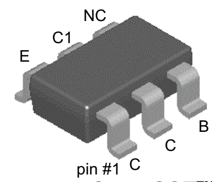
FAIRCHILD SEMICONDUCTOR®

FMBS5551

NPN General Purpose Amplifier

- This device is designed for general purpose high voltage amplifiers and gas discharge display drivers.



SuperSOT™-6 single
Mark: .3S1

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

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	160	V
V_{CBO}	Collector-Base Voltage	180	V
V_{EBO}	Emitter-Base Voltage	6.0	V
I_C	Collector Current - Continuous	600	mA
T_J, T_{STG}	Operating and Storage Junction 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.

Electrical Characteristics T_a=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
Off Characteristics					
$V_{(BR)CEO}$	Collector-Emitter Sustaining Voltage *	I_C = 1.0mA, I_B = 0	160		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 100μA, I_E = 0	180		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = 10μA, I_C = 0	6.0		V
I_{CBO}	Collector Cutoff Current	V_{CB} = 120V, I_E = 0 V_{CB} = 120V, I_E = 0, T_a = 100°C		50 50	nA μA
I_{EBO}	Emitter Cut-off Current	V_{EB} = 4.0V, I_C = 0		50	nA
On Characteristics					
h_{FE}	DC Current Gain	I_C = 1.0mA, V_{CE} = 5.0V I_C = 10mA, V_{CE} = 5.0V I_C = 50mA, V_{CE} = 5.0V	80 80 30	250	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 10mA, I_B = 1.0mA I_C = 50mA, I_B = 5.0mA		0.15 0.2	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C = 10mA, I_B = 1.0mA I_C = 50mA, I_B = 5.0mA		1.0 1.0	V
Small Signal Characteristics					
f_T	Current Gain Bandwidth Product	I_C = 10mA, V_{CE} = 10, f = 100MHz	100	300	MHz
C_{obo}	Output Capacitance	V_{CE} = 10V, I_C = 0, f = 1.0MHz		6.0	pF
C_{ibo}	Input Capacitance	V_{BE} = 0.5V, I_C = 0, f = 1.0MHz		20	pF
h_{fe}	Small Single Current Gain	I_C = 1.0mA, V_{CE} = 10V, f = 1.0KHz	50	250	
N_F	Noise Figure	I_C = 250μA, V_{CE} = 5.0V, R_S = 1.0KΩ, f = 10 Hz to 15.7KHz		8.0	dB

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

Thermal Characteristics T_a=25°C unless otherwise noted

Symbol	Parameter	Max.	Units
P_D	Total Device Dissipation *	700	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient, total	180	°C/W

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

Typical Characteristics

vs Collector Current

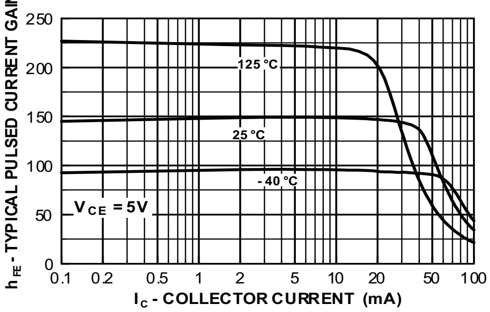


Figure 1. Typical Pulsed Current Gain vs Collector Current

Voltage vs Collector Current

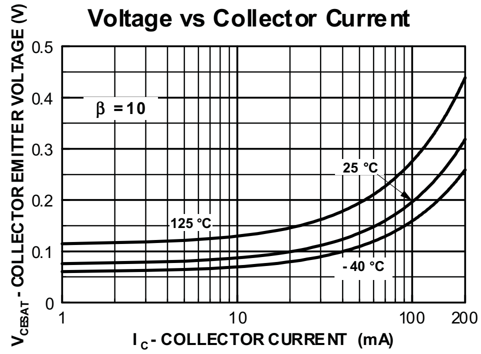


Figure 2. Collector-Emitter Saturation Voltage vs Collector Current

Voltage vs Collector Current

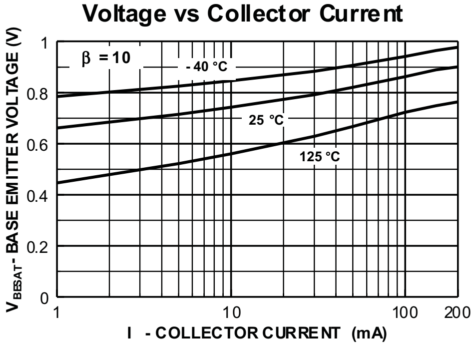


Figure 3. Base-Emitter Saturation Voltage vs Collector Current

Collector Current

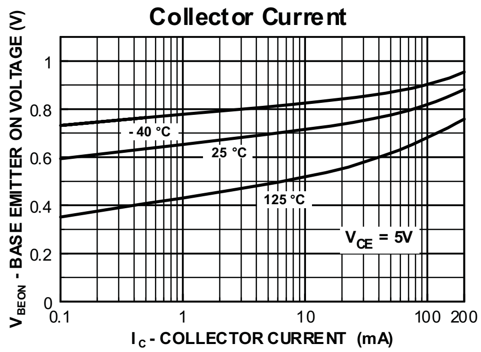


Figure 4. Base-Emitter On Voltage vs Collector Current

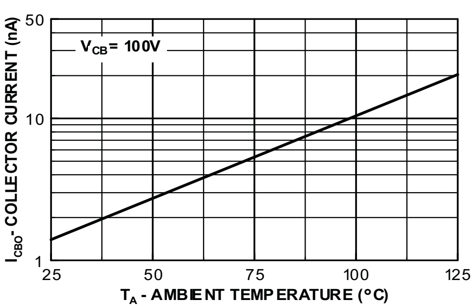


Figure 5. Collector Cutoff Current vs Ambient Temperature

Between Emitter-Base

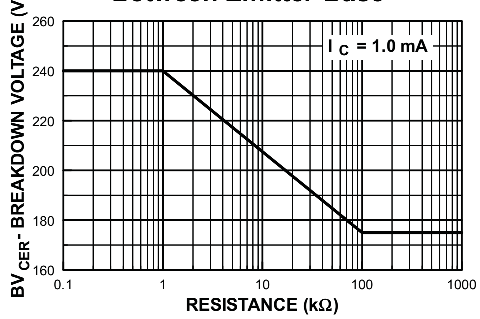


Figure 6. Collector-Emitter Breakdown Voltage with Resistance Between Emitter-Base

Typical Characteristics (Continued)

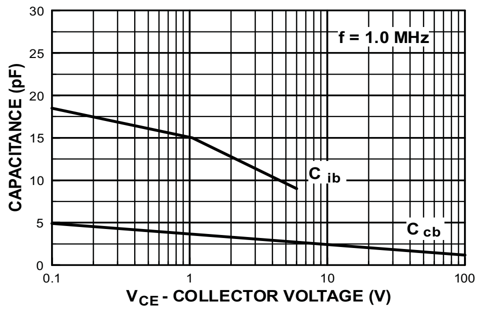


Figure 7. Input and Output Capacitance vs Reverse Voltage

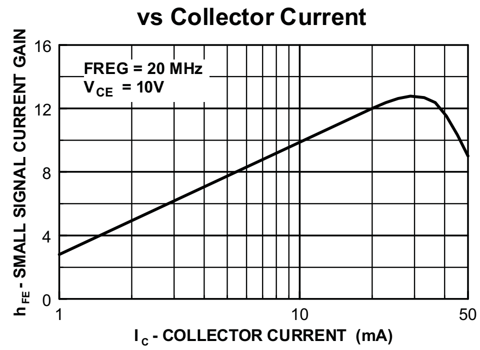
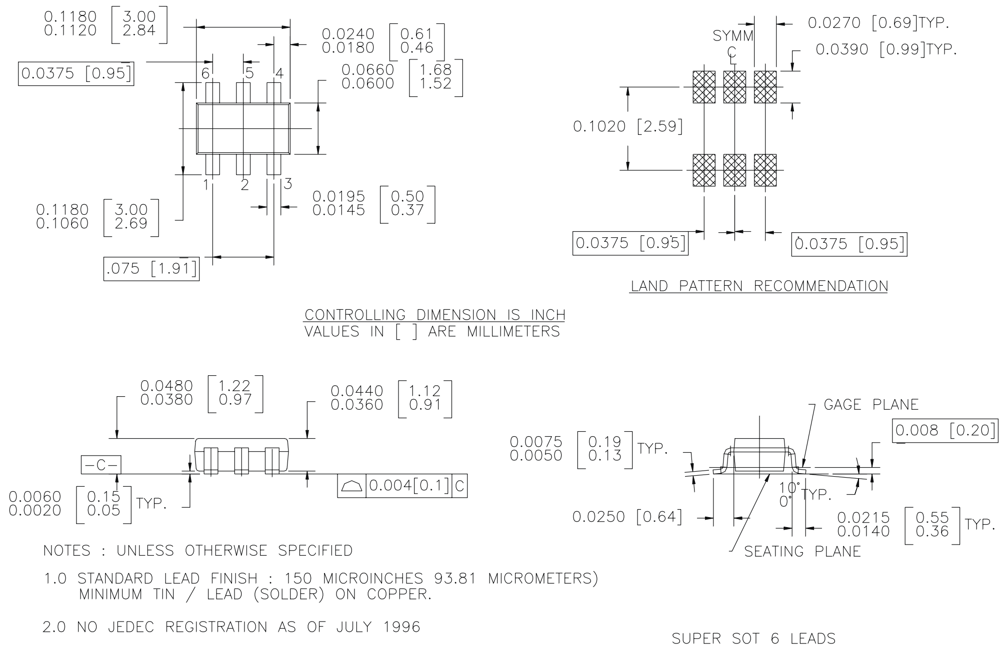


Figure 8. Small Signal current Gain vs Collector Current

Package Dimensions

SuperSOT™-6



Dimensions in Millimeters

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EcoSPARK™	HiSeC™	MSX™	QT Optoelectronics™	TinyLogic®
E^2CMOS™	I^2C™	MSXPro™	Quiet Series™	TINYOPTO™
EnSigna™	*i-Lo*™	OCX™	RapidConfigure™	TruTranslation™
FACT™	ImpliedDisconnect™	OCXPro™	RapidConnect™	UHC™
FACT Quiet Series™		OPTOLOGIC®	μSerDes™	UltraFET®
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PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
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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.
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