BFX36

CASE 654-07, STYLE 1

DUAL AMPLIFIER TRANSISTOR

PNP SILICON

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MAXIMUM RATINGS

Rating	Symbol	Value		Unit
Collector-Emitter Voltage	V_{CEO}	60		Vdc
Collector-Base Voltage	V_{CBO}	60		Vdc
Emitter-Base Voltage	V_{EBO}	6		Vdc
Collector Current – Continuous	I_C	100		mAdc
		One Die	Both Die	
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	400	600	mW mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	0.8	1.3	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 = 5 mA, I_B = 0)	$V_{CEO(sus)}$		60	Vdc
Collector-Base Breakdown Voltage	(I_C = 10 μA, I_E = 0)	$V_{(BR)CBO}$		60	Vdc
Emitter-Base Breakdown Voltage	(I_E = 10 μA, I_C = 0)	$V_{(BR)EBO}$		6	Vdc
Collector Cutoff Current	(V_{CB} = 50 V, I_E = 0) (V_{CB} = 50 V, I_E = 0, T_A = 125°C)	I_{CBO}		10 10	nAdc μAdc
Emitter Cutoff Current	(V_{EB} = 4 V, I_C = 0)	I_{EBO}		10	nAdc
ON CHARACTERISTICS					
DC Current Gain	(I_C = 1 μAdc, V_{CE} = 5 V) (I_C = 10 μAdc, V_{CE} = 5 Vdc) (I_C = 100 μAdc, V_{CE} = 5 Vdc) (I_C = 1 mAdc, V_{CE} = 5 Vdc) (I_C = 50 mAdc, V_{CE} = 5 Vdc) (I_C = 10 μAdc, V_{CE} = 5 Vdc, T_A = −55°C)	h_{FE}	60 100 100 100 90 40	— 300 — — — —	— — — — — —
Collector-Emitter Saturation Voltage Base-Emitter Saturation Voltage	(I_C = 10 mAdc, I_B = 0.5 mAdc)	$V_{CE(sat)}$ $V_{BE(sat)}$	— —	0.25 0.9	Vdc
Collector-Emitter Saturation Voltage Base-Emitter Saturation Voltage	(I_C = 50 mAdc, I_R = 5 mAdc)	$V_{CE(sat)}$ $V_{BE(sat)}$	— —	0.4 0.95	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain – Bandwidth Product	(I_C = 1 mAdc, V_{CE} = 5 Vdc, f = 20 MHz)	f_T	40	—	MHz
Output Capacitance	(V_{CB} = 5 Vdc, I_E = 0, f = 140 kHz)	C_{obo}	—	6	pF
Input Impedance	(I_C = 1 mAdc, V_{CE} = 5 Vdc, f = 1 kHz)	h_{ie}	2.5	20	kohm
Voltage Feedback Ratio	(I_C = 1 mAdc, V_{CE} = 5 Vdc, f = 1 kHz)	h_{re}	—	10	× 10^{-4}
Output Admittance	(I_C = 1 mAdc, V_{CE} = 5 Vdc, f = 1 kHz)	h_{oe}	5	50	μmhos
Noise Figure (3)	(I_C = 20 μAdc, V_{CE} = 5 Vdc, R_S = 10 kohms, f = 1 kHz)	NF	—	3	dB
Noise Figure (4)	(I_C = 20 μAdc, V_{CE} = 5 Vdc, R_S = 10 kohms, f = 1 kHz)	NF	—	10	dB
MATCHING CHARACTERISTICS					
DC Current Gain Ratio(2)	(I_C = 100 μAdc, V_{CE} = 5 Vdc)	h_{FE1}/h_{FE2}	0.9	—	—
Base-Emitter Voltage Differential	(I_C = 100 μAdc, V_{CE} = 5 Vdc)	$\lvert V_{BE1}-V_{BE2}\rvert$	—	3	mVdc
Base-Emitter Voltage Differential Gradient (I_C = 100 μAdc, V_{CE} = 5 Vdc, T_A = −55°C to +125°C)		$\frac{\Delta(V_{BE1}-V_{BE2})}{\Delta T_A}$	—	10	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.
(3) BW = 200 Hz
(4) BW = 20 Hz