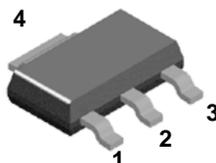


BSP51

NPN Darlington Transistor

This device is designed for applications requiring extremely high current gain at collector currents to 500mA.

Sourced from process 03.



SOT-223

1. Base 2. Collector 3. Emitter

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

Symbol	Parameter	Value	Units
V_{CES}	Collector-Emitter Voltage	80	V
V_{CBO}	Collector-Base Voltage	90	V
V_{EBO}	Emitter-Base Voltage	5.0	V
I_C	Collector Current (Continuous)	500	mA
T_J, T_{STG}	Junction Temperature, Storage Temperature	-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	MAX	Units
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Off Characteristics

$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100 \mu\text{A}, I_E = 0$	90		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10 \mu\text{A}, I_C = 0$	5.0		V
I_{CES}	Collector Cutoff Current	$V_{CE} = 80 \text{ V}, I_{BE} = 0$		10	μA
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 4.0 \text{ V}, I_C = 0$		10	μA

On Characteristics

h_{FE}	DC Current Gain	$I_C = 150 \text{ mA}, V_{CE} = 10 \text{ V}$ $I_C = 500 \text{ mA}, V_{CE} = 10 \text{ V}$	1000 2000		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage *	$I_C = 500 \text{ mA}, I_B = 0.5 \text{ mA}$		1.3	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage *	$I_C = 500 \text{ mA}, I_B = 0.5 \text{ mA}$		1.9	V

* Pulse Test: Pulse Width \leq 300 μs , Duty Cycle \leq 2%

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

Symbol	Characteristic	Max	Units
P_D	Total Device Dissipation	1000	mW
	Derate above 25° ...	8.0	mW/ $^{\circ}\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	125	$^{\circ}\text{C}/\text{W}$

*Device mounted on FR-4 PCB 1.6" X 1.6" X 0.06".



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Programmable Active Droop™				

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Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
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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.

Rev. I23

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Product status/pricing/packageging

BUY

Product	Product status	Pb-free Status	Pricing*	Package type	Leads	Packing method	Package Marking Convention**
BSP51	Full Production	Full Production	\$0.158	SOT-223	4	TAPE REEL	Line 1: \$Y (Fairchild logo) &Z (Asm. Plant Code) &3 (3-Digit Date Code) Line 2: BSP51

* Fairchild 1,000 piece Budgetary Pricing

** A sample button will appear if the part is available through Fairchild's on-line samples program. If there is no sample button, please contact a [Fairchild distributor](#) to obtain samples



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