

Darlington Transistor NPN Silicon

MPSA27

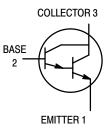
MAXIMUM RATINGS

Rating	Symbol	MPSA27	Unit
Collector–Emitter Voltage	V _{CES}	60	Vdc
Emitter-Base Voltage	V _{EBO}	10	Vdc
Collector Current — Continuous	I _C	500	mAdc
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	$R_{ heta JA}$	200	°C/W



ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Тур	Max	Unit
OFF CHARACTERISTICS					
Collector–Emitter Breakdown Voltage ($I_C = 100 \mu Adc$, $V_{BE} = 0$)	V _{(BR)CES}	60	_	_	Vdc
Collector–Base Breakdown Voltage ($I_C = 100 \mu Adc, I_E = 0$)	V _{(BR)CBO}	60	_	_	Vdc
Collector Cutoff Current $ (V_{CB} = 30 \text{ V}, I_E = 0) $ $ (V_{CB} = 40 \text{ V}, I_E = 0) $ $ (V_{CB} = 50 \text{ V}, I_E = 0) $	I _{CBO}		_	100	nAdc
Collector Cutoff Current $(V_{CE} = 30 \text{ V}, V_{BE} = 0)$ $(V_{CE} = 40 \text{ V}, V_{BE} = 0)$ $(V_{CE} = 50 \text{ V}, V_{BE} = 0)$	ICES	_	_	500	nAdc
Emitter Cutoff Current (V _{EB} = 10 Vdc)	I _{EBO}	_	_	100	nAdc

MPSA27

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) (Continued)

Characteristic	Symbol	Min	Тур	Max	Unit
ON CHARACTERISTICS ⁽¹⁾	<u>.</u>				
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 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(on)}	_	_	2.0	Vdc
SMALL-SIGNAL CHARACTERISTICS		•		•	•
Small Signal Current Gain (I _C = 10 mA, V _{CE} = 5.0 V, f = 100 MHz)	h _{fe}	1.25	2.4	_	_

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

MPSA27

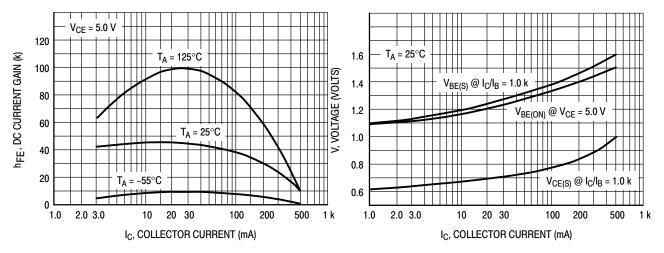


Figure 1. DC Current Gain

Figure 2. "ON" Voltages

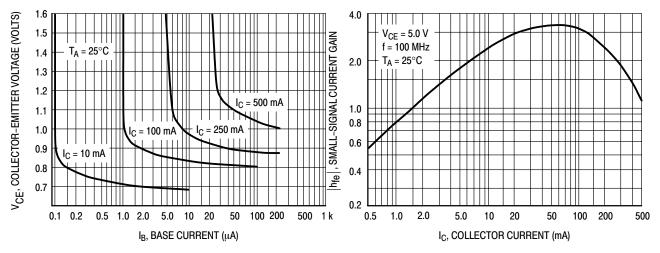


Figure 3. Collector Saturation Region

Figure 4. High Frequency Current Gain

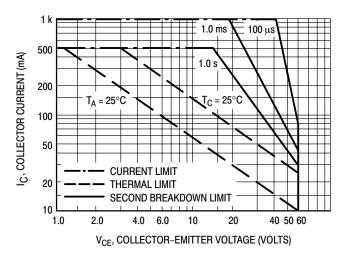
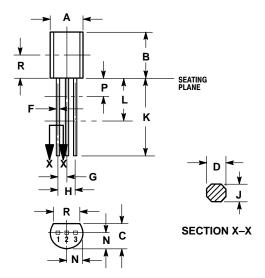


Figure 5. Active Region — Safe Operating Area

MPSA27

PACKAGE DIMENSIONS

CASE 029-11 (TO-226AA) ISSUE AD



NOTES

- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
- 2. CONTROLLING DIMENSION: INCH.
- CONTOUR OF PACKAGE BEYOND DIMENSION R
 IS LINCONTROLLED.
- IS UNCONTROLLED.

 4. DIMENSION F APPLIES BETWEEN P AND L.
 DIMENSIONS D AND J APPLY BETWEEN L AND K
 MIMIMUM. LEAD DIMENSION IS UNCONTROLLED
 IN P AND BEYOND DIMENSION K MINIMUM.

	INCHES		MILLIN	IETERS
DIM	MIN	MAX	MIN	MAX
Α	0.175	0.205	4.44	5.21
В	0.290	0.310	7.37	7.87
С	0.125	0.165	3.18	4.19
D	0.018	0.021	0.457	0.533
F	0.016	0.019	0.407	0.482
G	0.045	0.055	1.15	1.39
Н	0.095	0.105	2.42	2.66
J	0.018	0.024	0.46	0.61
K	0.500		12.70	
L	0.250		6.35	
N	0.080	0.105	2.04	2.66
Р		0.100		2.54
R	0.135		3.43	

STYLE 1: PIN 1. EMITTER 2. BASE

3. COLLECTOR

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