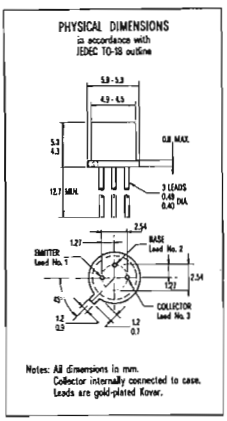
BFX 48

HIGH FREQUENCY AMPLIFIER

PNP DIFFUSED SILICON PLANAR EPITAXIAL TRANSISTOR

GENERAL DESCRIPTION- The BFX 48 is a PNP silicon PLANAR transistor suitable for a wide range of applications including low-noise, low current high gain RF, and wide band pulse amplifiers. Key performance parameters are: typical gain bandwidth product 550 Mc/s, low and high frequency noise figures of 3.5 dB, and typical turn-on and turn-off times of 20 and 95 nsec respectively.



ABSOLUTE MAXIMUM RATINGS (Note 1)

Maximum Temperatures

Storage Temperature	-65°C to + 200°C
Operating Junction Temperature	+200°C Maximum
Lead Temperature (Soldering, 60 sec time limit)	+300°C Maximum

Maximum Power Dissipations

Total Dissipation at 25°C Case Temperature (Notes 2 and 3)	1 Watt
at 25°C Ambient Temperature (Notes 2 and 3)	0.36 Watt

Maximum Voltages and Current

V_{CBO}	Collector to Base Voltage	- 30 Volts
V_{CEO}	Collector to Emitter Voltage (Note 4)	- 30 Volts
V_{EBO}	Emitter to Base Voltage	- 5 Volts
I_C	DC Collector Current	100 mA

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

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS	
h_{FE}	DC Current Gain	40	80			I_C = 10 µA	V_{CE} = - 1 V
h_{FE}	DC Current Gain	70	130			I_C = 100 µA	V_{CE} = - 1 V
h_{FE}	DC Pulse Current Gain (Note 5)	90	160			I_C = 10 mA	V_{CE} = - 1 V
h_{FE}	DC Pulse Current Gain (Note 5)	20	40			I_C = 50 mA	V_{CE} = - 1 V
h_{FE}(-55°C)	DC Pulse Current Gain (Note 5)	30				I_C = 10 mA	V_{CE} = - 1 V
V_{BE} (sat)	Base-Emitter Saturation Voltage			-0.75	V	I_C = 1 mA	I_B = 0.1 mA
V_{BE} (sat)	Base-Emitter Saturation Voltage		-0.77	-0.9	V	I_C = 10 mA	I_B = 1 mA
V_{BE} (sat)	Base-Emitter Saturation Voltage			-1.1	V	I_C = 50 mA	I_B = 5 mA
V_{CE} (sat)	Collector-Emitter Saturation Voltage			-0.13	V	I_C = 1 mA	I_B = 0.1 mA
V_{CE} (sat)	Collector-Emitter Saturation Voltage		-0.1	-0.14	V	I_C = 10 mA	I_B = 1 mA
V_{CE} (sat)	Collector-Emitter Saturation Voltage			-0.3	V	I_C = 50 mA	I_B = 5 mA
I_{CES}	Collector Cutoff Current			15	nA	V_{EB} = 0	V_{CE} = - 20 V
I_{CES}(+125°C)	Collector Cutoff Current			15	µA	V_{EB} = 0	V_{CE} = - 20 V
BV_{CBO}	Collector to Base Breakdown Voltage	-30			V	I_C = 10 µA	I_E = 0
BV_{EBO}	Emitter to Base Breakdown Voltage	-5			V	I_C = 0	I_E = 10 µA
V_{CEO} (sust)	Collector to Emitter Sustaining Voltage (Notes 4 and 5)	-30			V	I_C = 10 mA	I_B = 0
h_{fe}	High Frequency Current Gain (f=100 Mc/s)	4	5.5			I_C = 10 mA	V_{CE} = - 20 V
C_{ob}	Output Capacitance		2.2	3.5	pF	I_E = 0	V_{CB} = 10 V
C_{TE}	Emitter Transition Capacitance		4	5.5	pF	I_C = 0	V_{BE} = +0.5 V
t_{on}	Turn On Time		20	50	nsec	I_C = 50 mA	I_{B1} = 5 mA
t_{off}	Turn Off Time		95	160	nsec	I_C = 50 mA	$I_{B1} = I_{B2}$ = 5 mA
NF	Noise Figure (f = 100 Mc/s)		3.5	6	dB	I_C = 1 mA	V_{CE} = - 5 V
						R_S = 100 Ω	BW = 15 Mc/s
$r_b{}'c_c$	Collector Base Time Constant (f = 80 Mc/s)			40	psec	I_C = 10 mA	V_{CE} = - 20 V