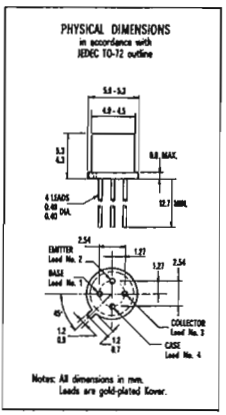
BFW 63

60 MHz SMALL SIGNAL AMPLIFIER

NPN DIFFUSED SILICON PLANAR TRANSISTOR

GENERAL DESCRIPTION - The BFW 63 is an NPN Silicon Planar Transistor which has been designed for low noise, small signal amplifiers. It is suitable for the IF stages of radar and telecommunication systems.



ABSOLUTE MAXIMUM RATINGS (Note 1)

Maximum Temperatures

T_{STG}	Storage Temperature Range	−55°C to 175°C
T_J	Operating Junction Temperature	175°C
T_L	Lead Temperature (Soldering, 10 s time limit)	260°C

Maximum Power Dissipations (Notes 2 and 3)

P_D	Total Dissipation at 25°C Case Temperature	0.215 W
	at 25°C Ambient Temperature	0.15 W

Maximum Voltages (25°C free air temperature)

V_{CBO}	Collector to Base Voltage	40 V
V_{CEO}	Collector to Emitter Voltage (Note 4)	30 V
V_{EBO}	Emitter to Base Voltage	4 V

ELECTRICAL CHARACTERISTICS (25°C free air temperature)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS	
h_{FE}	DC Current Gain (Note 5)	25	70			I_C = 4 mA	V_{CE} = 10 V
V_{BE}	Base-Emitter Voltage		0.73	0.8	V	I_C = 4 mA	V_{CE} = 10 V
I_{CES}	Collector Reverse Current		0.001	0.5	μA	V_{CE} = 10 V	V_{EB} = 0
BV_{CBO}	Collector to Base Breakdown Voltage	40			V	I_C = 100 μA	I_E = 0
BV_{EBO}	Emitter to Base Breakdown Voltage	4			V	I_E = 100 μA	I_C = 0
LV_{CEO}	Collector to Emitter Sustaining Voltage (Notes 4 and 5)	30			V	I_C = 5 mA	I_B = 0
h_{fe}	High Frequency Current Gain	4	6			I_C = 4 mA	V_{CE} = 10 V f = 100 MHz
C_{re}	Reverse Transfer Capacitance		0.2	0.25	pF	I_C = 4 mA	V_{CE} = 10 V f = 1 MHz
NF	Noise Figure		3	5	dB	I_C = 4 mA f = 60 MHz	V_{CE} = 10 V R_S = 200 Ohm
G	Power Gain (neutralized)	30	35		dB	I_C = 4 mA	V_{CE} = 10 V f = 60 MHz
G	Power Gain (unneutralized)		33		dB	I_C = 4 mA stab. factor = 4	V_{CE} = 10 V f = 60 MHz

ELECTRICAL CHARACTERISTICS (25°C free air temperature)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
AGC	Automatic Gain Control Collector Current	8		12	mA	$G = G(I_C = 4\ mA) - 30\ dB$, f = 60 MHz
g_{ie}	Input Conductance		4.5		mmho	$I_C = 4\ mA$, $V_{CE} = 10\ V$, f = 60 MHz
b_{ie}	Input Susceptance		9.5		mmho	$I_C = 4\ mA$, $V_{CE} = 10\ V$, f = 60 MHz
g_{fe}	Transfer Conductonce		103		mmho	$I_C = 4\ mA$, $V_{CE} = 10\ V$, f = 60 MHz
b_{fe}	Transfer Susceptance		48		mmho	$I_C = 4\ mA$, $V_{CE} = 10\ V$, f = 60 MHz
g_{oe}	Output Conductonce		0.1		mmho	$I_C = 4\ mA$, $V_{CE} = 10\ V$, f = 60 MHz
C_{oe}	Output Copacitance		1.35		pF	$I_C = 4\ mA$, $V_{CE} = 10\ V$, f = 60 MHz

NOTES:

(1) These ratings are limiting volues above which the serviceobility 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 operotions.

(3) These ratings give a maximum junction temperoture of 175°C and junction-to-cose thermal resistance of 700°C/W (derating factor of 1.43 mW/°C); junction-to-ambient thermal resistance of 1000°C/W (derating foctor of 1 mW/°C).

(4) This rating refers 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 = 300 μsec; duty cycle = 1%.