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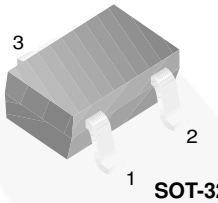
FAIRCHILD SEMICONDUCTOR®

January 2014

FJX992
PNP Audio-Frequency Low-Noise Amplifier

Features

- High Voltage: V_{CEO} = -120 V
- Excellent h_{FE} Linearity
- High h_{FE}: h_{FE} = 200 ~ 700



SOT-323

1. Base 2. Emitter 3. Collector

Ordering Information

Part Number	Marking	Package	Packing Method
FJX992TF	992D	SOT-323 3L (SC70 3L)	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	-120	V
V_{CBO}	Collector-Base Voltage	-120	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current	-100	mA
T_J , T_{STG}	Junction and Storage 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	235	mW
	Derate Above T_A = 25°C	1.88	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	530	°C/W

Note:

3. PCB size: FR-4 76 x 114 x 1.57 mm3 (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

Electrical Characteristics

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage[4]	I_C = -1 mA, I_B = 0	-120			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = -100 μA, I_E = 0	-120			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = -10 μA, I_C = 0	-5			V
I_{CBO}	Collector-Base Cut-Off Current	V_{CB} = -120 V, I_E = 0			-100	nA
I_{EBO}	Emitter-Base Cut-Off Current	V_{EB} = -5 V, I_C = 0			-100	nA
On Characteristics						
h_{FE}	DC Current Gain[4]	V_{CE} = -6 V, I_C = -0.1 mA	150			
		V_{CE} = -6 V, I_C = -2 mA	200		700	
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C = -10 mA, I_B = -1 mA			-0.3	V
V_{BE}(on)	Base-Emitter On Voltage	V_{CE} = -6 V, I_C = -1 mA			-0.65	V
Small Signal Characteristics						
f_T	Current Gain - Bandwidth Product	V_{CE} = -6 V, I_C = -1 mA		100		MHz
C_{ob}	Output Capacitance	V_{CB} = -10 V, I_E = 0, f = 1 MHz		4		pF

Note:

4. Pulse test: pulse width ≤ 300 μs, duty cycle ≤ 2%.

Typical Performance Characteristics

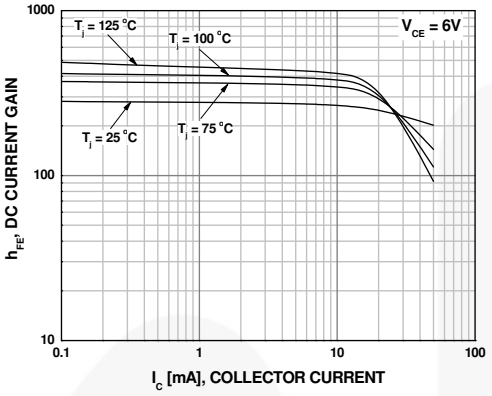


Figure 1. DC Current Gain

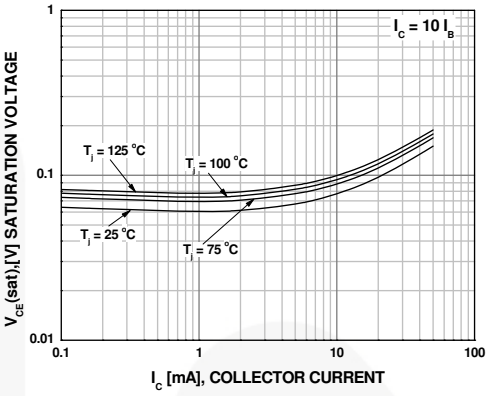


Figure 2. Collector-Emitter Saturation Voltage

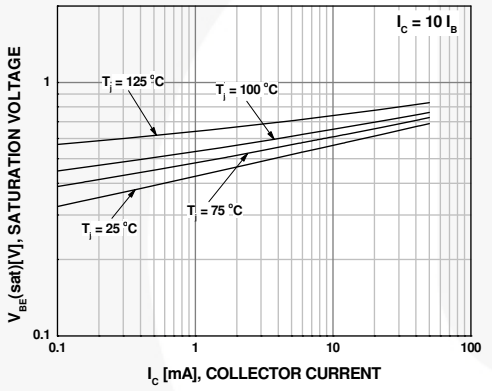


Figure 3. Base-Emitter Saturation Voltage

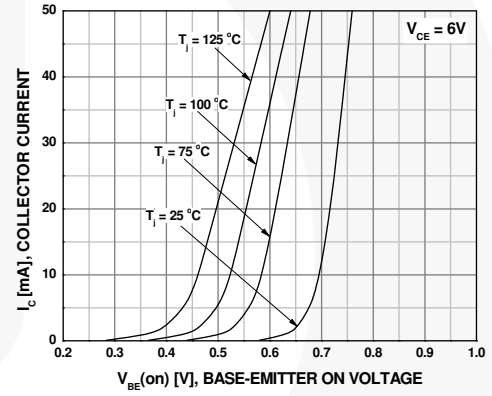


Figure 4. Base-Emitter On Voltage

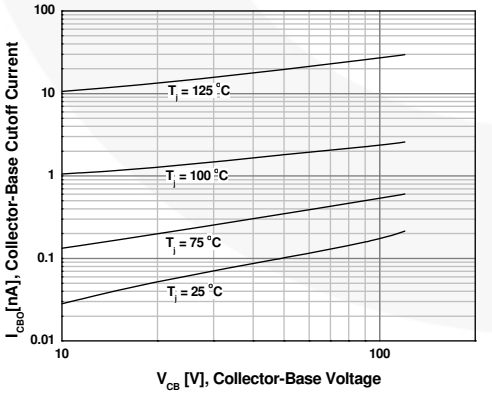


Figure 5. Collector-Base Cut-Off Current

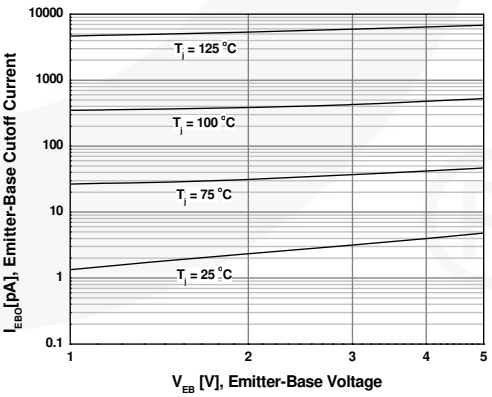


Figure 6. Emitter-Base Cut-Off Current

Typical Performance Characteristics (Continued)

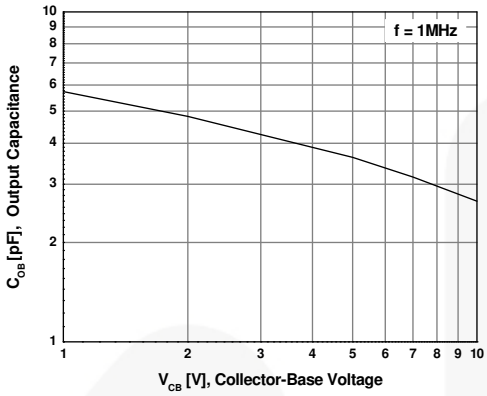


Figure 7. Collector Output Capacitance

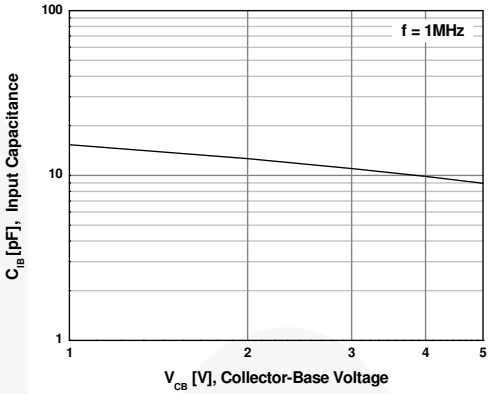


Figure 8. Collector Input Capacitance

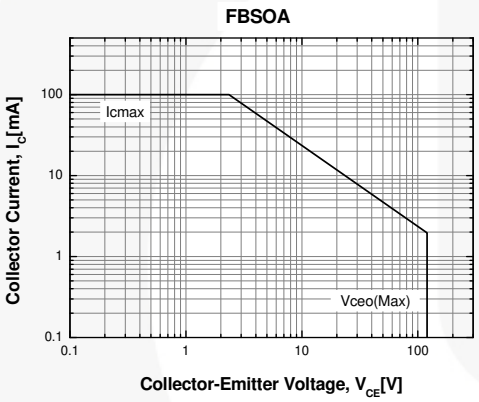


Figure 9. Forward Bias Safe Operating Area

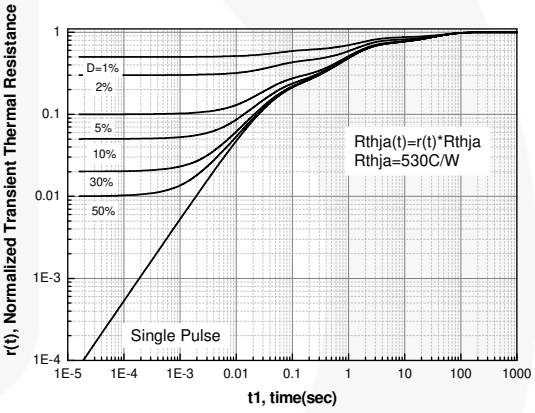


Figure 10. Transient Thermal Resistance

Physical Dimensions

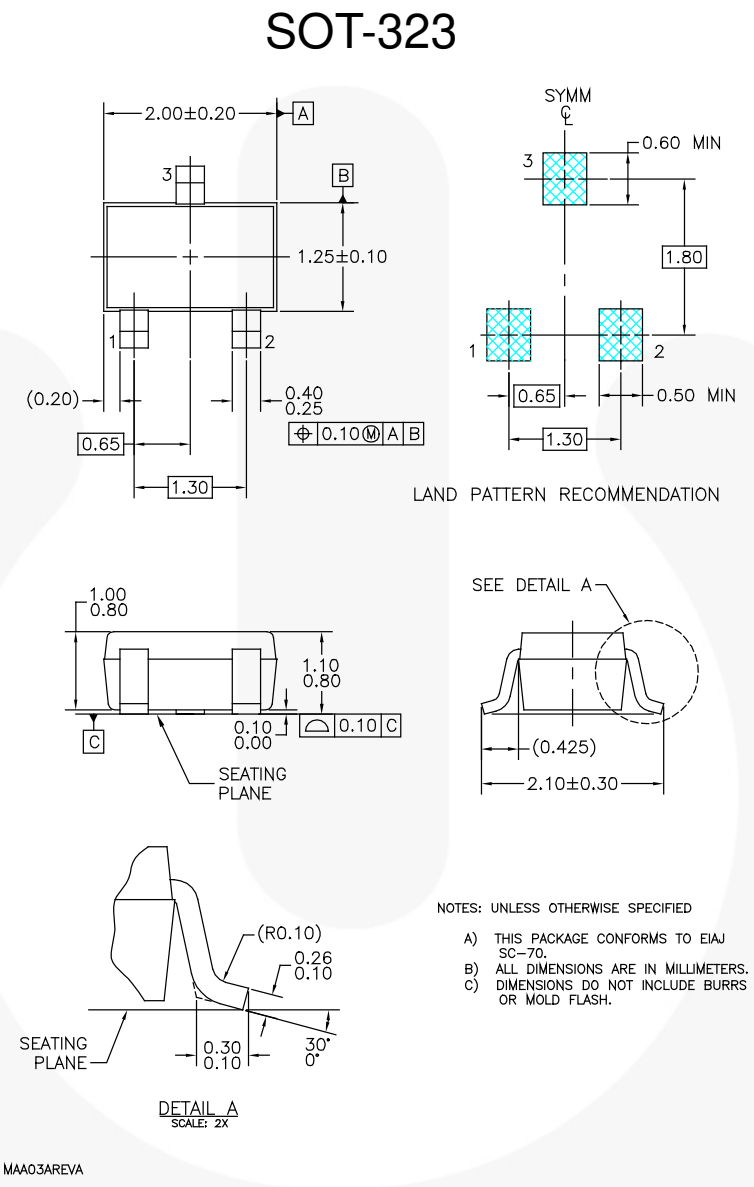


Figure 11. 3-LEAD, SC70, EIAJ SC-70, 1.25 MM WIDE

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