FAIRCHILD SEMICONDUCTOR®

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FMB200
PNP Multi-Chip General-Purpose Amplifier

Description

This device is designed for general-purpose amplifier applications at collector currents to 300 mA. Sourced from Process 68.

Block Diagram

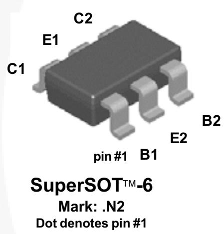

Figure 1. Device Package

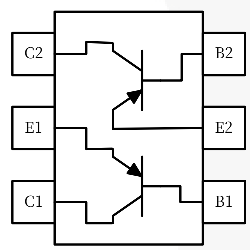

Figure 2. Internal Connections

Ordering Information

Part Number	Marking	Package	Packing Method
FMB200	.N2	SSOT 6L	Tape and Reel

Absolute Maximum Ratings[1],[2]

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value	Unit
V_{CEO}	Collector-Emitter Voltage	-45	V
V_{CBO}	Collector-Base Voltage	-60	V
V_{EBO}	Emitter-Base Voltage	-6	V
I_C	Collector Current - Continuous	-500	mA
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	°C

Notes:

1. These ratings are based on a maximum junction temperature of 150°C.
2. These are steady-state limits. Fairchild Semiconductor should be consulted on applications involving pulsed or low-duty cycle operations.

Thermal Characteristics[3]

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Max.	Unit
P_D	Total Device Dissipation	700	mW
	Derate Above 25°C	5.6	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	180	°C/W

Note:

3. PCB size: FR-4 76 x 114 x 1.57 mm^3 (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

Electrical Characteristics[4]

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = -10 µA, I_B = 0	-60			V
BV_{CEO}	Collector-Emitter Breakdown Voltage[4]	I_C = -1.0 mA, I_E = 0	-45			V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = -10 µA, I_C = 0	-6.0			V
I_{CBO}	Collector Cut-Off Current	V_{CB} = -50 V, I_E = 0			-50	nA
I_{CES}	Collector Cut-Off Current	V_{CE} = -40 V, I_E = 0			-50	nA
I_{EBO}	Emitter Cut-Off Current	V_{EB} = -4.0 V, I_C = 0			-50	nA
h_{FE}	DC Current Gain	I_C = -100 µA, V_{CE} = -1.0 V	80			
		I_C = -10 mA, V_{CE} = -1.0 V	100		450	
		I_C = -150 mA, V_{CE} = -5.0 V[4]	100		350	
$V_{CE}(sat)$	Collector-Emitter Saturation Voltage	I_C = -10 mA, I_B = -1.0 mA			-0.2	V
		I_C = -200 mA, I_B = -20 mA[4]			-0.4	
$V_{BE}(sat)$	Base-Emitter Saturation Voltage	I_C = -10 mA, I_B = -1.0 mA			-0.85	V
		I_C = -200 mA, I_B = -20 mA[4]			-1.00	
f_T	Current Gain - Bandwidth Product	V_{CE} = -20 V, I_C = -20 mA		300		MHz
C_{ob}	Output Capacitance	V_{CB} = -10 V, f = 1.0 MHz		4.5		pF
NF	Noise Figure	I_C = -100 µA, V_{CE} = -5.0 V, R_G = 2.0 kΩ, f = 1.0 kHz		2.5		dB

Note:

4. Pulse test: pulse width ≤ 300 µs, duty cycle ≤ 2.0%.

Typical Performance Characteristics

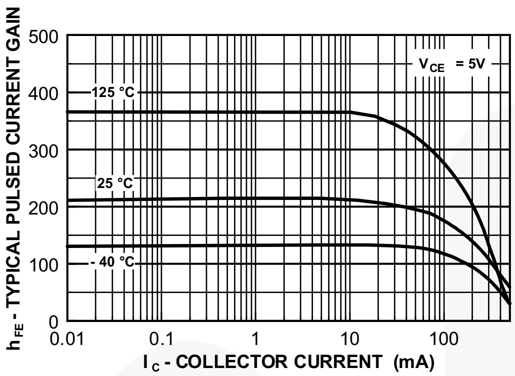

Figure 3. Typical Pulsed Current Gain vs. Collector Current

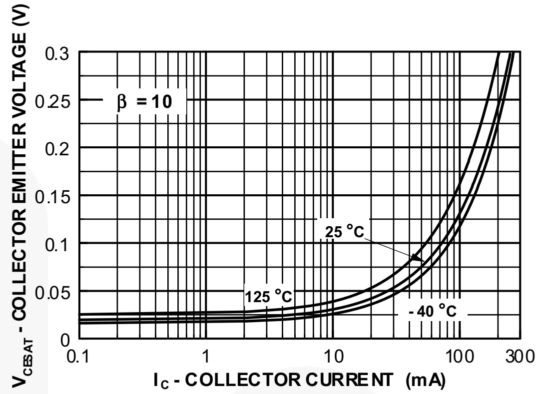

Figure 4. Collector-Emitter Saturation Voltage vs. Collector Current

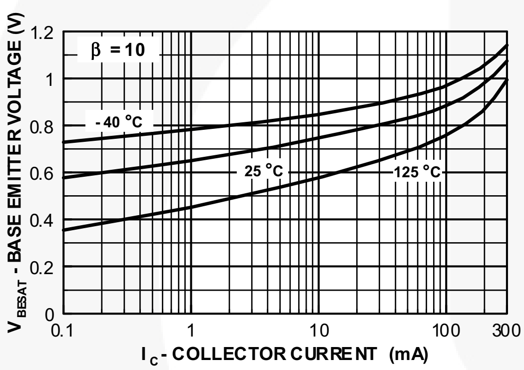

Figure 5. Base-Emitter Saturation Voltage vs. Collector Current

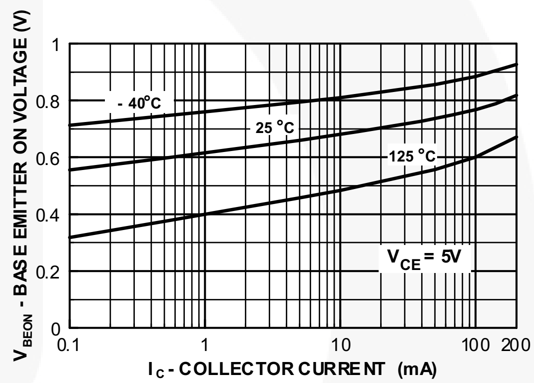

Figure 6. Base-Emitter On Voltage vs. Collector Current

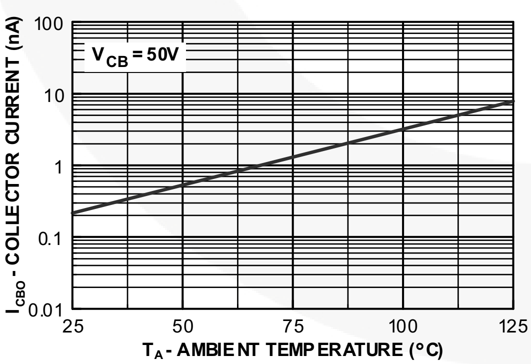

Figure 7. Collector Cut-Off Current vs. Ambient Temperature

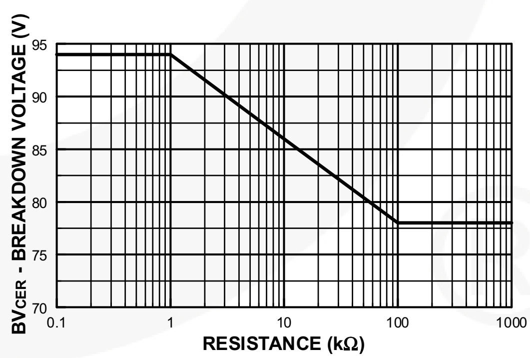

Figure 8. Collector-Emitter Breakdown Voltage with Resistance Between Emitter-Base

Typical Performance Characteristics (Continuous)

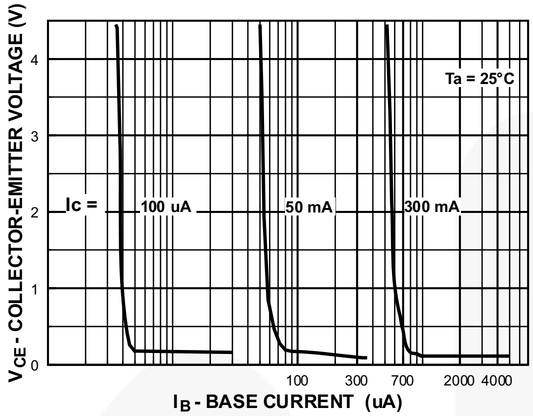

Figure 9. Collector Saturation Region

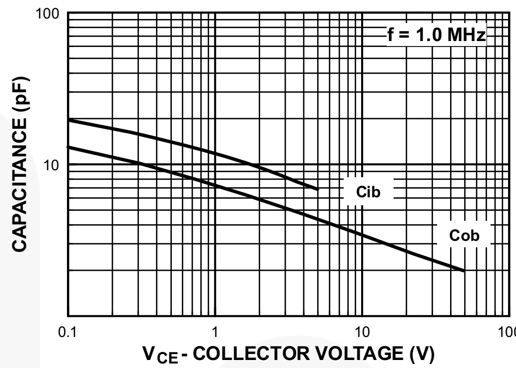

Figure 10. Input and Output Capacitance vs. Reverse Voltage

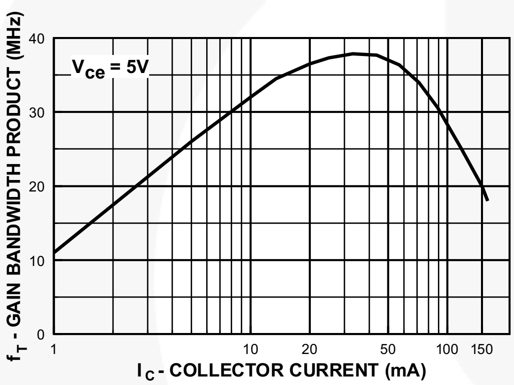

Figure 11. Gain Bandwidth Product vs. Collector Current

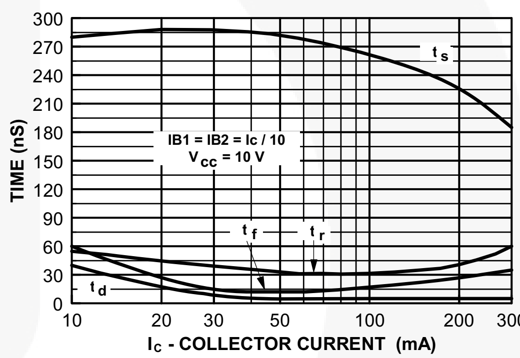

Figure 12. Switching Times vs. Collector Current

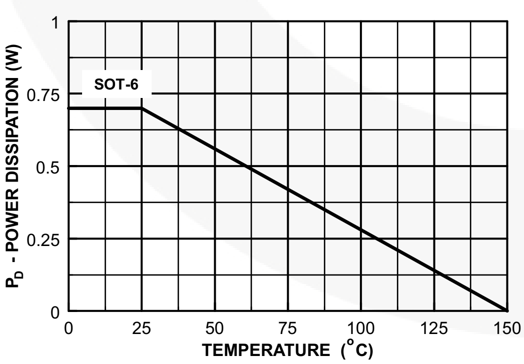

Figure 13. Power Dissipation vs. Ambient Temperature

Physical Dimensions

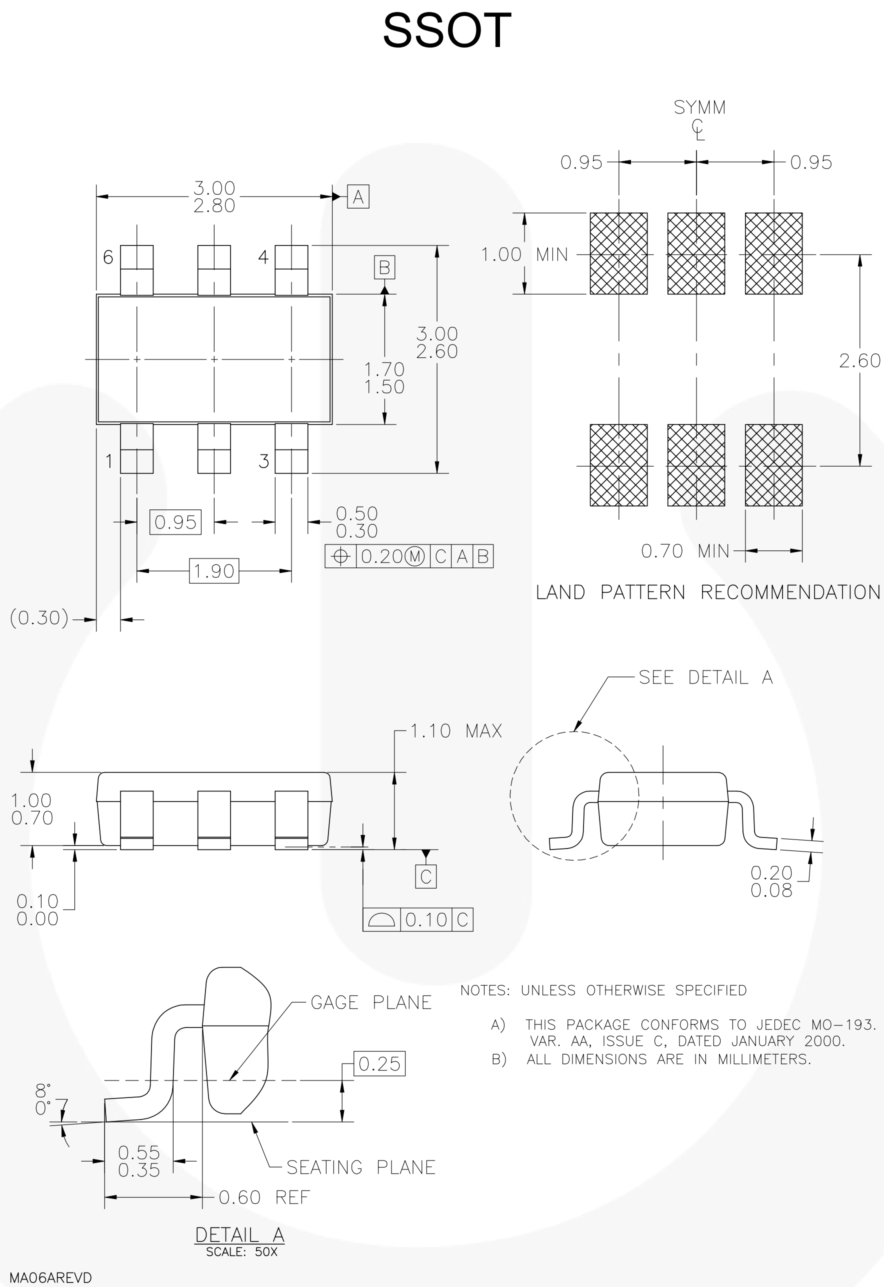

Figure 14. 6 LEAD, SUPERSOT6, JEDEC MO-193, 1.6 MM WIDE

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