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FAIRCHILD SEMICONDUCTOR TM

Discrete POWER & Signal Technologies

MPSA12

TO-92

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_{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 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_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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NPN Darlington Transistor
(continued)

Electrical Characteristics
TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
$V_{(BR)CES}$	Collector-Base Breakdown Voltage	I_C = 100 µA, 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 Ma	20,000		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 10 mA, I_B = 0.01 mA		1.0	V
$V_{BE(on)}$	Base-Emitter On Voltage	I_C = 10 mA, V_{CE} = 5.0 V		1.4	V

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

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