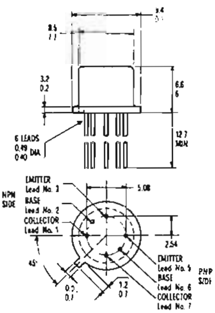
BFX81

HIGH-SPEED COMPLEMENTARY AMPLIFIER

NPN/PNP DIFFUSED SILICON PLANAR EPITAXIAL TRANSISTORS

GENERAL DESCRIPTION - The BFX81 is a six terminal device containing an NPN/PNP complementary pair of double diffused silicon PLANAR epitaxial transistors in one hermetically sealed encapsulation. The high speed characteristics make this device particularly suitable for use in counting and computing complementary circuits.

PHYSICAL DIMENSIONS similar to JEDEC TO-5 outline



Notes. All dimensions in mm. Leads are gold-plated Kovar

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	0.65 Watt	1.1 Watt
	at 100°C Case Temperature	0.37 Watt	0.63 Watt
	at 25°C Ambient Temperature	0.38 Watt	0.5 Watt

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

V_{CBO}	Collector Base Voltage	25 Volts
V_{CEO}	Collector Emitter Voltage (Note 4)	20 Volts
V_{EBO}	Emitter Base Voltage	5 Volts

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

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS	
h_{FE}	DC Pulse Current Gain (Note 5)	30				I_C = 10 mA	V_{CE} = 1 V
h_{FE}	DC Pulse Current Gain (Note 5)	40				I_C = 30 mA	V_{CE} = 1 V
h_{FE}	DC Pulse Current Gain (Note 5)	25				I_C = 100 mA	V_{CE} = 1 V
V_{BE} (sat)	Base-Emitter Saturation Voltage			0.98	V	I_C = 10 mA	I_B = 1 mA
V_{BE} (sat)	Base-Emitter Saturation Voltage			1.2	V	I_C = 30 mA	I_B = 3 mA
V_{BE} (sat)	Base-Emitter Saturation Voltage			1.7	V	I_C = 100 mA	I_B = 10 mA
V_{CE} (sat)	Collector-Emitter Saturation Voltage			0.15	V	I_C = 10 mA	I_B = 1 mA
V_{CE} (sat)	Collector-Emitter Saturation Voltage			0.2	V	I_C = 30 mA	I_B = 3 mA
V_{CE} (sat)	Collector-Emitter Saturation Voltage			0.5	V	I_C = 100 mA	I_B = 10 mA
I_{CBO}	Collector-Cutoff Current			300	nA	V_{CB} = 20 V	I_E = 0
I_{CBO} (125°C)	Collector-Cutoff Current			30	µA	V_{CB} = 20 V	I_E = 0
BV_{CBO}	Collector-Base Breakdown Voltage	25			V	I_C = 100 µA	I_E = 0
BV_{EBO}	Emitter-Base Breakdown Voltage	5			V	I_E = 100 µA	I_C = 0
V_{CEO} (sust)	Collector-Emitter Sustaining Voltage (Notes 4 and 5)	20			V	I_C = 10 mA	I_B = 0
h_{fe}	High Frequency Current Gain (f = 100 MHz)	3.5				I_C = 30 mA	V_{CE} = 10 V
C_{ob}	Output Capacitance (f = 1 MHz)			6	pF	V_{CB} = 5 V	I_E = 0
C_{TE}	Emitter Transition Capacitance (f = 1 MHz)			8	pF	V_{EB} = 0.5 V	I_C = 0
t_{on}	Turn On Time			60	nsec.	I_C = 30 mA	I_{B1} = 1.5 mA
t_{off}	Turn Off Time			90	nsec.	I_C = 30 mA	$I_{B1} = I_{B2}$ = 1.5 mA