

Low-level, low-noise amplifier

The BFX 37 is a PNP silicon Planar transistor designed for use in high-performance, low-level, low-noise amplifiers over a wide frequency range. It features high current gain over the range from 1 μ A to 100 mA and excellent NF at low frequency.

ELECTRICAL CHARACTERISTICS

(T_A = 25°C unless otherwise noted)

Symbol	Characteristics and test conditions	Min.	Typ.	Max.	Unit
hFE	DC Current Gain				
	$I_C = 1 \mu A$ $V_{CE} = -5V$			130	
	$I_C = 10 \mu A$ $V_{CE} = -5V$	70	170	230	
	$I_C = 100 \mu A$ $V_{CE} = -5V$	125	200		
	$I_C = 1 mA$ $V_{CE} = -5V$	125	220	280	
VBEsat	Base Saturation Voltage (5)				
	$I_C = 10 mA$ $V_{CE} = -5V (5)$	125	200		
VBEon	Base-Emitter On Voltage				
	$I_C = 10 mA$ $I_B = 5 mA$	-0.73 -0.82	-0.90 -0.95	V	
VCEsat	Collector Saturation Voltage (5)				
	$I_C = 10 mA$ $I_B = 0.5 mA$	-0.65		V	
ICES	Collector Reverse Current				
	$V_{CE} = -70V$ $V_{EB} = 0$ $T_A = -150^{\circ}C$	0.1 0.1	10 10	nA μA	
VBEBO	Emitter Base Breakdown Voltage				
	$I_E = 10 \mu A$ $I_C = 0$	-6		V	
LVCEO	Collector to Emitter Sustaining Voltage (4 and 5)				
	$I_C = 5 mA$ $I_B = 0$	-80		V	
hfe	Small Signal Current Gain				
hie	Input Resistance				
hfe	Voltage Feedback Ratio				
hoe	Output Conductance				
hfe	High Frequency Current Gain				
CTE	Emitter Transition Capacitance				
Cobo	Base-Collector Capacitance				
NF	Wide Band Noise Figure (6)				
NF	Narrow Band Noise Figure (7)				

ABSOLUTE MAXIMUM RATINGS (1)

(T_A = 25°C unless otherwise noted)

Voltages and Currents

Collector to Emitter Voltage (4))	V_{CEO}	-80 V
Collector to Emitter Voltage	V_{CES}	-90 V
Emitter to Base Voltage	V_{EBO}	- 6 V
DC Collector Current	I_C	100 mA

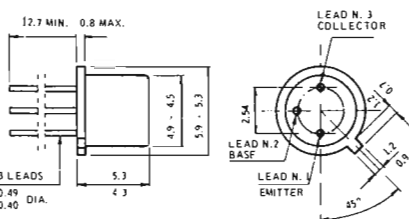
Temperatures

Storage Temperature	T_{STG}	-55°C to 200°C
Operating Junction Temperature	T_J	200°C
Lead Temperature (Soldering, 10 sec. time limit)	T_L	260°C

Power (2 - 3)

Dissipation at 25°C Case Temperature	P_D	1.2 W
Dissipation at 25°C Ambient Temperature	P_D	0.36 W

PHYSICAL DIMENSIONS
similar to JEDEC TO-18 outline

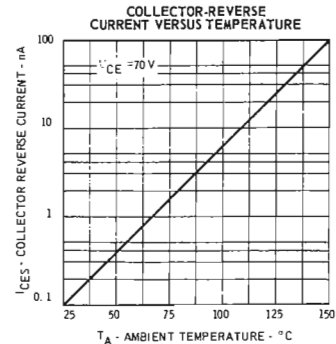
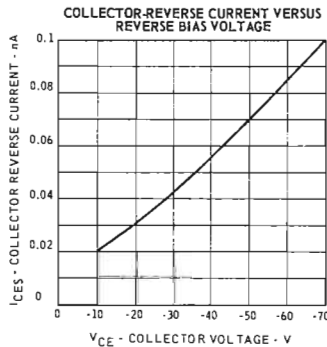
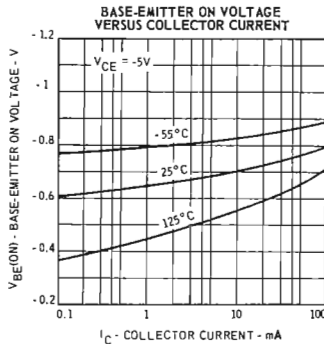
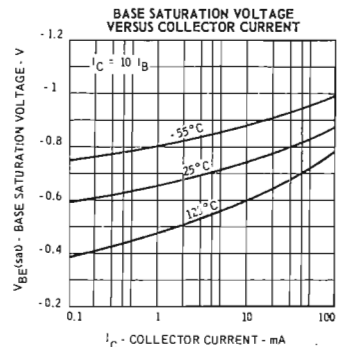
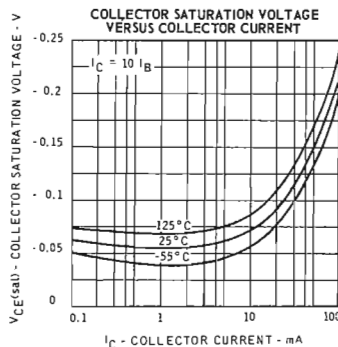
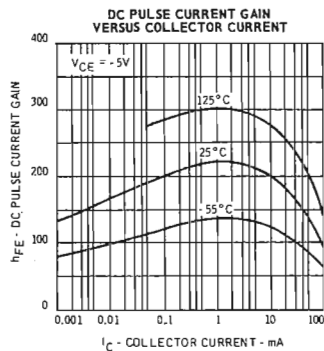
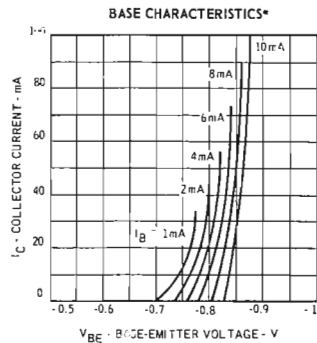
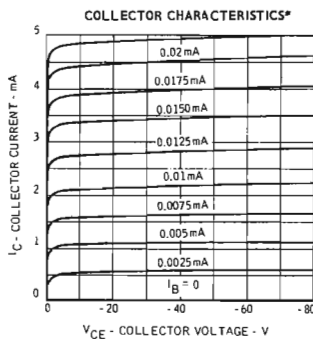
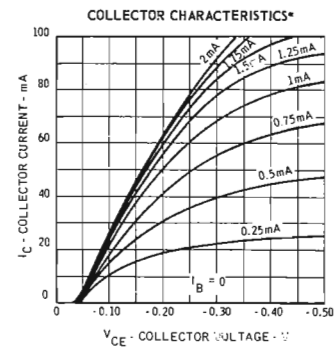


NOTES . All dimensions in mm.
Collector internally connected to case.
Leads are g id-plated Kovar.

NOTES :

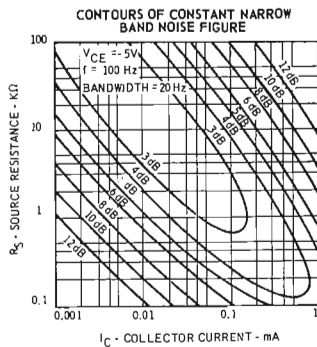
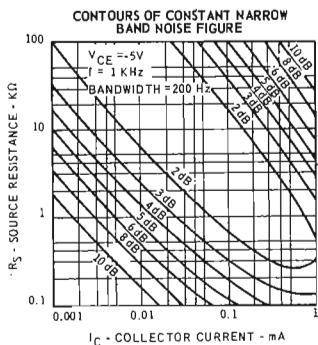
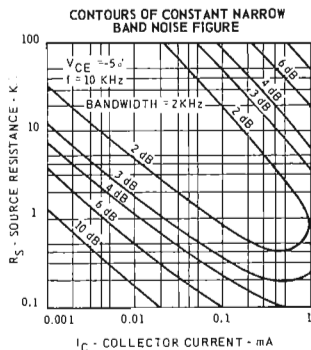
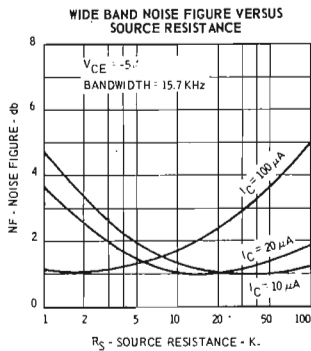
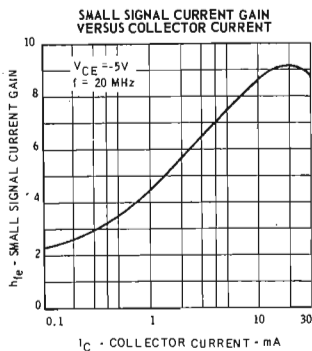
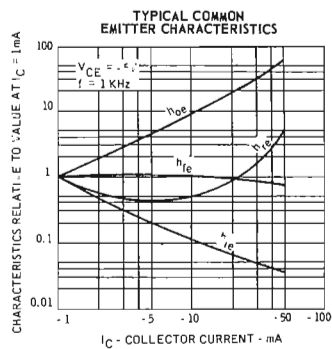
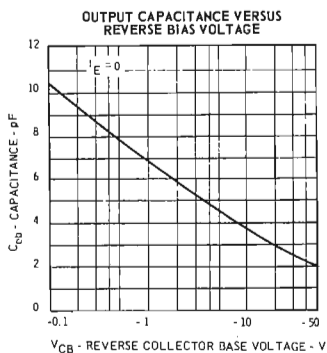
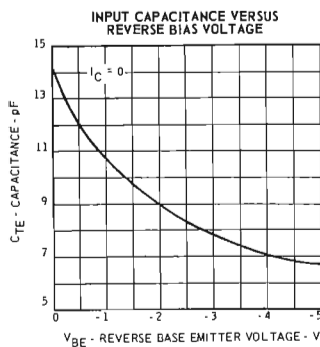
- 1) These ratings are limiting values above which the serviceability of any individual semiconductor device may be impaired.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
- 3) These ratings give a maximum junction temperature of 200°C and junction-to-case thermal resistance of 1.0°C/W (derating factor of $0.9\text{ mW}/^{\circ}\text{C}$), junction-to-ambient thermal resistance of 480°C/W (derating factor of $2.1\text{ mW}/^{\circ}\text{C}$).
- 4) These ratings refer to a high-current point where collector-to-emitter voltage is lowest. For more information send for SGS AR 5.
- 5) Measured under pulse conditions: pulse length $\leq 100\text{ }\mu\text{s}$; duty cycle $\leq 1\%$.
- 6) Typical Power Bandwidth of 3 dB points with 3 dB points at 10 kHz and 10 kHz.
- 7) f_{max} is f_{max} ; R_{S} is $10\text{ }\Omega$; Power Bandwidth of 200 Hz.

TYPICAL ELECTRICAL CHARACTERISTICS (25°C free air temperature unless otherwise noted)



* Single family characteristics on Transistor Curve Tracer.

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