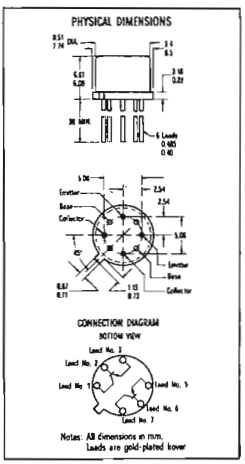
BFY 81

DUAL, HIGH-GAIN, LOW-NOISE, LOW-CURRENT TYPE

NPN DIFFUSED SILICON PLANAR TRANSISTORS

GENERAL DESCRIPTION - The BFY81 is a six terminal device containing two isolated high gain NPN double diffused silicon PLANAR transistors. The SGS-ATES planar process guarantees the stability of the initial match time The good thermal tracking over a wide current and temperature range offers the circuit designer matched transistors with specified performance for differential amplifiers and low level DC amplifiers.



ABSOLUTE MAXIMUM RATINGS (Note 1)

Maximum Temperatures

Storage Temperature	-65°C to + 200°C
Operating Junction Temperature	200°C Maximum
Lead Temperature (Soldering, No Time Limit)	300°C Maximum

Maximum Power Dissipations	One Side Only	Both Sides
Total Dissipation at 25°C Case Temperature (Note 2)	0.8 Watt	1.3 Watt
at 100°C Case Temperature (Note 2)	0.45 Watt	0.75 Watt
at 25°C Ambient Temperature (Note 2)	0.4 Watt	0.5 Watt

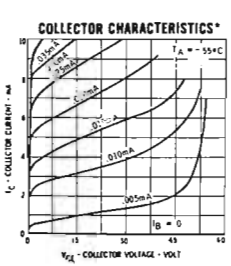
Maximum Voltages

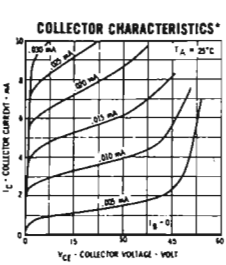
BV_{CBO}	Collector to Base Voltage	45 Volts
LV_{CEO}	Collector to Emitter Voltage	45 Volts
BV_{EBO}	Emitter to Base Voltage	6.0 Volts

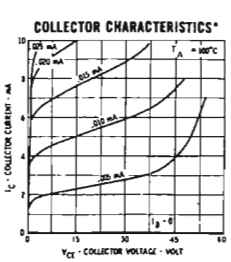
ELECTRICAL CHARACTERISTICS (25°C free air temperature unless otherwise noted)

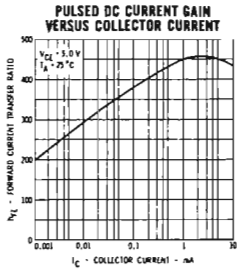
SYMBOL	CHARACTERISTIC	MIN.	MAX.	UNITS	TEST CONDITIONS	
h_{FE}	DC Current Gain	60			I_C = 10 μA	V_{CE} = 5.0 V
h_{FE}	DC Current Gain	100			I_C = 100 μA	V_{CE} = 5.0 V
h_{FE}	DC Current Gain	150			I_C = 1.0 mA	V_{CE} = 5.0 V
h_{FE1}/h_{FE2}	DC Current Gain Ratio	0.8	1.0		I_C = 100 μA	V_{CE} = 5.0 V
V_{BE} (on)	Emitter to Base On Voltage		0.7	V	I_C = 100 μA	V_{CE} = 5.0 V
V_{BE1}-V_{BE2}	Base Emitter Voltage Differential		10	mV	I_C = 100 μA	V_{CE} = 5.0 V
$\Delta(V_{BE1}-V_{BE2})$	Base Emitter Voltage Differential Change		25	μV/°C	I_C = 100 μA	V_{CE} = 5.0 V
V_{CE} (sat)	Collector Saturation Voltage		0.35	V	I_C = 1.0 mA	I_B = 0.1 mA
I_{CBO}	Collector Cutoff Current		10	nA	I_E = 0	V_{CB} = 40 V
I_{CBO}(150°C)	Collector Cutoff Current		10	μA	I_E = 0	V_{CB} = 40 V
I_{EBO}	Emitter Cutoff Current		10	nA	I_C = 0	V_{EB} = 5.0 V
I_{CEO}	Collector to Emitter Cutoff Current		10	nA	I_B = 0	V_{CE} = 5.0 V
BV_{CBO}	Collector to Base Breakdown Voltage	45		V	I_C = 10 μA	I_E = 0
BV_{EBO}	Emitter to Base Breakdown Voltage	6.0		V	I_E = 10 μA	I_C = 0
LV_{CEO}	Collector to Emitter Sustaining Voltage (Note 3)	45		V	I_C = 10 mA	I_B = 0
h_{fe}	High Ftequency Current Gain (f = 30 Mc/s)	2.0			I_C = 500 μA	V_{CE} = 5.0 V
C_{ob}	Output Capacitance		6.0	pF	I_E = 0	V_{CB} = 5.0 V
NF	Noise Figure (Narrow Band) (f=1 Kc/s)		4.0	db	I_C = 10 μA	V_{CE} = 5.0 V

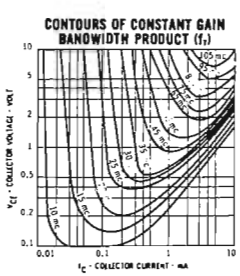
TYPICAL ELECTRICAL CHARACTERISTICS

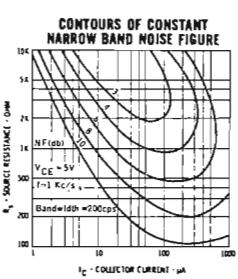


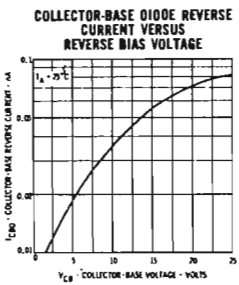


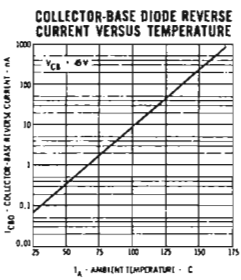


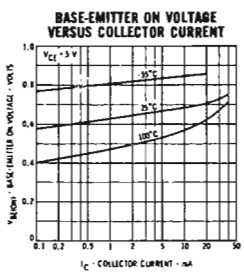


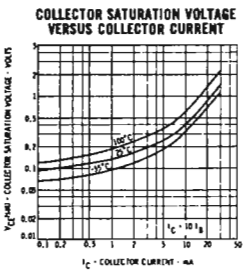


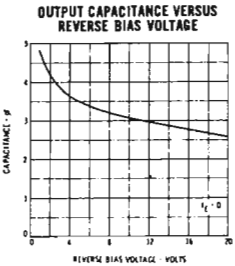


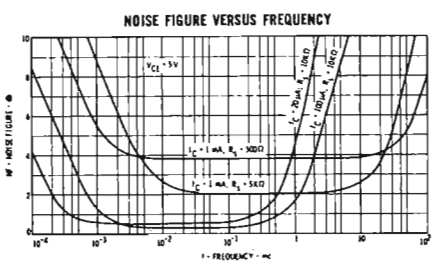












NOTES:

(1) These ratings are limiting values above which the serviceability of any individual semiconductor device may be impaired.

(2) These ratings give a maximum junction temperature of 200°C and junction-to-case thermal resistance of 218°C/Watt for one side and 134°C/Watt for both sides.

(3) Pulse Conditions: length = 300 μsec; duty cycle = 1%.