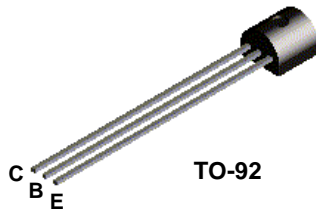


## MPSA12



### NPN Darlington Transistor

This device is designed for applications requiring extremely high current gain at currents to 1.0 A. Sourced from Process 05. See MPSA14 for characteristics.

#### Absolute Maximum Ratings\*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V <sub>CES</sub>	Collector-Emitter Voltage	20	V
V <sub>CBO</sub>	Collector-Base Voltage	20	V
V <sub>EBO</sub>	Emitter-Base Voltage	10	V
I <sub>C</sub>	Collector Current - Continuous	1.2	A
T <sub>J</sub> , T <sub>stg</sub>	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
		MPSA12	
P <sub>D</sub>	Total Device Dissipation Derate above 25°C	625	mW
		5.0	mW/°C
R <sub>θJC</sub>	Thermal Resistance, Junction to Case	83.3	°C/W
R <sub>θJA</sub>	Thermal Resistance, Junction to Ambient	200	°C/W

# NPN Darlington Transistor

(continued)

MPSA12

## 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-Base Breakdown Voltage	$I_C = 100 \mu A, I_E = 0$	20		V
$I_{CBO}$	Collector Cutoff Current	$V_{CB} = 15 V, I_E = 0$		100	nA
$I_{CES}$	Emitter Cutoff Current	$V_{CE} = 15 V, I_C = 0$		100	nA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB} = 10 V, I_C = 0$		100	nA

### ON CHARACTERISTICS\*

$h_{FE}$	DC Current Gain	$V_{CE} = 5.0 V, I_C = 10 \text{ Ma}$	20,000		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 10 \text{ mA}, I_B = 0.01 \text{ mA}$		1.0	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 10 \text{ mA}, V_{CE} = 5.0 V$		1.4	V

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