

357-595

# BFY 81

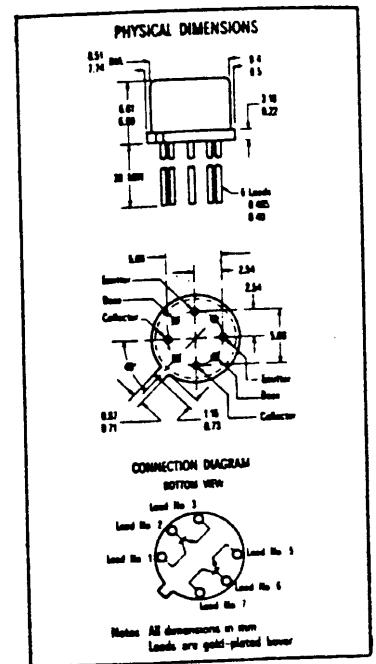
## DUAL, HIGH-GAIN, LOW-NOISE, LOW-CURRENT TYPE

### 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 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)

<b>Maximum Temperatures</b>		
Storage Temperature		-65°C to + 200°C
Operating Junction Temperature		200°C Maximum
Lead Temperature (Soldering, No Time Limit)		300°C Maximum
<b>Maximum Power Dissipations</b>		
Total Dissipation at 25°C Case Temperature (Note 2)	One Side Only	Both Sides
at 100°C Case Temperature (Note 2)	0.8 Watt	1.3 Watt
at 25°C Ambient Temperature (Note 2)	0.45 Watt	0.75 Watt
	0.4 Watt	0.5 Watt
<b>Maximum Voltages</b>		
BV <sub>CB0</sub> Collector to Base Voltage		45 Volts
LV <sub>CEO</sub> Collector to Emitter Voltage		45 Volts
BV <sub>EBO</sub> 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			$I_C = 10 \mu A$ $V_{CE} = 5.0 V$
$h_{FE}$	DC Current Gain	100			$I_C = 100 \mu A$ $V_{CE} = 5.0 V$
$h_{FE}$	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		$I_C = 100 \mu A$ $V_{CE} = 5.0 V$
$V_{BE(\infty)}$	Emitter to Base On Voltage		0.7	V	$I_C = 100 \mu A$ $V_{CE} = 5.0 V$
$V_{BE1} - V_{BE2}$	Base Emitter Voltage Differential		10	mV	$I_C = 100 \mu A$ $V_{CE} = 5.0 V$
$\Delta(V_{BE1} - V_{BE2})$	Base Emitter Voltage Differential Change		25	$\mu V/^\circ C$	$I_C = 100 \mu A$ $V_{CE} = 5.0 V$
$V_{CE(sat)}$	Collector Saturation Voltage		0.35	V	$I_C = 1.0 mA$ $I_B = 0.1 mA$
$I_{CB0}$	Collector Cutoff Current		10	nA	$I_E = 0$ $V_{CB} = 40 V$
$I_{CB0(150^\circ C)}$	Collector Cutoff Current		10	$\mu A$	$I_E = 0$ $V_{CB} = 40 V$
$I_{EBO}$	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 <sub>CB0</sub>	Collector to Base Breakdown Voltage	45		V	$I_C = 10 \mu A$ $I_E = 0$
BV <sub>EBO</sub>	Emitter to Base Breakdown Voltage	6.0		V	$I_E = 10 \mu A$ $I_C = 0$
LV <sub>CEO</sub>	Collector to Emitter Sustaining Voltage (Note 3)	45		V	$I_C = 10 mA$ $I_B = 0$
$h_{fe}$	High Frequency Current Gain ( $f = 30 Mc/s$ )	2.0			$I_C = 500 \mu A$ $V_{CE} = 5.0 V$
$C_{ob}$	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	$I_C = 10 \mu A$ $V_{CE} = 5.0 V$