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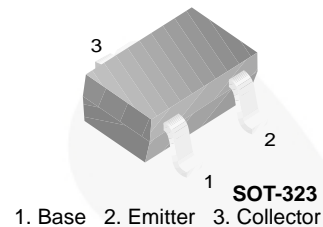


# FJX992

## PNP Audio-Frequency Low-Noise Amplifier

### Features

- High Voltage:  $V_{CEO} = -120\text{ V}$
- Excellent  $h_{FE}$  Linearity
- High  $h_{FE}$ :  $h_{FE} = 200 \sim 700$



### Ordering Information

Part Number	Marking	Package	Packing Method
FJX992TF	992D	SOT-323 3L (SC70 3L)	Tape and Reel

### Absolute Maximum Ratings<sup>(1),(2)</sup>

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  $T_A = 25^\circ\text{C}$  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	$^\circ\text{C}$

#### Notes:

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

### Thermal Characteristics<sup>(3)</sup>

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Max.	Unit
$P_D$	Total Device Dissipation	235	mW
	Derate Above $T_A = 25^\circ\text{C}$	1.88	mW/ $^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	530	$^\circ\text{C}/\text{W}$

**Note:**

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

### Electrical Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

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

**Note:**

4. Pulse test: pulse width  $\leq 300\ \mu\text{s}$ , duty cycle  $\leq 2\%$ .

## Typical Performance Characteristics

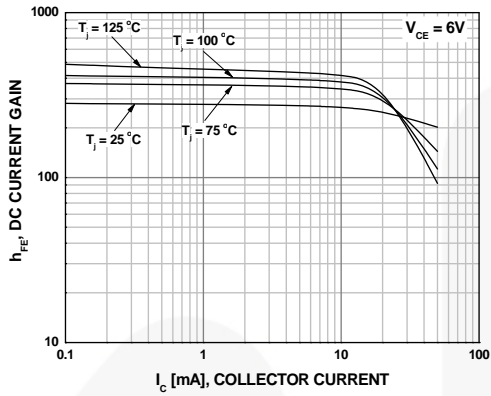


Figure 1. DC Current Gain

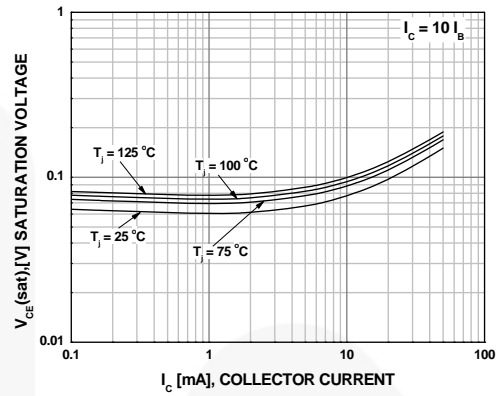


Figure 2. Collector-Emitter Saturation Voltage

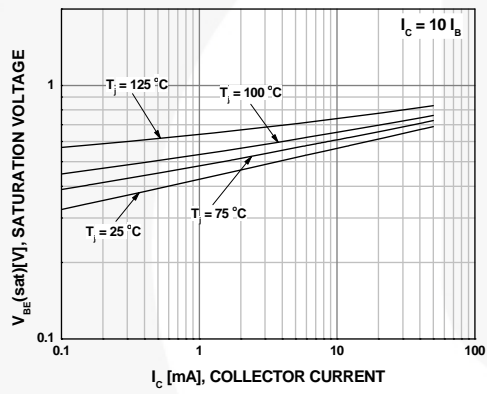


Figure 3. Base-Emitter Saturation Voltage

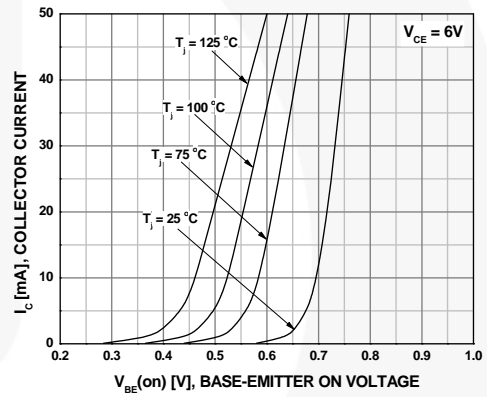


Figure 4. Base-Emitter On Voltage

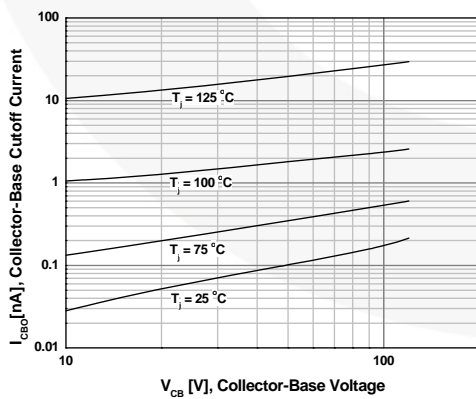


Figure 5. Collector-Base Cut-Off Current

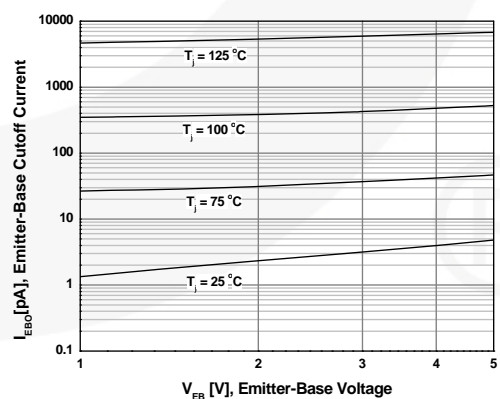
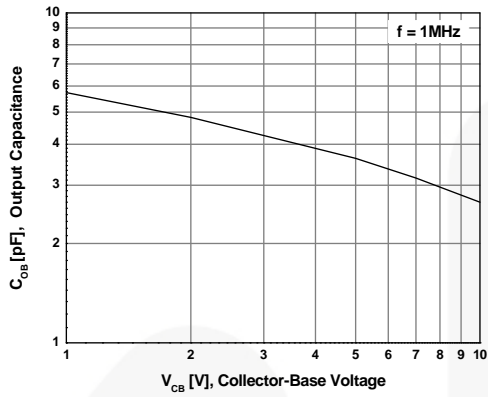
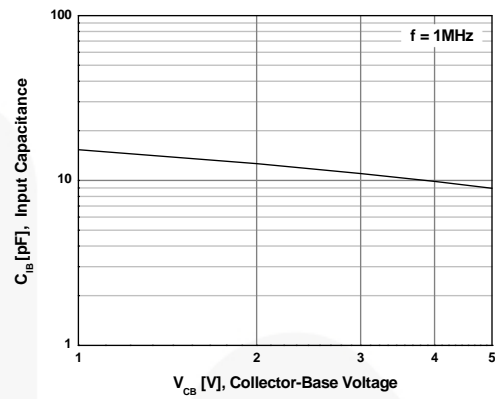


Figure 6. Emitter-Base Cut-Off Current

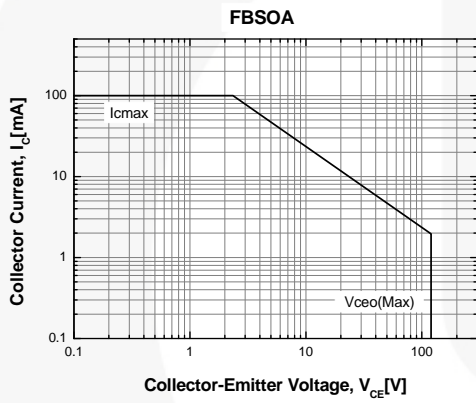
**Typical Performance Characteristics (Continued)**



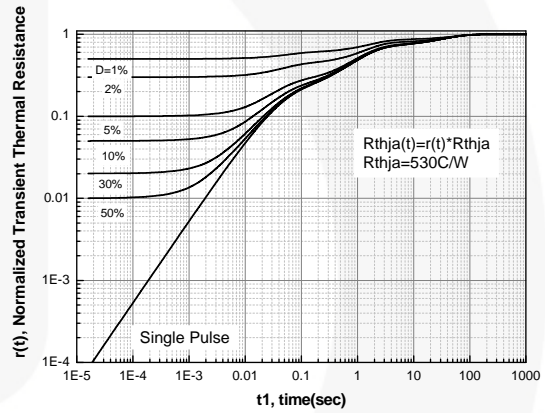
**Figure 7. Collector Output Capacitance**



**Figure 8. Collector Input Capacitance**



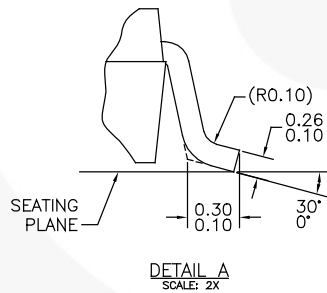
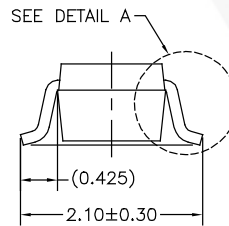
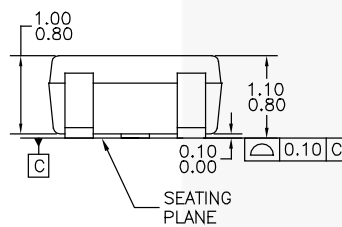
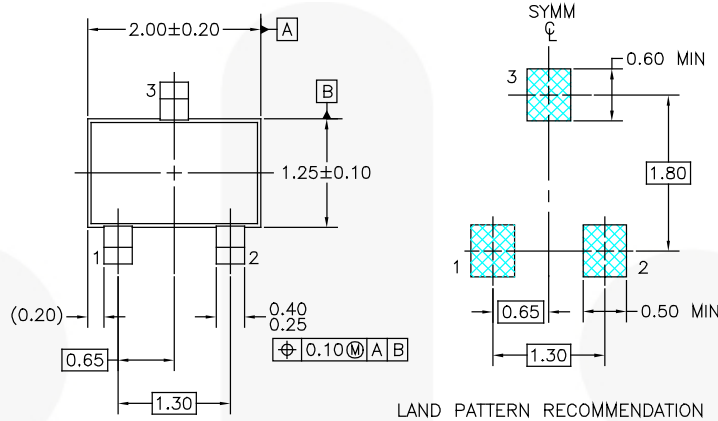
**Figure 9. Forward Bias Safe Operating Area**



**Figure 10. Transient Thermal Resistance**

## Physical Dimensions

### SOT-323



NOTES: UNLESS OTHERWISE SPECIFIED

- A) THIS PACKAGE CONFORMS TO EIAJ SC-70.
- B) ALL DIMENSIONS ARE IN MILLIMETERS.
- C) DIMENSIONS DO NOT INCLUDE BURRS OR MOLD FLASH.

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

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

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