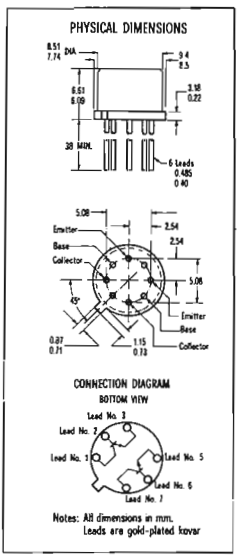
BFY 82

DUAL, HIGH-FREQUENCY TYPE

NPN DIFFUSED SILICON PLANAR TRANSISTORS

GENERAL DESCRIPTION - The BFY82 is a six terminal device containing two isolated high frequency NPN double diffused silicon PLANAR transistors. The SGS-ATES planar process guarantees the stability of the initial match with time. The good thermal tracking over a wide current and temperature range, offers the circuit designer matched transistors with specified performance for differential 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)	0.46 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	60 Volts
LV_{CEO}	Collector to Emitter Voltage	45 Volts
BV_{EBO}	Emitter to Base Voltage	5.0 Volts

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

SYMBOL	CHARACTERISTIC	MIN.	MAX.	UNITS	TEST CONDITIONS	
h_{FE}	DC Pulse Current Gain (Note 3)	50			I_C = 10 mA	V_{CE} = 5.0 V
h_{FE1}/h_{FE2}	DC Current Gain Ratio	0.8	1.0		I_C = 1.0 mA	V_{CE} = 5.0 V
V_{BE} (sat)	Base Saturation Voltage (Note 3)		0.9	V	I_C = 10 mA	I_B = 1.0 mA
V_{CE} (sat)	Collector Saturation Voltage (Note 3)		1.0	V	I_C = 10 mA	I_B = 1.0 mA
V_{BE1}-V_{BE2}	Base Emitter Voltage Differential		15	mV	I_C = 1.0 mA	V_{CE} = 5.0 V
$\Delta(V_{BE1}$-$V_{BE2})$	Base Emitter Voltage Differential Change		25	µV/°C	I_C = 1.0 mA	V_{CE} = 5.0 V
I_{CBO}	Collector Cutoff Current		10	nA	I_E = 0	V_{CB} = 45 V
I_{CBO} (150°C)	Collector Cutoff Current		30	µA	I_E = 0	V_{CB} = 45 V
BV_{CBO}	Collector to Breakdown Voltage	60		V	I_C = 100 µA	I_E = 0
BV_{EBO}	Emitter to Base Breakdown Voltage	5.0		V	I_C = 0	I_E = 100 µA
LV_{CEO}	Collector to Emitter Sustaining Voltage (Note 3)	45		V	I_C = 10 mA	I_B = 0
h_{fe}	High Frequency Current Gain (f = 100 Mc/s)	2.5			I_C = 10 mA	V_{CE} = 15 V
C_{ob}	Output Capacitance		3.5	pF	I_E = 0	V_{CB} = 10 V
C_{TE}	Emitter Transition Capacitance		10	pF	I_C = 0	V_{EB} = 0.5 V

NOTES:

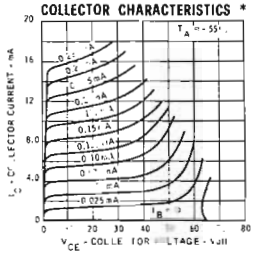
(1) These ratings are limiting values above which the serviceability of any individual semiconductor device may be impaired.

(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.

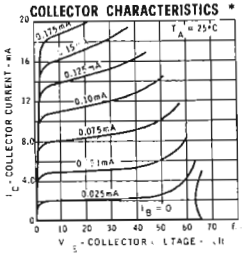
(3) Pulse Conditions: length = 300 µsec; duty cycle = 1%.

TYPICAL ELECTRICAL CHARACTERISTICS

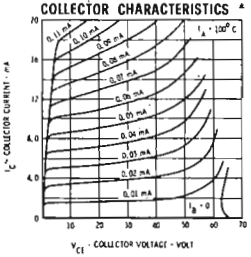
COLLECTOR CHARACTERISTICS *



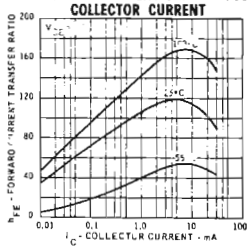
COLLECTOR CHARACTERISTICS *



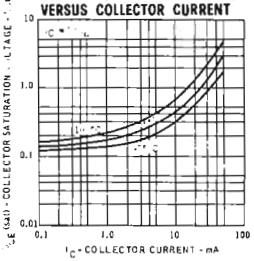
COLLECTOR CHARACTERISTICS *



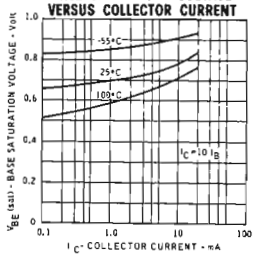
PULSED DC CURRENT GAIN VERSUS COLLECTOR CURRENT



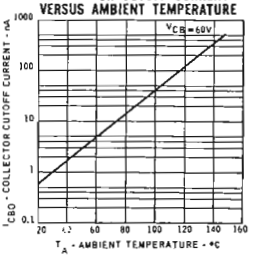
COLLECTOR SATURATION VOLTAGE VERSUS COLLECTOR CURRENT



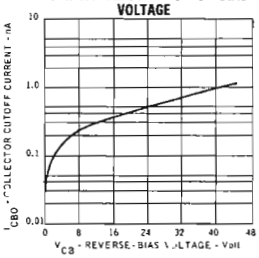
BASE SATURATION VOLTAGE VERSUS COLLECTOR CURRENT



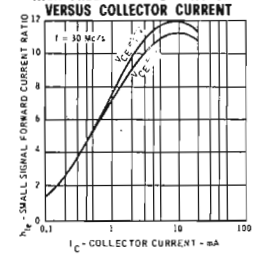
COLLECTOR CUTOFF CURRENT VERSUS AMBIENT TEMPERATURE



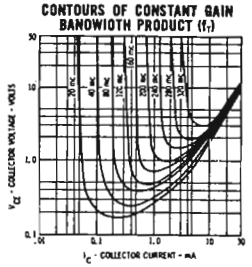
COLLECTOR-BASE REVERSE CURRENT VERSUS REVERSE BIAS VOLTAGE



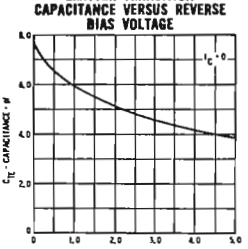
HIGH FREQUENCY CURRENT GAIN VERSUS COLLECTOR CURRENT



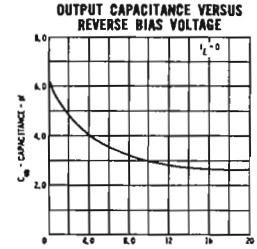
CONTOURS OF CONSTANT GAIN BANDWIDTH PRODUCT (f_T)



EMITTER TRANSITION CAPACITANCE VERSUS REVERSE BIAS VOLTAGE



OUTPUT CAPACITANCE VERSUS REVERSE BIAS VOLTAGE



* Single family characteristics on Transistor Curve Tracer.