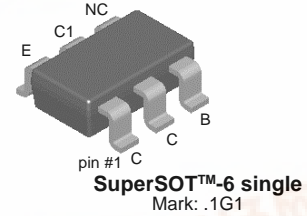


FAIRCHILD
SEMICONDUCTOR®

FMBSA06

NPN General Purpose Amplifier

- This device is designed for general purpose amplifier applications at collector currents to 300 mA.
- Sourced from Process 12.



Absolute Maximum Ratings* $T_a=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	80	V
V_{CBO}	Collector-Base Voltage	80	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Collector Current - Continuous	500	mA
T_J, T_{STG}	Operating and Storage Junction Temperature Range	- 55 ~ 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 degrees C.
2. These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Electrical Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
Off Characteristics					
$V_{(BR)CEO}$	Collector-Emitter Sustaining Voltage *	$I_C = 1.0\text{mA}, I_B = 0$	80		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 100\mu\text{A}, I_C = 0$	4.0		V
I_{CEO}	Collector Cut-off Current	$V_{CE} = 60\text{V}, I_B = 0$		0.1	μA
I_{CBO}	Collector Cut-off Current	$V_{CB} = 80\text{V}, I_E = 0$		0.1	μA
On Characteristics					
h_{FE}	DC Current Gain	$I_C = 10\text{mA}, V_{CE} = 1.0\text{V}$ $I_C = 100\text{mA}, V_{CE} = 1.0\text{V}$	100 100		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 100\text{mA}, I_B = 10\text{mA}$		0.25	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 10\text{mA}, V_{CE} = 1.0\text{V}$		1.2	V
Small Signal Characteristics					
f_T	Current Gain Bandwidth Product	$I_C = 10\text{mA}, V_{CE} = 2.0\text{V}, f = 100\text{MHz}$	100		MHz

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

Thermal Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

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

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

Typical Characteristics

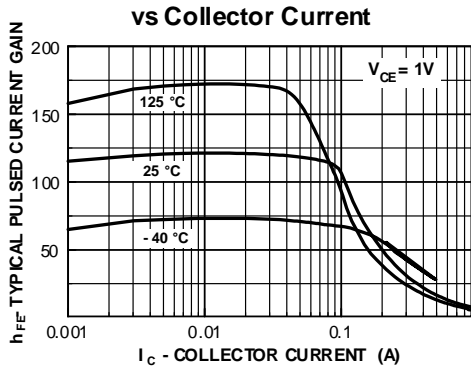


Figure 1. Typical Pulsed Current Gain vs Collector Current

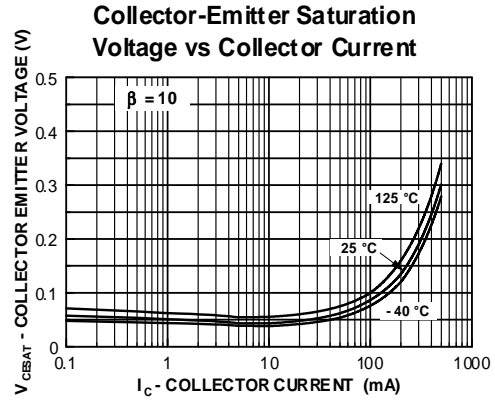


Figure 2. Collector-Emitter Saturation Voltage vs Collector Current

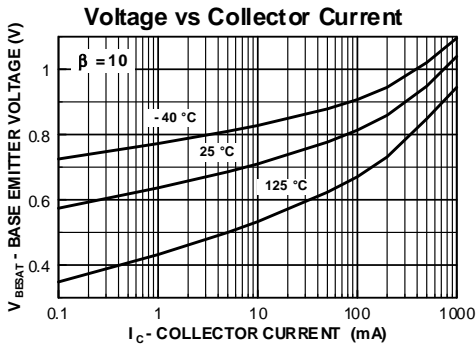


Figure 3. Base-Emitter Saturation Voltage vs Collector Current

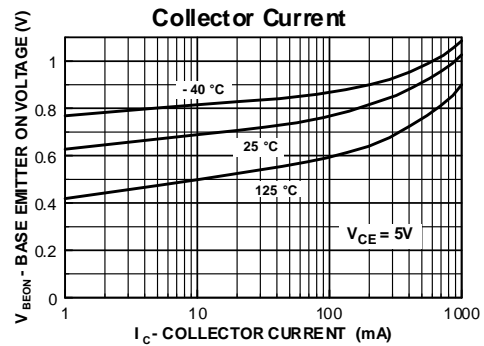


Figure 4. Base-Emitter On Voltage vs Collector Current

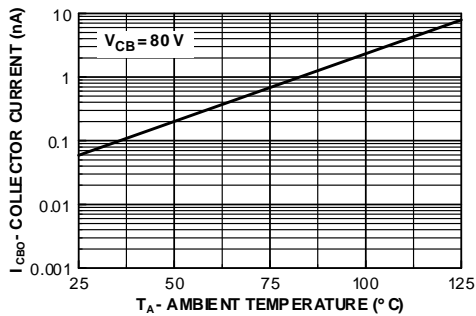


Figure 5. Collector Cutoff Current vs Ambient Temperature

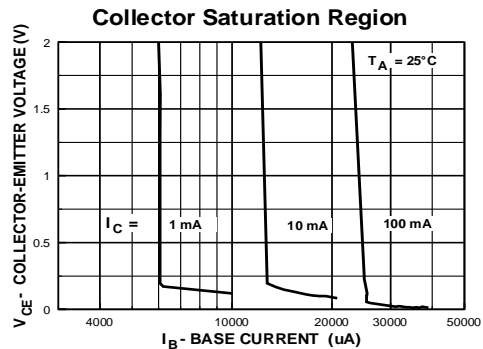


Figure 6. Collector Saturation Region

Typical Characteristics (Continued)

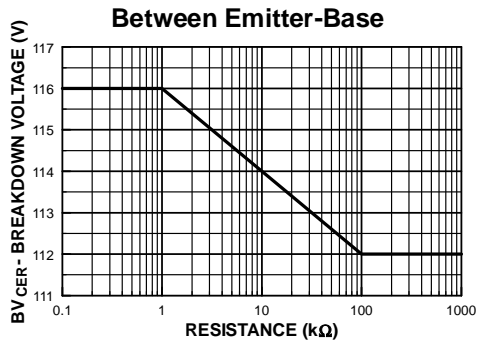


Figure 7. Collector-Emitter Breakdown Voltage with Resistance Between Emitter-Base

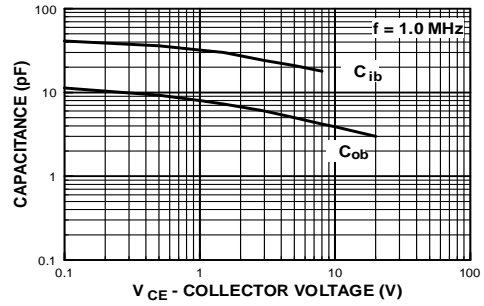


Figure 8. Input and Output Capacitance vs Reverse Voltage

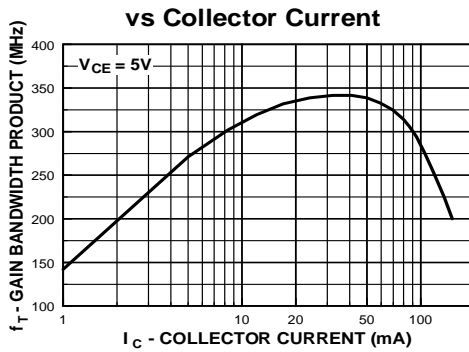
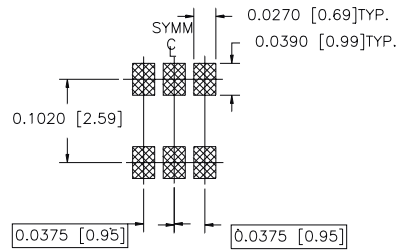
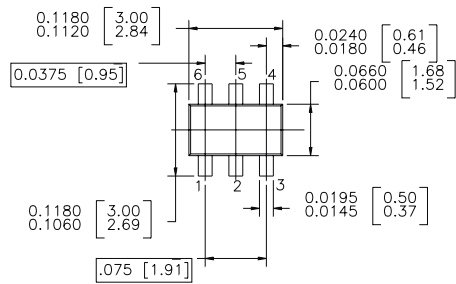


Figure 9. Gain Bandwidth Product vs Collector Current

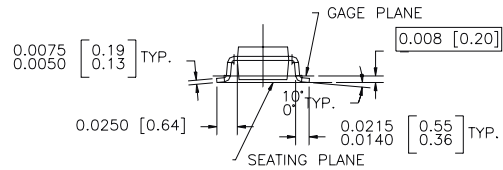
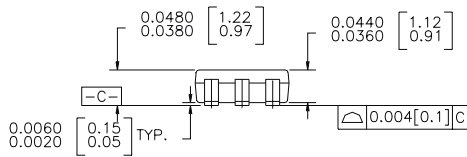
Package Dimensions

SuperSOT™-6



LAND PATTERN RECOMMENDATION

CONTROLLING DIMENSION IS INCH
 VALUES IN [] ARE MILLIMETERS



SUPER SOT 6 LEADS

NOTES : UNLESS OTHERWISE SPECIFIED

1.0 STANDARD LEAD FINISH : 150 MICROINCHES 93.81 MICROMETERS)
 MINIMUM TIN / LEAD (SOLDER) ON COPPER.

2.0 NO JEDEC REGISTRATION AS OF JULY 1996

Dimensions in Millimeters

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EnSigna TM	<i>i-Lo</i> TM	OCX TM	RapidConfigure TM	TruTranslation TM
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FACT Quiet Series TM		OPTOLOGIC [®]	μSerDes TM	UltraFET [®]
Across the board. Around the world. TM		OPTOPLANAR TM	SILENT SWITCHER [®]	VCX TM
The Power Franchise [®]		PACMAN TM	SMART START TM	
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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.

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Definition of Terms

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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.