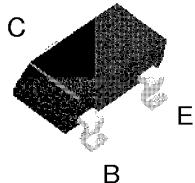


July 1998

FSB619

FSB619



SuperSOT™-3 (SOT-23)

NPN Low Saturation Transistor

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

Absolute Maximum Ratings*

$T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	FSB619	Units
V_{CEO}	Collector-Emitter Voltage	50	V
V_{CBO}	Collector-Base Voltage	50	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current - Continuous	2	A
T_J, T_{stg}	Operating and Storage Junction Temperature Range	-55 to +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°C .
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics

$T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Characteristic	Max	Units
		FSB619	
P_D	Total Device Dissipation* Derate above 25°C	500 4	mW $\text{mW}/^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	250	$^\circ\text{C}/\text{W}$

*Device mounted on FR-4 PCB 4.5" X 5"; mounting pad 0.02 in² of 2oz copper.

NPN Low Saturation Transistor

(continued)

Electrical Characteristics

$T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = 10 \text{ mA}$	50		V
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C = 100 \mu\text{A}$	50		V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E = 100 \mu\text{A}$	5		V
I_{CBO}	Collector Cutoff Current	$V_{\text{CB}} = 40 \text{ V}$		100	nA
I_{EBO}	Emitter Cutoff Current	$V_{\text{EB}} = 4 \text{ V}$		100	nA
I_{CES}	Collector Emitter Cutoff Current	$V_{\text{CES}} = 40 \text{ V}$		100	nA
ON CHARACTERISTICS*					
h_{FE}	DC Current Gain	$I_C = 10 \text{ mA}, V_{\text{CE}} = 2 \text{ V}$	200		-
		$I_C = 200 \text{ mA}, V_{\text{CE}} = 2 \text{ V}$	300		
		$I_C = 1 \text{ A}, V_{\text{CE}} = 2 \text{ V}$	200		
		$I_C = 2 \text{ A}, V_{\text{CE}} = 2 \text{ V}$	100		
$V_{\text{CE(sat)}}$	Collector-Emitter Saturation Voltage	$I_C = 100 \text{ mA}, I_B = 10 \text{ mA}$		20	mV
		$I_C = 1 \text{ A}, I_B = 10 \text{ mA}$		235	
		$I_C = 2 \text{ A}, I_B = 50 \text{ mA}$		320	
$V_{\text{BE(sat)}}$	Base-Emitter Saturation Voltage	$I_C = 2 \text{ A}, I_B = 50 \text{ mA}$		1	V
$V_{\text{BE(on)}}$	Base-Emitter On Voltage	$I_C = 2 \text{ A}, V_{\text{CE}} = 2 \text{ V}$		1	V
SMALL SIGNAL CHARACTERISTICS					
C_{obo}	Output Capacitance	$V_{\text{CB}} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$		30	pF
f_T	Transition Frequency	$I_C = 50 \text{ mA}, V_{\text{CE}} = 10 \text{ V}, f = 100 \text{ MHz}$	100		-

*Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2.0\%$