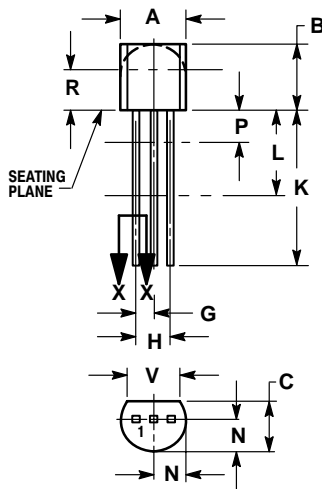


Figure 5. Active Region, Safe Operating Area

MPSA62 MPSA63 MPSA64

PACKAGE DIMENSIONS

TO-92 (TO-226)
CASE 29-11
ISSUE AL




STYLE 1:
PIN 1. EMITTER
2. BASE
3. COLLECTOR

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.

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	0.021	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	---

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