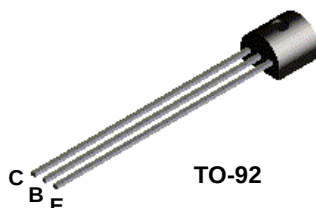




MPSA29



NPN Darlington Transistor

This device is designed for applications requiring extremely high current gain at collector currents to 500 mA. Sourced from Process 03. See MPSA28 for characteristics.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V _{CES}	Collector-Emitter Voltage	100	V
V _{CBO}	Collector-Base Voltage	100	V
V _{EBO}	Emitter-Base Voltage	12	V
I _C	Collector Current - Continuous	800	mA
T _J , T _{stg}	Operating and Storage Junction Temperature Range	-55 to +150	°C

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics

TA = 25°C unless otherwise noted

Symbol	Characteristic	Max	Units
		MPSA29	
P _D	Total Device Dissipation Derate above 25°C	625 5.0	mW mW/°C
R _{θJC}	Thermal Resistance, Junction to Case	83.3	°C/W
R _{θJA}	Thermal Resistance, Junction to Ambient	200	°C/W

NPN Darlington Transistor
(continued)

MP2A29

Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
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OFF CHARACTERISTICS

$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage*	$I_C = 100\text{ }\mu\text{A}, I_B = 0$	100		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100\text{ }\mu\text{A}, I_E = 0$	100		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10\text{ }\mu\text{A}, I_C = 0$	12		V
I_{CBO}	Collector Cutoff Current	$V_{CB} = 80\text{ V}, I_E = 0$		100	nA
I_{CES}	Collector Cutoff Current	$V_{CE} = 80\text{ V}, I_E = 0$		500	nA
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 10\text{ V}, I_C = 0$		100	nA

ON CHARACTERISTICS*

h_{FE}	DC Current Gain	$V_{CE} = 5.0\text{ V}, I_C = 10\text{ mA}$ $V_{CE} = 5.0\text{ V}, I_C = 100\text{ mA}$	10,000 10,000		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 10\text{ mA}, I_B = 0.01\text{ mA}$ $I_C = 100\text{ mA}, I_B = 0.1\text{ mA}$		1.2 1.5	V V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 100\text{ mA}, V_{CE} = 5.0\text{ V}$		2.0	V

SMALL SIGNAL CHARACTERISTICS

f_T	Current Gain - Bandwidth Product	$I_C = 10\text{ mA}, V_{CE} = 5.0\text{ V},$ $f = 100\text{ MHz}$	125		MHz
C_{obo}	Output Capacitance	$V_{CB} = 10\text{ V}, I_E = 0, f = 1.0\text{ MHz}$		8.0	pF

*Pulse Test: Pulse Width $\leq 300\text{ }\mu\text{s}$, Duty Cycle $\leq 2.0\%$