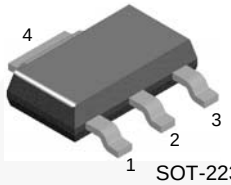
November 2014

BSP52
NPN Darlington Transistor

Description

This device is designed for applications requiring extremely high-current gain at collector currents to 500 mA. Sourced from process 03.



SOT-223

1. Base 2,4. Collector 3. Emitter

Ordering Information

Part Number	Marking	Package	Packing Method
BSP52	BSP52	SOT-223 4L	Tape and Reel

Absolute Maximum Ratings(1),(2)

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value	Unit
V_{CES}	Collector-Emitter Voltage	80	V
V_{CBO}	Collector-Base Voltage	90	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current - Continuous	800	mA
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	°C

Notes:

1. These ratings are based on a maximum junction temperature of 150°C.
2. These are steady-state limits. Fairchild Semiconductor should be consulted on applications involving pulsed or low-duty-cycle operations.

Thermal Characteristics[3]

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Max.	Unit
P_D	Total Device Dissipation	1000	mW
	Derate Above 25°C	8.0	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	125	°C/W

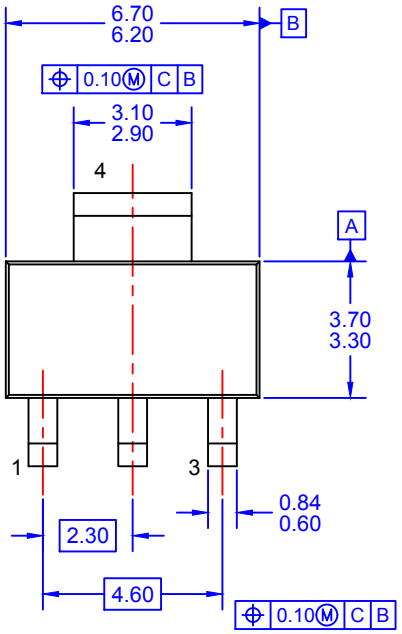
Note:

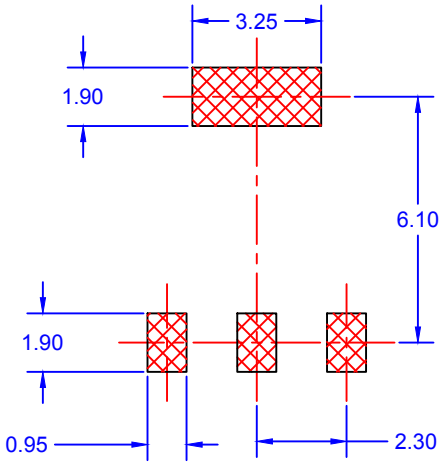
3. PCB size: FR-4, 76 mm x 114 mm x 1.57 mm (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

Electrical Characteristics

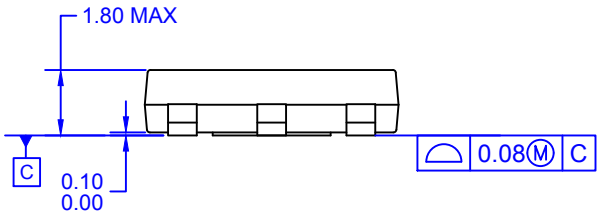
Values are at T_A = 25°C unless otherwise noted.

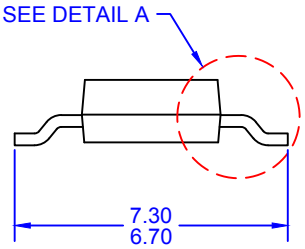
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 100 µA, I_E = 0	90			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = 10 µA, I_C = 0	5			V
I_{CES}	Collector Cut-Off Current	V_{CE} = 80 V, V_{BE} = 0			10	µA
I_{EBO}	Emitter Cut-Off Current	V_{EB} = 4.0 V, I_C = 0			10	µA
h_{FE}	DC Current Gain	I_C = 150 mA, V_{CE} = 10 V	1000			
		I_C = 500 mA, V_{CE} = 10 V	2000			
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C = 500 mA, I_B = 0.5 mA			1.3	V
V_{BE}(sat)	Base-Emitter Saturation Voltage	I_C = 500 mA, I_B = 0.5 mA			1.9	V



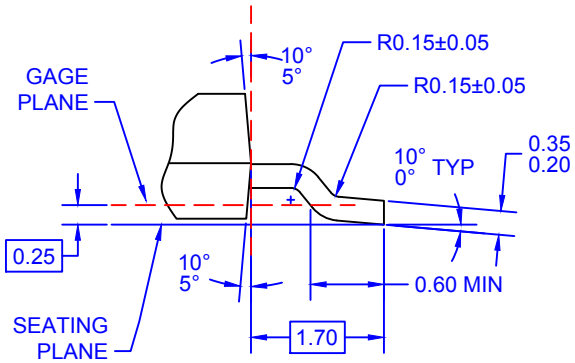


LAND PATTERN RECOMMENDATION





NOTES: UNLESS OTHERWISE SPECIFIED
A) DRAWING BASED ON JEDEC REGISTRATION TO-261C, VARIATION AA.
B) ALL DIMENSIONS ARE IN MILLIMETERS.
C) DIMENSIONS DO NOT INCLUDE BURRS OR MOLD FLASH. MOLD FLASH OR BURRS DOES NOT EXCEED 0.10MM.
D) DIMENSIONING AND TOLERANCING PER ASME Y14.5M-2009.
E) LANDPATTERN NAME: SOT230P700X180-4BN
F) DRAWING FILENAME: MKT-MA04AREV3



DETAIL A
SCALE: 2:1

FAIRCHILD

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
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