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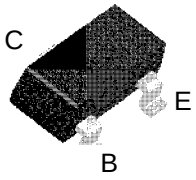
FAIRCHILD
SEMICONDUCTOR TM

FSB649



SuperSOT™-3

NPN Low Saturation Transistor

These devices are designed with high current gain and low saturation voltage with collector currents up to 3A continuous. Sourced from Process NC.

Absolute Maximum Ratings*

T_A = 25°C unless otherwise noted

Symbol	Parameter	FSB649	Units
V_{CEO}	Collector-Emitter Voltage	25	V
V_{CBO}	Collector-Base Voltage	35	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current - Continuous	3	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°C.
2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics

T_A = 25°C unless otherwise noted

Symbol	Characteristic	Max	Units
		FSB649	
P_D	Total Device Dissipation	500	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	250	°C/W

NPN Low Saturation Transistor
(continued)

Electrical Characteristics
$T_{A = 25°C}$ unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = 10 mA	25		V
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = 100 μA	35		V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = 100 μA	5		V
I_{CBO}	Collector Cutoff Current	V_{CB} = 30 V V_{CB} = 30 V, T_A=100°C		100 10	nA uA
I_{EBO}	Emitter Cutoff Current	V_{EB} = 4V		100	nA
ON CHARACTERISTICS*					
h_{FE}	DC Current Gain	I_C = 50 mA, V_{CE} = 2 V I_C = 1 A, V_{CE} = 2 V I_C = 2 A, V_{CE} = 2 V I_C = 6 A, V_{CE} = 2 V	70 100 75 15	300	-
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 1 A, I_B = 100 mA I_C = 3 A, I_B = 300 mA		300 600	mV
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C = 1 A, I_B = 100 mA		1.25	V
$V_{BE(on)}$	Base-Emitter On Voltage	I_C = 1 A, V_{CE} = 2 V		1	V
SMALL SIGNAL CHARACTERISTICS					
C_{obo}	Output Capacitance	V_{CB} = 10 V, I_E = 0, f = 1MHz		50	pF
f_T	Transition Frequency	I_C = 100 mA,V_{CE} = 5 V, f=100MHz	150		-

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

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Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
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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