BFY84

CASE 654-07

DUAL AMPLIFIER TRANSISTOR

NPN SILICON

MAXIMUM RATINGS

Rating	Symbol	Value		Unit
Collector-Emitter Voltage	V_{CEO}	12		Vdc
Collector-Base Voltage	V_{CBO}	30		Vdc
Emitter-Base Voltage	V_{EBO}	3		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)	(I_C = 3.0 mA, I_B = 0)	$V_{CEO(sus)}$	12	—	Vdc
Collector-Base Breakdown Voltage	(I_C = 1.0 μA, I_E = 0)	$V_{(BR)CBO}$	30	—	Vdc
Emitter-Base Breakdown Voltage	(I_E = 10 μA, I_C = 0)	$V_{(BR)EBO}$	3.0	—	Vdc
Collector Cutoff Current	(V_{CB} = 15 Vdc, I_E = 0) (V_{CB} = 15 Vdc, I_E = 0, T_A = 150°C)	I_{CBO}	— —	10 1	nAdc μAdc
ON CHARACTERISTICS					
DC Current Gain	(I_C = 3.0 mAdc, V_{CE} = 1 Vdc)	h_{FE}	20	—	—
Collector-Emitter Saturation Voltage	(I_C = 10 mAdc, I_B = 1.0 mAdc)	$V_{CE(sat)}$	—	0.4	Vdc
Base-Emitter Saturation Voltage	(I_C = 10 mAdc, I_B = 1.0 mAdc)	$V_{BE(sat)}$	—	1.0	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain – Bandwidth Product	(I_C = 4 mAdc, V_{CE} = 10 Vdc, f = 100 MHz)	f_T	600	—	MHz
Output Capacitance	(V_{CB} = 0 Vdc, I_E = 0, f = 140 kHz)	C_{obo}	—	3.0	pF
Output Capacitance	(V_{CB} = 10 Vdc, I_E = 0, f = 140 kHz)	C_{obo}	—	1.7	pF
Input Capacitance	(V_{BE} = 0.5 Vdc, I_C = 0, f = 140 kHz)	C_{TE}	—	2.0	pF
Noise Figure	(I_C = 1 mA, V_{CE} = 6.0 Vdc, R_S = 0.4 kohms, f = 60 MHz)	NF	—	6.0	dB
MATCHING CHARACTERISTICS					
DC Current Gain Ratio(2)	(I_C = 3.0 mAdc, V_{CE} = 1.0 Vdc)	h_{FE1}/h_{FE2}	0.8	1	–
Base-Emitter Voltage Differential	(I_C = 3.0 mAdc, V_{CE} = 1.0 Vdc)	$\lvert V_{BE1}-V_{BE2}\rvert$	—	15	mVdc
Base-Emitter Voltage Differential Gradient (I_C = 3.0 mAdc, V_{CE} = 1 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.