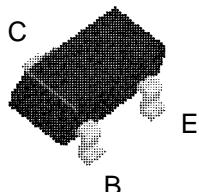




FSB660 / FSB660A



SuperSOTTM-3 (SOT-23)

PNP Low Saturation Transistor

These devices are designed with high current gain and low saturation voltage with collector currents up to 2A continuous.

Absolute Maximum Ratings*

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

Symbol	Parameter	FSB660/FSB660A	Units
V_{CEO}	Collector-Emitter Voltage	60	V
V_{CBO}	Collector-Base Voltage	60	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	°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
		FSB660/FSB660A	
P_D	Total Device Dissipation	500	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	250	°C/W

PNP 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	$I_C = 10 \text{ mA}$	60		V
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C = 100 \mu\text{A}$	60		V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E = 100 \mu\text{A}$	5		V
I_{CBO}	Collector Cutoff Current	$V_{\text{CB}} = 30 \text{ V}$ $V_{\text{CB}} = 30 \text{ V}, T_A = 100^\circ\text{C}$		100 10	nA uA
I_{EBO}	Emitter Cutoff Current	$V_{\text{EB}} = 4 \text{ V}$		100	nA

ON CHARACTERISTICS*

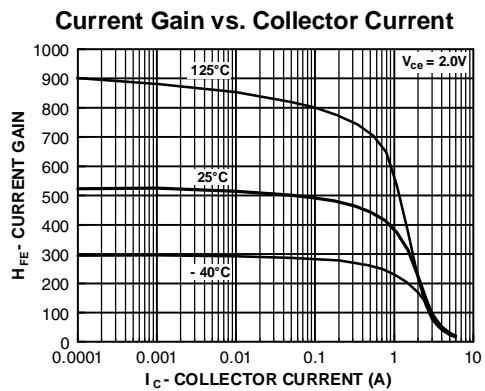
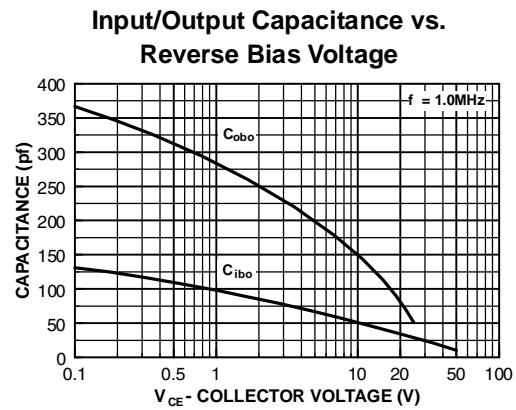
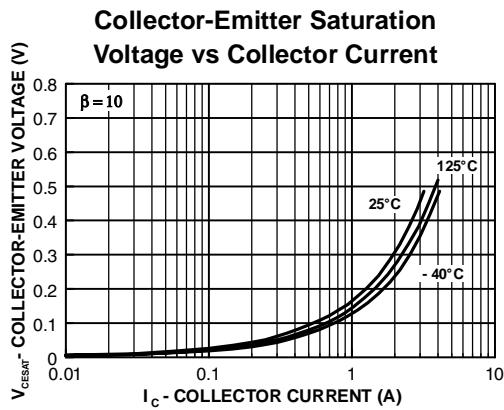
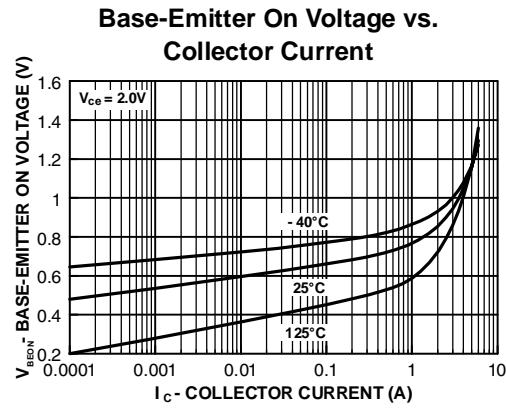
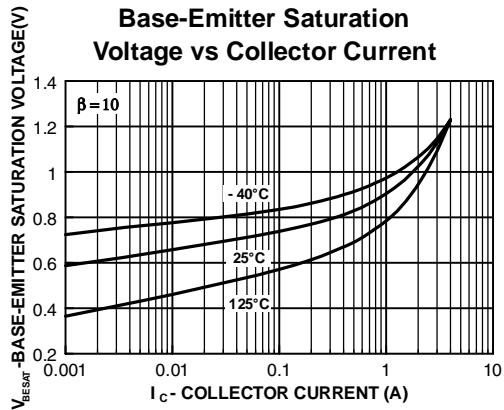
h_{FE}	DC Current Gain	$I_C = 100 \text{ mA}, V_{\text{CE}} = 2 \text{ V}$	70		-
		$I_C = 500 \text{ mA}, V_{\text{CE}} = 2 \text{ V}$ FSB660	100	300	
		FSB660A	250	550	
		$I_C = 1 \text{ A}, V_{\text{CE}} = 2 \text{ V}$	80		
		$I_C = 2 \text{ A}, V_{\text{CE}} = 2 \text{ V}$	40		
$V_{\text{CE(sat)}}$	Collector-Emitter Saturation Voltage	$I_C = 1 \text{ A}, I_B = 100 \text{ mA}$ $I_C = 2 \text{ A}, I_B = 200 \text{ mA}$ FSB660 FSB660A		300 350 300	mV
$V_{\text{BE(sat)}}$	Base-Emitter Saturation Voltage	$I_C = 1 \text{ A}, I_B = 100 \text{ mA}$		1.25	V
$V_{\text{BE(on)}}$	Base-Emitter On Voltage	$I_C = 1 \text{ A}, V_{\text{CE}} = 2 \text{ V}$		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	$I_C = 100 \text{ mA}, V_{\text{CE}} = 5 \text{ V}, f = 100 \text{ MHz}$	75		-

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

Typical Characteristics



TRADEMARKS

The following are registered and unregistered trademarks Fairchild Semiconductor owns or is authorized to use and is not intended to be an exhaustive list of all such trademarks.

ACE TM	FAST [®]	OPTOPLANAR TM	STAR*POWER TM
Bottomless TM	FASTR TM	PACMAN TM	Stealth TM
CoolFET TM	FRFET TM	POP TM	SuperSOT TM -3
CROSSVOLT TM	GlobalOptoisolator TM	Power247 TM	SuperSOT TM -6
DenseTrench TM	GTO TM	PowerTrench [®]	SuperSOT TM -8
DOME TM	HiSeC TM	QFET TM	SyncFET TM
EcoSPARK TM	ISOPLANAR TM	QS TM	TinyLogic TM
E ² CMOS TM	LittleFET TM	QT Optoelectronics TM	TruTranslation TM
EnSigna TM	MicroFET TM	Quiet Series TM	UHC TM
FACT TM	MICROWIRE TM	SILENT SWITCHER [®]	UltraFET [®]
FACT Quiet Series TM	OPTOLOGIC TM	SMART START TM	VCX TM

STAR*POWER is used under license

DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION.

As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

PRODUCT STATUS DEFINITIONS

Definition of Terms

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

Rev. H3