

# PNP Audio-Frequency Low-Noise Amplifier

## FJX992

### Features

- High Voltage:  $V_{CEO} = -120\text{ V}$
- Excellent  $h_{FE}$  Linearity
- High  $h_{FE}$ :  $h_{FE} = 200 \sim 700$
- This Device is Pb-Free and Halide Free

### ABSOLUTE MAXIMUM RATINGS (Note 1, Note 2)

( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Symbol	Rating	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	$^{\circ}\text{C}$

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

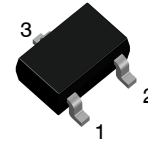
1. These ratings are based on a maximum junction temperature of  $150\text{ }^{\circ}\text{C}$ .
2. These are steady-state limits. onsemi should be consulted on applications involving pulsed or low-duty cycle operations.

### THERMAL CHARACTERISTICS (Note 3)

( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

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

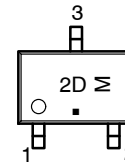
3. PCB size: FR-4  $76 \times 114 \times 1.57\text{ mm}^3$  (3.0 inch  $\times$  4.5 inch  $\times$  0.062 inch) with minimum land pattern size.



1. Base 2. Emitter 3. Collector

SC-70, 3 Lead, 1.25x2  
CASE 419AB

### MARKING DIAGRAM



2D = Specific Device Code  
M = Date Code  
■ = Pb-Free Package

### ORDERING INFORMATION

Device	Package	Shipping <sup>†</sup>
FJX992TF	SC-70, 3 Lead	3000 / Tape & Reel

<sup>†</sup>For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, [BRD8011/D](#).

# FJX992

## ELECTRICAL CHARACTERISTICS ( $T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
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### OFF CHARACTERISTICS

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage (Note 4)	$I_C = -1\text{ mA}, I_B = 0$	-120	-	-	V
$V_{(BE)CBO}$	Collector-Base Breakdown Voltage	$I_C = -100\text{ }\mu\text{A}, I_E = 0$	-120	-	-	V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = -10\text{ }\mu\text{A}, I_C = 0$	-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

### ON CHARACTERISTICS

$h_{FE}$	DC Current Gain (Note 4)	$V_{CE} = -6\text{ V}, I_C = -0.1\text{ mA}$	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

### SMALL SIGNAL CHARACTERISTICS

$f_T$	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

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

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

## TYPICAL PERFORMANCE CHARACTERISTICS

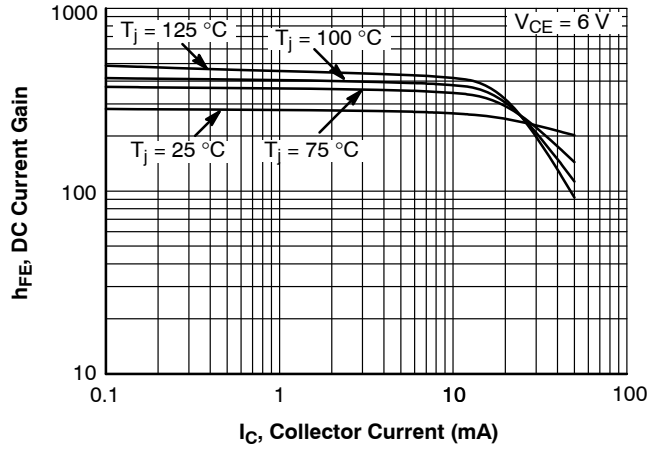


Figure 1. DC Current Gain

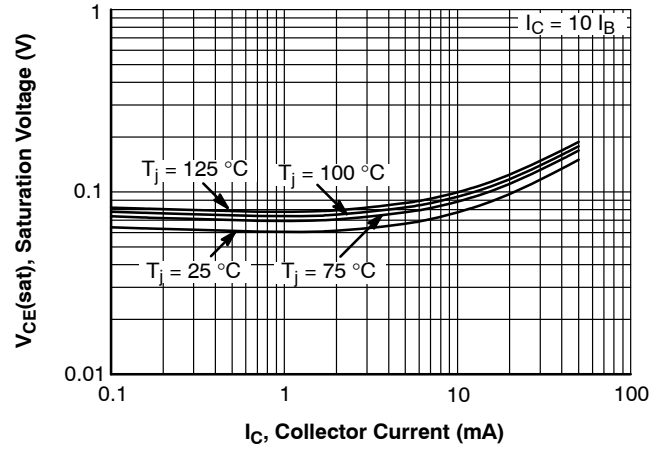


Figure 2. Collector-Emitter Saturation Voltage

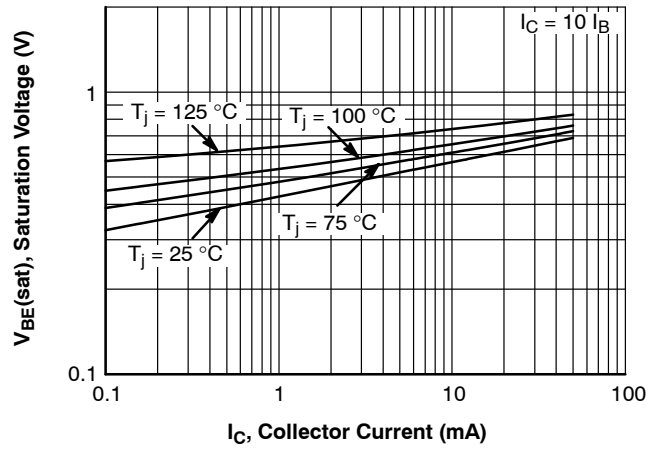


Figure 3. Base-Emitter Saturation Voltage

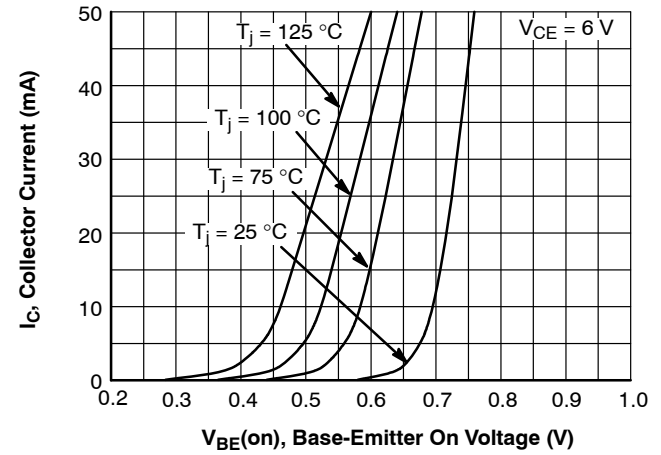


Figure 4. Base-Emitter On Voltage

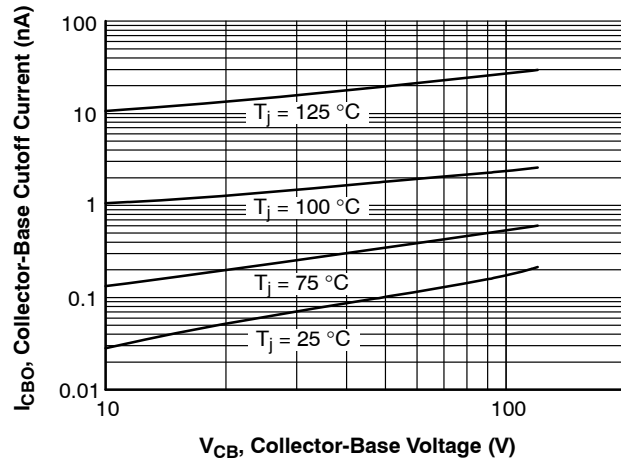


Figure 5. Collector-Base Cut-Off Current

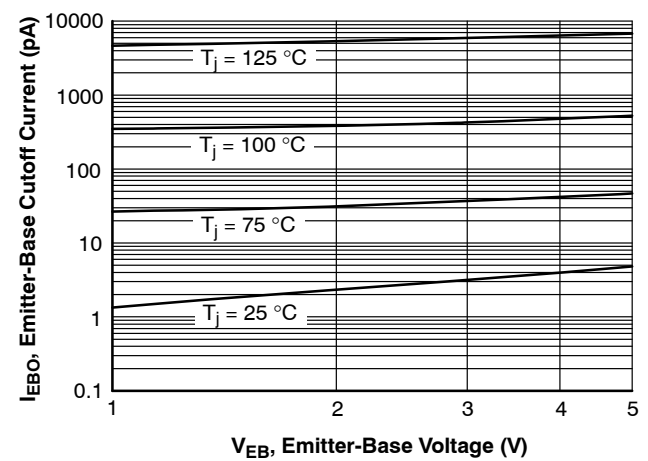


Figure 6. Emitter-Base Cut-Off Current

## TYPICAL PERFORMANCE CHARACTERISTICS (continued)

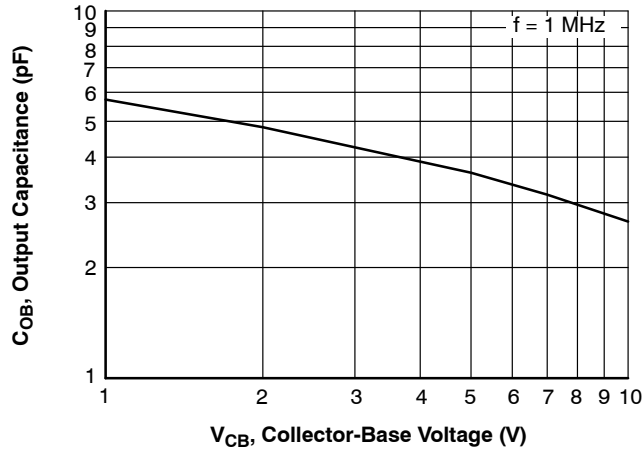


Figure 7. Collector Output Capacitance

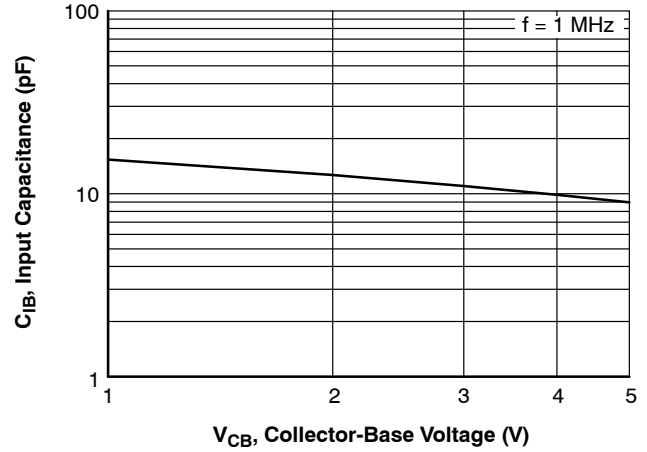


Figure 8. Collector Input Capacitance

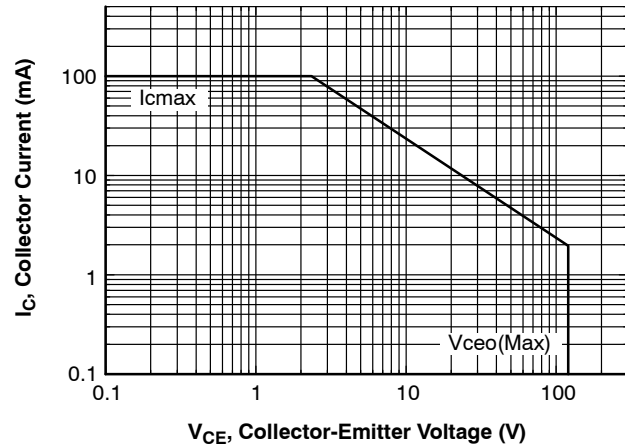


Figure 9. Forward Bias Safe Operating Area

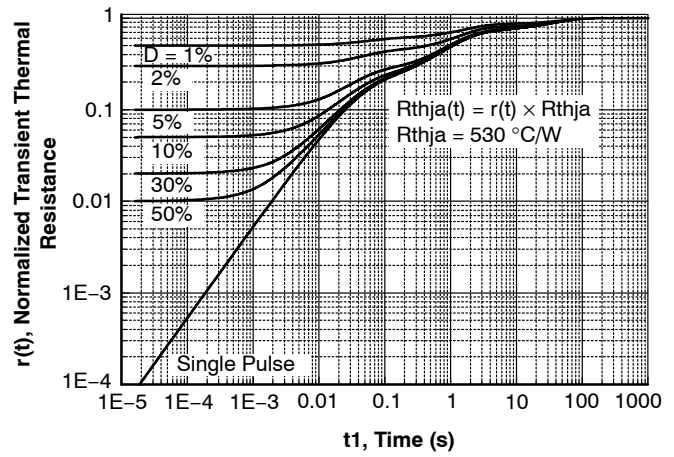
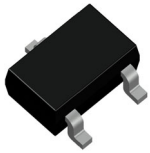


Figure 10. Transient Thermal Resistance

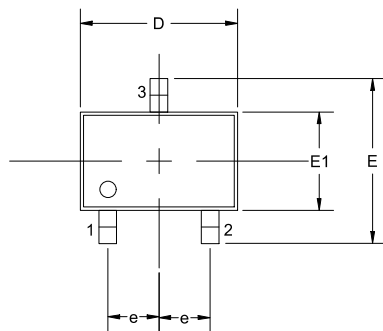
REVISION HISTORY

Revision	Description of Changes	Date
2	Converted the Data Sheet to <b>onsemi</b> format.	6/4/2025

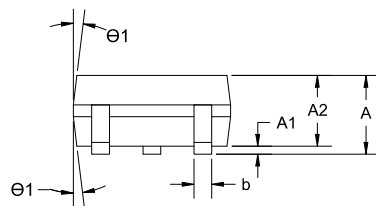


SC-70, 3 Lead, 1.25x2  
CASE 419AB  
ISSUE A

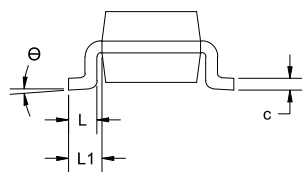
DATE 13 FEB 2023



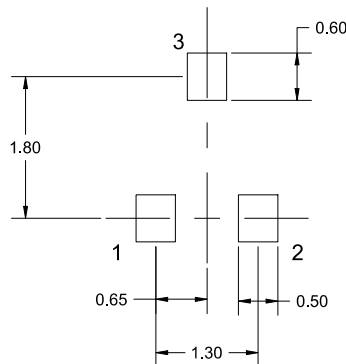
TOP VIEW



SIDE VIEW



END VIEW



SOLDERING FOOTPRINT

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS. ANGLES IN DEGREES.
2. COMPLIES WITH JEDEC MO-203

DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.80		1.10
A1	0.00		0.10
A2	0.80	0.90	1.00
b	0.15		0.30
c	0.08		0.22
D	1.80	2.00	2.20
E	1.80	2.10	2.40
E1	1.15	1.25	1.35
e	0.65 BSC		
L	0.26	0.36	0.46
L1	0.42 REF		
Θ	0°		8°
Θ1	4°		10°

\* For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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DESCRIPTION:	SC-70, 3 LEAD, 1.25X2	PAGE 1 OF 1

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