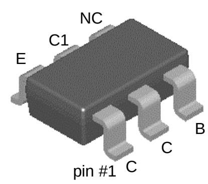
FAIRCHILD SEMICONDUCTOR®

August 2006

FMBS549
PNP Low Saturation Transistor

Features

- ThIs device is designed with high current gain and low saturation voltage with collector currents up to 2A continous.
- Sourced from process PB.



SuperSOT™-6 single
Mark: .S1

Absolute Maximum Ratings * T_a = 25°C unless otherwise noted

Symbol	Parameter	Value	Unit
V_{CEO}	Collector-Emitter Voltage	-30	V
V_{CBO}	Collector-Base Voltage	-35	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current - Continuous - Peak Pulse Current	-1 -2	A A
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature Range	- 55 ~ 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 degrees C.
2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations

Thermal Characteristics *

Symbol	Parameter	Value	Unit
P_D	Total Device Dissipation, by $R_{\theta JA}$	700	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	180	°C/W

* Device mounted on a 1 in^2 pad of 2 oz copper.

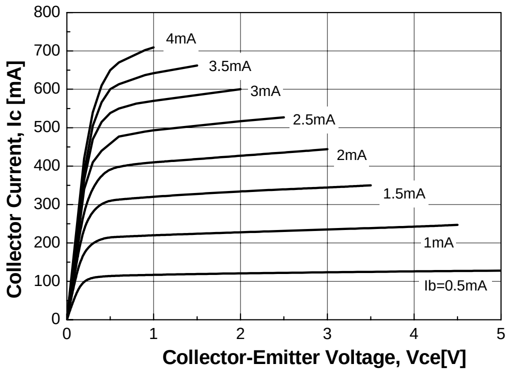
Electrical Characteristics* T_C = 25°C unless otherwise noted

Symbol	Parameter	Conditions	Min.	Max.	Units
Off Characteristics					
BV_{CEO}	Collector-Emitter Breakdown Voltage *	I_C = -10mA, I_B = 0	-30		V
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = -100μA, I_E = 0	-35		V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = -100μA, I_C = 0	-5.0		V
I_{CBO}	Collector Cutoff Current	V_{CB} = -30V, I_E = 0 V_{CB} = -30V, I_E = 0, T_a = 100°C		-100 -10	nA μA
I_{EBO}	Emitter Cutoff Current	V_{EB}= -4.0V, I_C=0		-100	nA
On Characteristics *					
h_{FE}	DC Current Gain	V_{CE} = -2.0V, I_C = -50mA V_{CE} = -2.0V, I_C = -500mA V_{CE} = -2.0V, I_C = -1A V_{CE} = -2.0V, I_C = -2A V_{CE} = -0.8V, I_C = -500mA	70 100 80 40 100	300	
V_{CE} (sat)	Collector-Emitter Saturation Voltage	I_C = -250mA, I_B = -25mA I_C = -500mA, I_B = -50mA I_C = -1A, I_B = -100mA I_C = -2A, I_B = -200mA		-200 -350 -500 -750	mV mV mV mV
V_{BE} (sat)	Base-Emitter Saturation Voltage	I_C = -1A, I_B = -100mA		-1.25	V
V_{BE} (on)	Base-Emitter On Voltage	I_C = -1A, V_{CE} = -2.0V		-1.0	V
Small Signal Characteristics					
f_T	Current Gain Bandwidth Product	I_C = -100mA, V_{CE} = -5V, f = 100MHz	100		MHz
C_{ob}	Output Capacitance	V_{CB} = -10V, I_E = 0, f = 1MHz		25	pF

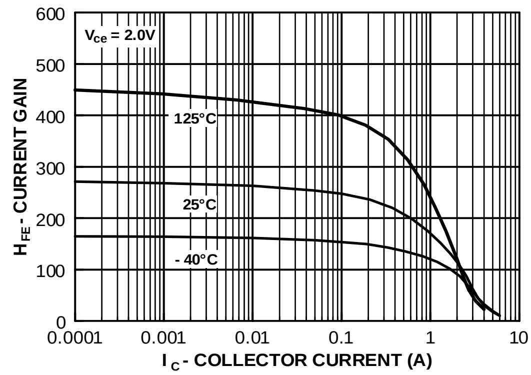
* DC Item are tested by Pulse Test: Pulse Width≤300us, Duty Cycle≤2%

Typical Characteristics

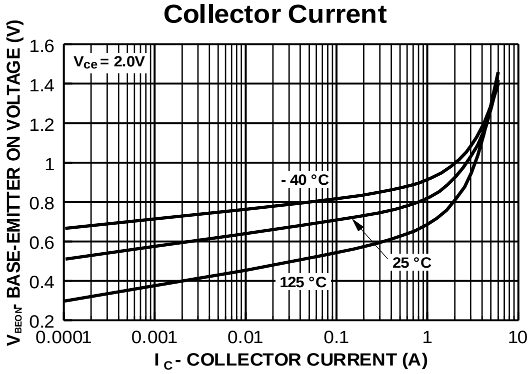
Collector- Emitter Voltage vs Collector current



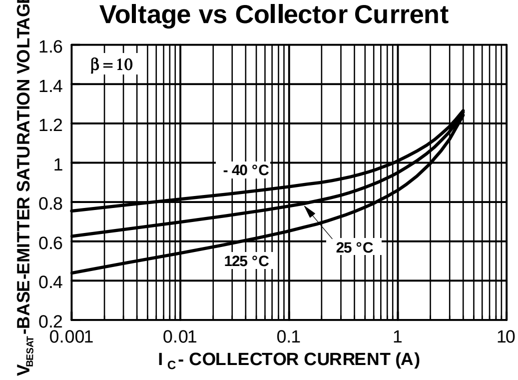
Current Gain vs Collector Current



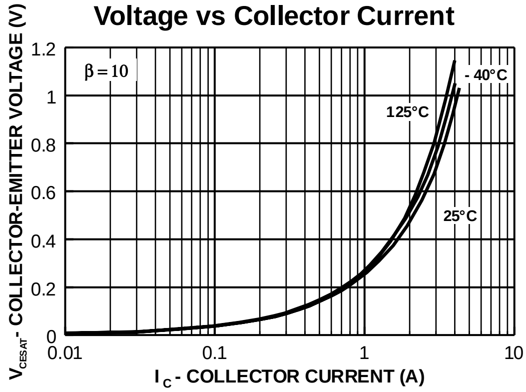
Base-Emitter On Voltage vs Collector Current



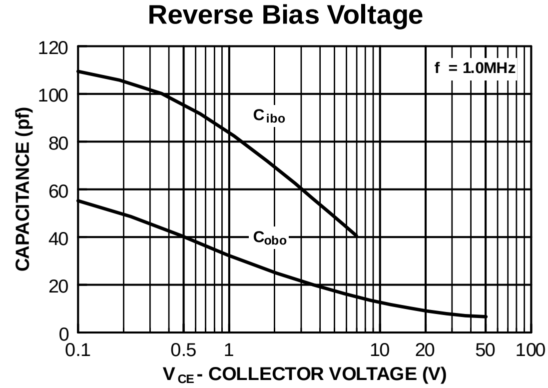
Base-Emitter Saturation Voltage vs Collector Current



Collector-Emitter Saturation Voltage vs Collector Current

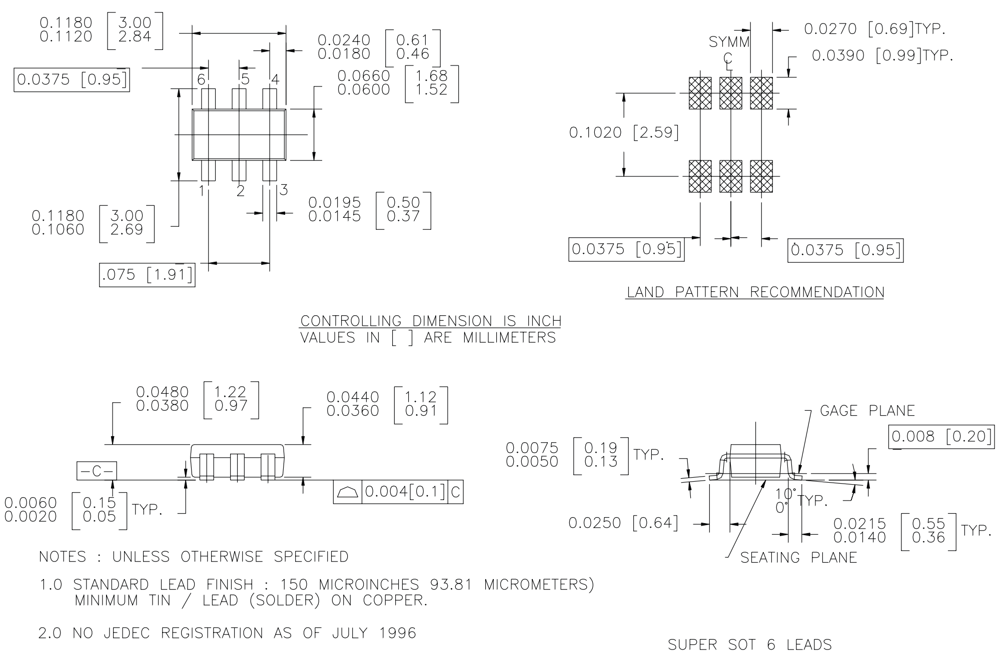


Input/Output Capacitance vs Reverse Bias Voltage



Package Dimensions

SuperSOT™-6



Dimensions in Millimeters

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.

ACEx™
ActiveArray™
Bottomless™
Build it Now™
CoolFET™
CROSSVOLT™
DOME™
EcoSPARK™
E^2CMOS™
EnSigna™
FACT™
FAST®
FASTr™
FPS™
FRFET™
FACT Quiet Series™
GlobalOptoisolator™
GTO™
HiSeC™
I^2C™
i-Lo™
ImpliedDisconnect™
IntelliMAX™
ISOPLANAR™
LittleFET™
MICROCOUPLER™
MicroFET™
MicroPak™
MICROWIRE™
MSX™
MSXPro™
Across the board. Around the world.™
The Power Franchise®
Programmable Active Droop™
OCX™
OCXPro™
OPTOLOGIC®
OPTOPLANAR™
PACMAN™
POP™
Power247™
PowerEdge™
PowerSaver™
PowerTrench®
QFET®
QS™
QT Optoelectronics™
Quiet Series™
RapidConfigure™
RapidConnect™
µSerDes™
ScalarPump™
SILENT SWITCHER®
SMART START™
SPM™
Stealth™
SuperFET™
SuperSOT™-3
SuperSOT™-6
SuperSOT™-8
SyncFET™
TCM™
TinyBoost™
TinyBuck™
TinyPWM™
TinyPower™
TinyLogic®
TINYOPTO™
TruTranslation™
UHC™
UltraFET®
UniFET™
VCX™
Wire™

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. THESE SPECIFICATIONS DO NOT EXPAND THE TERMS OF FAIRCHILD'S WORLDWIDE TERMS AND CONDITIONS, SPECIFICALLY THE WARRANTY THEREIN, WHICH COVERS THESE PRODUCTS.

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. I20