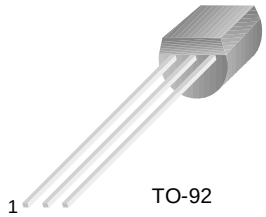
FAIRCHILD
SEMICONDUCTOR®

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°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	°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°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristics						
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage	I_C = 100µA, I_E = 0	20			V
I_{CBO}	Collector Cutoff Current	V_{CB} = 15V, I_E = 0			100	nA
I_{CES}	Emitter Cutoff Current	V_{CB} = 15V, I_C = 0			100	nA
I_{EBO}	Emitter Cutoff Current	V_{EB} = 10V, I_C = 0			100	nA
On Characteristics *						
h_{FE}	DC Current Gain	V_{CE} = 5.0V, I_C = 10mA	20,000			
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C = 10mA, I_B = 0.01mA			1.0	V
V_{BE}(on)	Base-Emitter On Voltage	I_C = 10mA, V_{CE} = 5.0V			1.4	V

* Pulse Test: Pulse Width ≤ 300µs, Duty Cycle ≤ 2.0%

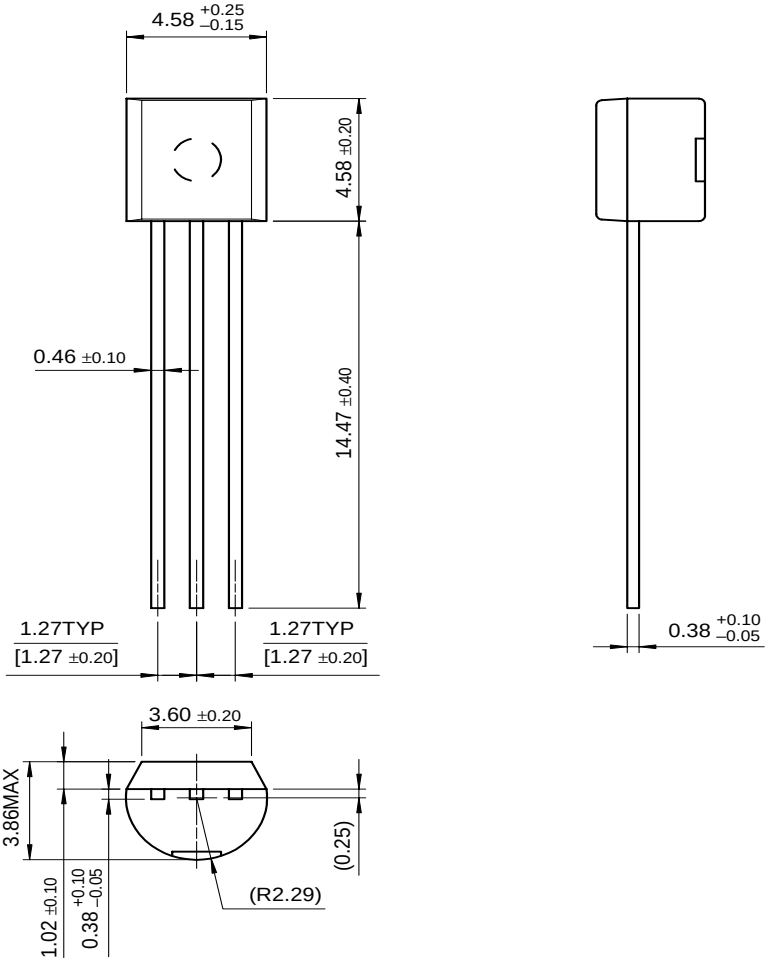
Thermal Characteristics T_A=25°C unless otherwise noted

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

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Package Dimensions

TO-92



Dimensions in Millimeters

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CoolFET™	FASTr™	MicroFET™	PowerTrench®	SuperSOT™-6
CROSSVOLT™	FRFET™	MicroPak™	QFET™	SuperSOT™-8
DOME™	GlobalOptoisolator™	MICROWIRE™	QS™	SyncFET™
EcoSPARK™	GTO™	MSX™	QT Optoelectronics™	TinyLogic™
E^2CMOS™	HiSeC™	MSXPro™	Quiet Series™	TruTranslation™
EnSigna™	I^2C™	OCX™	RapidConfigure™	UHC™
Across the board. Around the world.™		OCXPro™	RapidConnect™	UltraFET®
The Power Franchise™		OPTOLOGIC®	SILENT SWITCHER®	VCX™
Programmable Active Droop™		OPTOPLANAR™	SMART START™	

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2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
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No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.

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