New Jersey Semi-Conductor Products, Inc.

20 STERN AVE.
SPRINGFIELD, NEW JERSEY 07081
U.S.A.

TELEPHONE: (973) 376-2922
(212) 227-6005
FAX: (973) 376-8960

SILICON DUAL MATCHED NPN TRANSISTORS

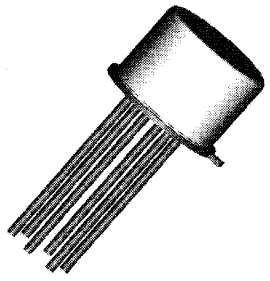
BFY81

Dual Silicon Matched Planar Transistors

Hermetic TO-77 (MO-002AF) Metal Package.

Ideally Suited For Differential And Low Level Dc Amplifiers

Screening Options Available.



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise stated)

V_{CBO}	Collector – Base Voltage	45V	
V_{CEO}	Collector – Emitter Voltage	45V	
V_{EBO}	Emitter – Base Voltage	6V	
I_C	Continuous Collector Current	50mA	
		One Side	Both Sides
P_D	Total Power Dissipation at T_A = 25°C	400mW	500mW
	Derate Above 25°C	2.3mW/°C	2.9mW/°C
P_D	Total Power Dissipation at T_C = 25°C	800mW	1.3W
	Derate Above 25°C	4.6mW/°C	7.4mW/°C
T_J	Junction Temperature Range	-65 to +200°C	
T_{stg}	Storage Temperature Range	-65 to +200°C	

THERMAL PROPERTIES

Symbols	Parameters	One Side Max.	Both Sides Max.	Units
$R_{\theta JA}$	Thermal Resistance, Junction To Ambient	437	350	°C/W
$R_{\theta JC}$	Thermal Resistance, Junction To Case	219	135	°C/W

Quality Semi-Conductors

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise stated) Per Side

Symbols	Parameters	Test Conditions		Min.	Typ.	Max.	Units
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 10μA	I_E = 0	45			V
$V_{(BR)CEO}$ [1]	Collector-Emitter Breakdown Voltage	I_C = 10mA	I_B = 0	45			
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = 10μA	I_C = 0	6			
I_{CBO}	Collector Cut-Off Current	V_{CB} = 40V	I_E = 0			10	nA
			T_A = 150°C			10	μA
I_{EBO}	Emitter-Cut-Off Current	V_{EB} = 5V	I_C = 0			10	nA
I_{CEO}	Collector-Cut-Off Current	V_{CE} = 5V	I_B = 0			10	
$V_{CE(sat)}$ [1]	Collector-Emitter Saturation Voltage	I_C = 1.0mA	I_B = 0.1mA			0.35	V
$V_{BE(on)}$	Base-Emitter On Voltage	I_C = 100μA	V_{CE} = 5V			0.7	
h_{FE} [1]	Forward-current transfer ratio	I_C = 10μA	V_{CE} = 5V	60			
		I_C = 100μA	V_{CE} = 5V	100			
		I_C = 1.0mA	V_{CE} = 5V	150			

ELECTRICAL MATCHING CHARACTERISTICS

$\frac{h_{FE1}}{h_{FE2}}$ [2]	Forward-current transfer ratio (gain ratio)	I_C = 100μA	V_{CE} = 5V	0.8		1.0	
$\lvert V_{BE1}-V_{BE2}\rvert$	Base-Emitter Voltage Differential	I_C = 100μA	V_{CE} = 5V			10	mV
$\lvert\Delta(V_{BE1}-V_{BE2})\Delta T_A\rvert$ [3]	Base-Emitter Voltage Differential Change Due To Temperature	I_C = 100μA	V_{CE} = 5V			25	μV/°C

DYNAMIC CHARACTERISTICS

$\lvert h_{fe}\rvert$	Small signal forward-current transfer ratio	I_C = 500μA f = 30MHz	V_{CE} = 5V	2			
C_{obo}	Output Capacitance	V_{CB} = 5V f = 1.0MHz	I_E = 0			6	pF
N_F [3]	Noise Figure	I_C = 10μA f = 1.0KHz	V_{CE} = 5V			4	dB