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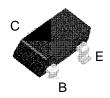
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Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes an underscore (_), the underscore (_) in the Fairchild part numbers will be changed to a dash (-). This document may contain device numbers with an underscore (_). Please check the ON Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.onsemi.com. Please email any questions regarding the system integration to Fairchild guestions@onsemi.com.

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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
VCEO	Collector-Emitter Voltage	25	V
V _{CBO}	Collector-Base Voltage	35	V
V _{EBO}	Emitter-Base Voltage	5	V
Ic	Collector Current - Continuous	3	Α
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.

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 CHAI	RACTERISTICS				
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		100	nA
		$V_{CB} = 30 \text{ V}, T_A = 100^{\circ}\text{C}$		10	uA
I _{EBO}	Emitter Cutoff Current	V _{EB} = 4V		100	nA
ON CHAR	ACTERISTICS*			1	<u> </u>
h _{FE}	DC Current Gain	I _C = 50 mA, V _{CE} = 2 V	70		-
		$I_C = 1 A$, $V_{CE} = 2 V$	100	300	
		$I_C = 2 A$, $V_{CE} = 2 V$	75		
		$I_C = 6 A$, $V_{CE} = 2 V$	15		
V _{CE(sat)}	Collector-Emitter Saturation Voltage	I _C = 1 A, I _B = 100 mA		300	mV
2 = (32)		$I_C = 3 \text{ A}, I_B = 300 \text{ mA}$		600	
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 SI	GNAL CHARACTERISTICS			•	•
C _{obo}	Output Capacitance	V _{CB} = 10 V, I _E = 0, f = 1MHz		50	pF
f _T	Transition Frequency	$I_C = 100 \text{ mA}, V_{CE} = 5 \text{ V}, f=100 \text{MHz}$	150		-

^{*}Pulse Test: Pulse Width \leq 300 μ s, Duty Cycle \leq 2.0%

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Definition of Terms

Datasheet Identification	Product Status	Definition
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