BFY81

CASE 654-07, STYLE 1

DUAL AMPLIFIER TRANSISTOR

NPN SILICON

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MAXIMUM RATINGS

Rating	Symbol	Value		Unit
Collector-Emitter Voltage	V_{CEO}	45		Vdc
Collector-Base Voltage	V_{CBO}	45		Vdc
Emitter-Base Voltage	V_{EBO}	6		Vdc
Collector Current – Continuous	I_C	30		mAdc
		One Die	**Both Die**	
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	575 3.29	625 3.57	mW mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	1.8 10.3	2.5 14.3	Watts mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−65 to +200		°C

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Sustaining Voltage(1)	$V_{CEO(sus)}$	45	—	Vdc
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	45	—	Vdc
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6	—	Vdc
Collector Cutoff Current (I_E = 0, V_{CB} = 40 Vdc) (I_E = 0, V_{CB} = 40 Vdc, T_A = 150°C)	I_{CBO}		10 10	nAdc µAdc
Emitter Cutoff Current (I_C = 0, V_{EB} = 5.0 Vdc)	I_{EBO}		10	nAdc
Collector to Emitter Cutoff Current (V_{CE} = 5.0 Vdc, I_B = 0)	I_{CEO}		10	nAdc
ON CHARACTERISTICS				
DC Current Gain (I_C = 10 µA, V_{CE} = 5.0 Vdc) (I_C = 100 µA, V_{CE} = 5.0 Vdc) (I_C = 1.0 mA, V_{CE} = 5.0 Vdc)	h_{FE}	60 100 150	— — —	— — —
Collector-Emitter Saturation Voltage (I_C = 1.0 mAdc, I_B = 0.1 mAdc)	$V_{CE(sat)}$	—	0.35	Vdc
Base-Emitter ON Voltage (I_C = 100 µAdc, V_{CE} = 5.0 Vdc)	$V_{BE(ON)}$	—	0.7	Vdc
SMALL-SIGNAL CHARACTERISTICS				
Current-Gain – Bandwidth Product (I_C = 500 µAdc, V_{CE} = 5.0 Vdc, f = 30 MHz)	f_T	60	—	MHz
Output Capacitance (V_{CB} = 5.0 Vdc, I_E = 0, f = 140 kHz)	C_{obo}	—	6.0	pF
Noise Figure (I_C = 10 µAdc, V_{CE} = 5.0 Vdc, R_S = 2 kohms, f = 1 kHz)	NF	—	4.0	dB
MATCHING CHARACTERISTICS				
DC Current Gain Ratio(2) (I_C = 100 µAdc, V_{CE} = 5.0 Vdc)	h_{FE1}/h_{FE2}	0.8	1	—
Base-Emitter Voltage Differential (I_C = 100 µAdc, V_{CE} = 5.0 Vdc)	$\lvert V_{BE1}-V_{BE2}\rvert$	—	10	mVdc
Base-Emitter Voltage Differential Gradient (I_C = 100 µAdc, V_{CE} = 5 Vdc, T_A = −55°C to +125°C)	$\frac{\Delta(V_{BE1}-V_{BE2})}{\Delta T_A}$	—	25	µV/°C

(1) Pulse Test: Pulse Width ≤ 300 µs, Duty Cycle ≤ 2.0%.
(2) Lowest h_{FE} reading is taken as h_{FE1} for this ratio.