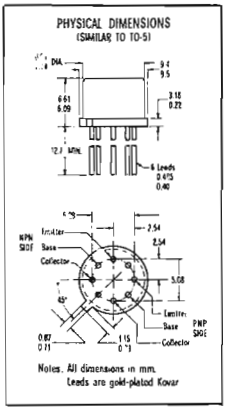
BFX80

LOW-LEVEL, LOW-NOISE COMPLEMENTARY AMPLIFIER

NPN/PNP DIFFUSED SILICON PLANAR TRANSISTORS

GENERAL DESCRIPTION - The BFX80 is a six terminal device containing an NPN/PNP complementary pair of isolated double diffused silicon PLANAR transistors in one hermetically sealed encapsulation. The low level and low noise characteristics make this device particularly suitable for use in logarithmic amplifiers in computers and for many other applications.



ABSOLUTE MAXIMUM RATINGS (Note 1)

Maximum Temperatures

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

Maximum Power Dissipations (Notes 2 and 3)

		One Side	Both Sides
P	Total Dissipation at 25°C Case Temperature	0.8 Watt	1.3 Watt
	at 100°C Case Temperature	0.46 Watt	0.75 Watt
	at 25°C Ambient Temperature	0.4 Watt	0.5 Watt

Maximum Voltages (25°C free air temperature unless otherwise noted)

V_{CBO}	Collector Base Voltage	60 Volts
V_{CEO}	Collector Emitter Voltage (Note 4)	60 Volts
V_{EBO}	Emitter Base Voltage	6 Volts

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

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS	
h_{FE}	DC Current Gain	150	200			I_C = 0.01 mA	V_{CE} = 5 V
h_{FE}	DC Current Gain	150	210			I_C = 0.1 mA	V_{CE} = 5 V
h_{FE}	DC Pulse Current Gain (Note 5)	160	230			I_C = 1 mA	V_{CE} = 5 V
V_{BE} (on)	Base-Emitter On Voltage		0.65	0.8	V	I_C = 1 mA	V_{CE} = 5 V
V_{CE} (sat)	Collector-Emitter Saturation Voltage		0.15	0.35	V	I_C = 1 mA	I_B = 0.1 mA
I_{EBO}	Emitter-Cutoff Current		0.05	10	nA	V_{EB} = 5 V	I_C = 0
I_{CBO}	Collector-Cutoff Current		0.05	10	nA	V_{CB} = 45 V	I_E = 0
I_{CBO} (125°C)	Collector-Cutoff Current		0.05	10	µA	V_{CB} = 45 V	I_E = 0
BV_{CBO}	Collector-Base Breakdown Voltage	60			V	I_C = 0.01 mA	I_E = 0
BV_{EBO}	Emitter-Base Breakdown Voltage	6			V	I_E = 0.01 mA	I_C = 0
V_{CEO} (sust)	Collector-Emitter Sustaining Voltage (Notes 4 and 5)	60			V	I_C = 10 mA	I_B = 0
h_{fe}	High Frequency Current Gain (f = 20 MHz)	2				I_C = 1 mA	V_{CE} = 5 V
C_{ob}	Output Capacitance (f = 1 MHz)		5	6	pF	V_{CB} = 5 V	I_E = 0
C_{TE}	Emitter Transition Capacitance (f = 1 MHz)		11	15	pF	V_{EB} = 0.5 V	I_C = 0
NF	Narrow Band Noise Figure (Note 6)			4	dB	I_C = 0.01 mA	V_{CE} = 5 V