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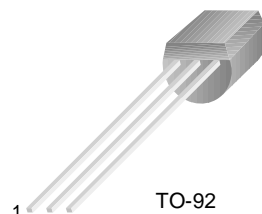
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MPSA12

NPN Darlington Transistor

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



TO-92
1. Emitter 2. Base 3. Collector

Absolute Maximum Ratings * $T_A=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CES}	Collector-Emitter Voltage	20	V
V_{CBO}	Collector-Base Voltage	20	V
V_{EBO}	Emitter-Base Voltage	10	V
I_C	Collector Current - Continuous	1.2	A
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 ~ +150	$^\circ\text{C}$

* 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.

Electrical Characteristics $T_A=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristics						
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage	$I_C = 100\mu\text{A}, I_E = 0$	20			V
I_{CBO}	Collector Cutoff Current	$V_{CB} = 15\text{V}, I_E = 0$			100	nA
I_{CES}	Emitter Cutoff Current	$V_{CB} = 15\text{V}, I_C = 0$			100	nA
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 10\text{V}, I_C = 0$			100	nA
On Characteristics *						
h_{FE}	DC Current Gain	$V_{CE} = 5.0\text{V}, I_C = 10\text{mA}$	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	$I_C = 10\text{mA}, V_{CE} = 5.0\text{V}$			1.4	V

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

Thermal Characteristics $T_A=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Max.	Units
P_D	Total Device Dissipation Derate above 25°C	625 5.0	mW mW/ $^\circ\text{C}$
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	$^\circ\text{C}/\text{W}$

Package Dimensions

TO-92



Dimensions in Millimeters

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