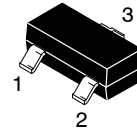


# PNP Epitaxial Silicon Transistor

## FJV992



1. Base
2. Emitter
3. Collector

SOT-23 (TO-236)  
CASE 318  
STYLE 6

### Audio Frequency Low Noise Amplifier

- Complement to FJV1845

#### MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Rating	Value	Unit
$V_{CBO}$	Collector-Base Voltage	-120	V
$V_{CEO}$	Collector-Emitter Voltage	-120	V
$V_{EBO}$	Emitter-Base Voltage	-5	V
$I_C$	Collector Current	-50	mA
$P_C$	Collector Power Dissipation	300	mW
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	-55 ~ 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.

#### $h_{FE2}$ CLASSIFICATION

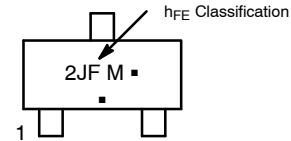
Classification	P	F	E
$h_{FE2}$	200 ~ 400	300 ~ 600	400 ~ 800

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

Symbol	Parameter	Test Condition	Min	Typ	Max	Unit
$BV_{CBO}$	Collector-Base Breakdown Voltage	$I_C = -100 \mu\text{A}, I_E = 0$	-120	-	-	V
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C = -1 \text{ mA}, I_B = 0$	-120	-	-	V
$BV_{EBO}$	Emitter-Base Breakdown Voltage	$I_E = -10 \mu\text{A}, I_C = 0$	-5	-	-	V
$I_{EBO}$	Emitter-Base Cutoff Current	$V_{EB} = -6 \text{ V}, I_C = 0$	-	-	-30	nA
$h_{FE1}$	DC Current Gain	$V_{CE} = -6 \text{ V}, I_C = -0.1 \text{ mA}$	150	-	-	
$h_{FE2}$		$V_{CE} = -6 \text{ V}, I_C = -1 \text{ mA}$	200	-	800	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = -10 \text{ mA}, I_B = -1 \text{ mA}$	-	-	-300	mV
$V_{BE(on)}$	Base-Emitter On Voltage	$V_{CE} = -6 \text{ V}, I_C = -1 \text{ mA}$	-0.55	-	-0.65	V
$f_T$	Current Gain Bandwidth Product	$V_{CE} = -6 \text{ V}, I_C = -1 \text{ mA}$	50	-	-	MHz
$C_{ob}$	Output Capacitance	$V_{CB} = -30 \text{ V}, I_E = 0, f = 1 \text{ MHz}$	-	-	3	pF
NV	Noise Voltage	$V_{CE} = -5.0 \text{ V}, I_C = -1.0 \text{ mA}, R_G = 100 \text{ k}\Omega, G_V = 80 \text{ dB}, f = 10 \text{ Hz to } 1.0 \text{ kHz}$	-	-	40	mV

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.

#### MARKING DIAGRAM



2JF = Specific Device Code  
M = Assembly Operation Month  
▪ = Pb-Free Package

(Note: Microdot may be in either location)

#### ORDERING INFORMATION

Device	Package	Shipping†
FJV992FMTF	SOT-23 (TO-236) (Pb-Free)	3000 / Tape & Reel

†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](#).

TYPICAL CHARACTERISTICS

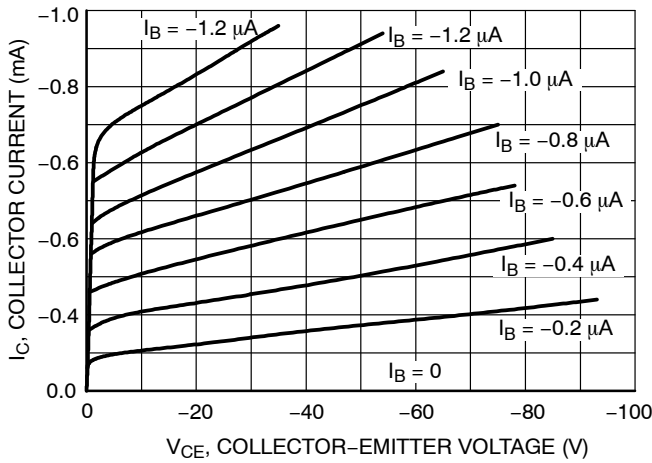


Figure 1. Static Characteristic

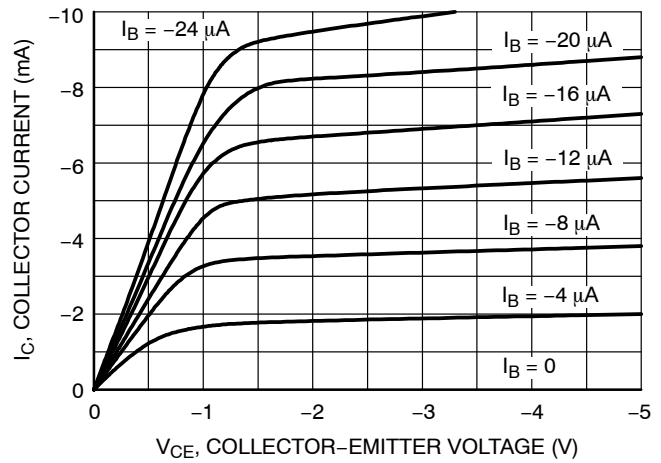


Figure 2. Static Characteristic

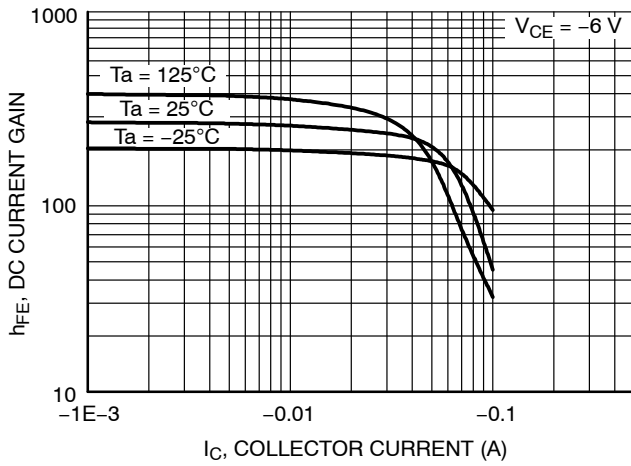


Figure 3. DC Current Gain

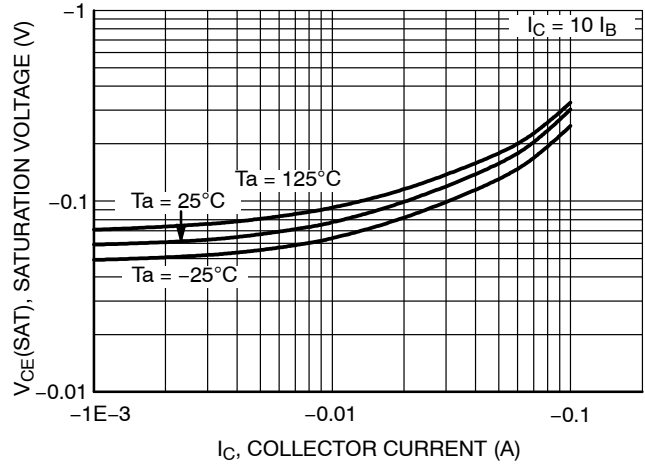


Figure 4. Collector-Emitter Saturation Voltage

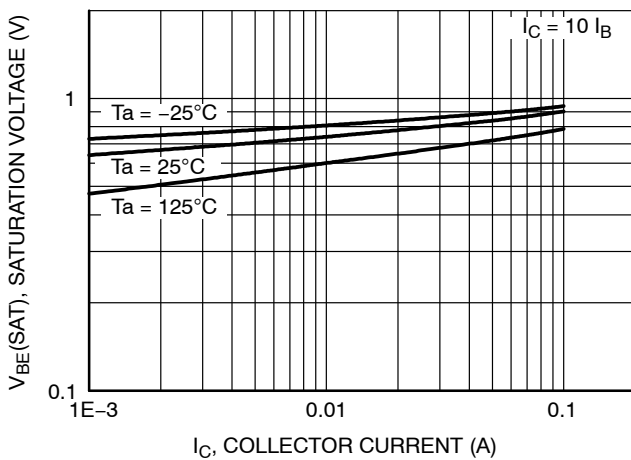


Figure 5. Base-Emitter Saturation Voltage

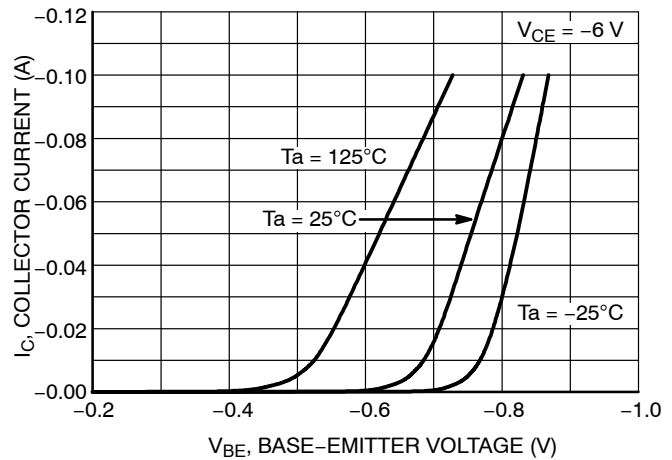


Figure 6. Base-Emitter Voltage

TYPICAL CHARACTERISTICS (continued)

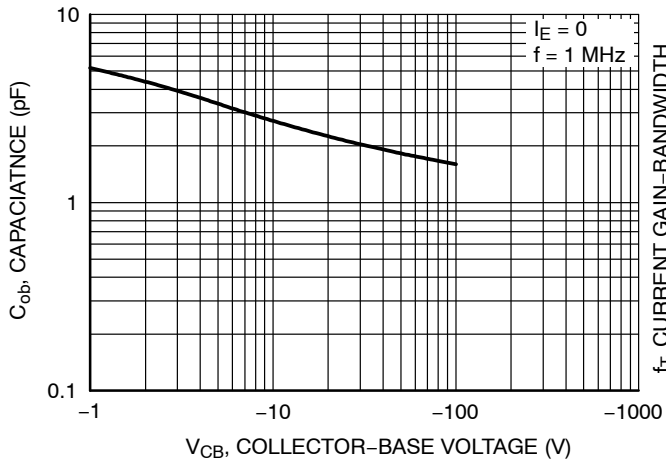


Figure 7. Collector Output Capacitance

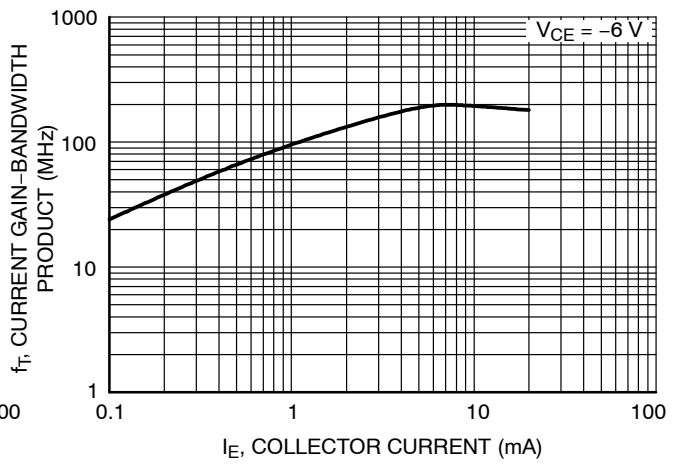


Figure 8. Current Gain Bandwidth Product

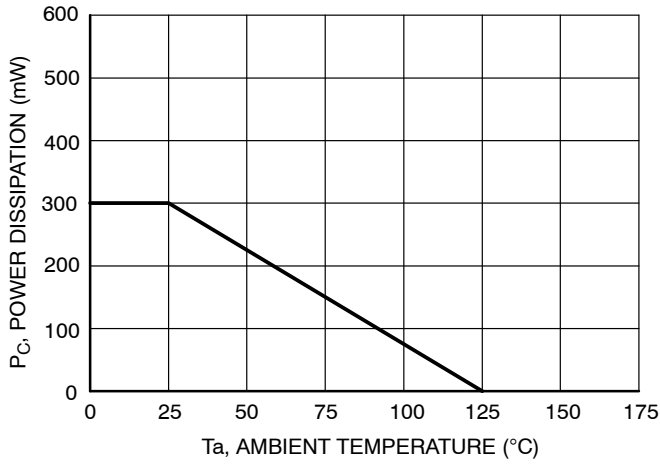


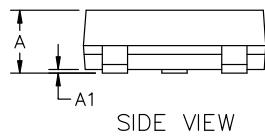
Figure 9. Power Derating



SCALE 4:1

**SOT-23 (TO-236) 2.90x1.30x1.00 1.90P**  
**CASE 318**  
**ISSUE AU**

DATE 14 AUG 2024



MILLIMETERS			
DIM	MIN	NOM	MAX
A	0.89	1.00	1.11
A1	0.01	0.06	0.10
b	0.37	0.44	0.50
c	0.08	0.14	0.20
D	2.80	2.90	3.04
E	1.20	1.30	1.40
e	1.78	1.90	2.04
L	0.30	0.43	0.55
L1	0.35	0.54	0.69
HE	2.10	2.40	2.64
T	0°	---	10°

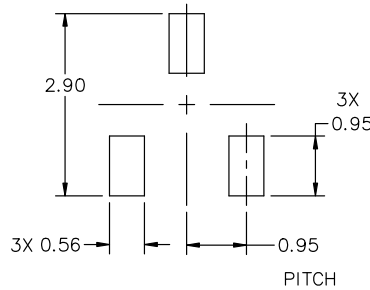
NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSIONS: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

**GENERIC MARKING DIAGRAM\***



XXX = Specific Device Code  
M = Date Code  
▪ = Pb-Free Package



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

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

**STYLES ON PAGE 2**

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**SOT-23 (TO-236) 2.90x1.30x1.00 1.90P**  
**CASE 318**  
**ISSUE AU**

DATE 14 AUG 2024

STYLE 1 THRU 5:  
CANCELLED

STYLE 6:  
PIN 1. BASE  
2. EMITTER  
3. COLLECTOR

STYLE 7:  
PIN 1. EMITTER  
2. BASE  
3. COLLECTOR

STYLE 8:  
PIN 1. ANODE  
2. NO CONNECTION  
3. CATHODE

STYLE 9:  
PIN 1. ANODE  
2. ANODE  
3. CATHODE

STYLE 10:  
PIN 1. DRAIN  
2. SOURCE  
3. GATE

STYLE 11:  
PIN 1. ANODE  
2. CATHODE  
3. CATHODE-ANODE

STYLE 12:  
PIN 1. CATHODE  
2. CATHODE  
3. ANODE

STYLE 13:  
PIN 1. SOURCE  
2. DRAIN  
3. GATE

STYLE 14:  
PIN 1. CATHODE  
2. GATE  
3. ANODE

STYLE 15:  
PIN 1. GATE  
2. CATHODE  
3. ANODE

STYLE 16:  
PIN 1. ANODE  
2. CATHODE  
3. CATHODE

STYLE 17:  
PIN 1. NO CONNECTION  
2. ANODE  
3. CATHODE

STYLE 18:  
PIN 1. NO CONNECTION  
2. CATHODE  
3. ANODE

STYLE 19:  
PIN 1. CATHODE  
2. ANODE  
3. CATHODE-ANODE

STYLE 20:  
PIN 1. CATHODE  
2. ANODE  
3. GATE

STYLE 21:  
PIN 1. GATE  
2. SOURCE  
3. DRAIN

STYLE 22:  
PIN 1. RETURN  
2. OUTPUT  
3. INPUT

STYLE 23:  
PIN 1. ANODE  
2. ANODE  
3. CATHODE

STYLE 24:  
PIN 1. GATE  
2. DRAIN  
3. SOURCE

STYLE 25:  
PIN 1. ANODE  
2. CATHODE  
3. GATE

STYLE 26:  
PIN 1. CATHODE  
2. ANODE  
3. NO CONNECTION

STYLE 27:  
PIN 1. CATHODE  
2. CATHODE  
3. CATHODE

STYLE 28:  
PIN 1. ANODE  
2. ANODE  
3. ANODE

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