BF367

CASE 29-02, STYLE 2
TO-92 (TO-226AA)

VHF TRANSISTOR

NPN SILICON

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	30	Vdc
Collector-Base Voltage	V_{CBO}	40	Vdc
Emitter-Base Voltage	V_{EBO}	4.0	Vdc
Collector Current – Continuous	I_C	25	mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	350 2.8	mW mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	1.0 8.0	Watt mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−55 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	125	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JC}$	357	°C/W

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

Characteristic	Symbol	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage (I_C = 1.0 mAdc, I_B = 0)	$V_{(BR)CEO}$	30	—	—	Vdc
Collector-Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)	$V_{(BR)CBO}$	40	—	—	Vdc
Emitter-Base Breakdown Voltage (I_E = 100 μAdc, I_C = 0)	$V_{(BR)EBO}$	4.0	—	—	Vdc
Collector Cutoff Current (V_{CB} = 10 Vdc, I_E = 0)	I_{CBO}	—	—	50	nAdc
ON CHARACTERISTICS					
DC Current Gain (I_C = 4.0 mAdc, V_{CE} = 5.0 Vdc)	h_{FE}	27	35	200	—
Collector-Emitter Saturation Voltage (I_C = 10 mAdc, I_B = 5.0 mAdc)	$V_{CE(sat)}$	—	1.5	3.0	Vdc
Base-Emitter On Voltage (I_C = 4 mAdc, V_{CE} = 10 Vdc)	$V_{BE(on)}$	—	0.75	0.9	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Current Gain–Bandwidth Product (I_C = 4.0 mAdc, V_{CE} = 10 Vdc, f = 100 MHz)	f_T	300	440	—	MHz
Feedback Capacitance (Common Emitter) (V_{CE} = 10 Vdc, I_E = 1 mA, f = 1.0 MHz)	C_{re}	—	0.2	0.22	pF
Noise Figure (Figure 3) ($I_E \approx$ 4.0 mAdc, $V_{CC} \approx$ 10 Vdc, V_{AGC = 2.75 Vdc, R_S = 50 Ohms, f = 35 MHz)	N_f	—	3.0	—	dB
Common-Emitter Amplifier Power Gain (Figure 3) ($I_E \approx$ 4.0 mAdc, $V_{CC} \approx$ 12 Vdc, V_{AGC = 2.75 Vdc, R_S = 50 Ohms, f = 35 MHz)	G_{pe}	—	25	—	dB
Forward AGC Voltage (Figure 3) (Gain Reduction = 30 dB, R_S = 50 Ohms, f = 35 MHz)	V_{AGC}	—	5.5	—	Vdc

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

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TYPICAL ADMITTANCE PARAMETERS (V_{CE} = 10 Vdc, I_C = 4.0 mAdc, f = 35 MHz)

Input Conductance	g_{ie}	—	5.0	—	mmhos
Input Capacitance	C_{ie}	—	30	—	pF
Forward Transfer Admittance Magnitude	$\|Y_{fe}\|$	—	100	—	mmhos
Forward Transfer Admittance Phase Angle	$\varnothing_{fe}$	—	19	—	Degrees
Feedback Capacitance	C_{re}	—	0.2	—	pF
Output Conductance	g_{oe}	—	18	—	μmhos
Output Capacitance	C_{oe}	—	1.3	—	pF
Maximum Unilateralized Power Gain $G_{um} = \frac{\|Y_{fe}\|^2}{4\, g_{ie}\, g_{oe}}$	G_{um}	—	41	—	dB

V_{CC} = 12 Vdc, R_S = 50 Ohms, f = 35 MHz, See Figure 3

FIGURE 1 – POWER GAIN

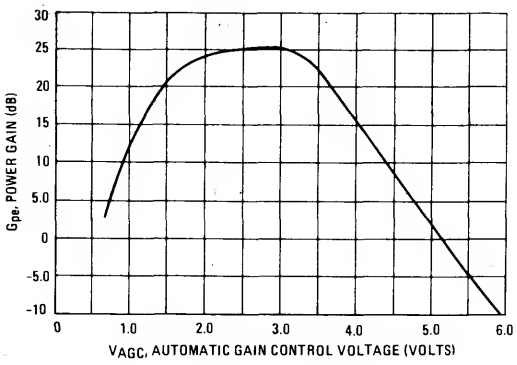


FIGURE 2 – NOISE FIGURE

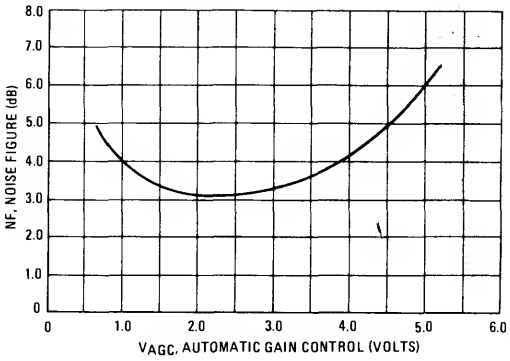
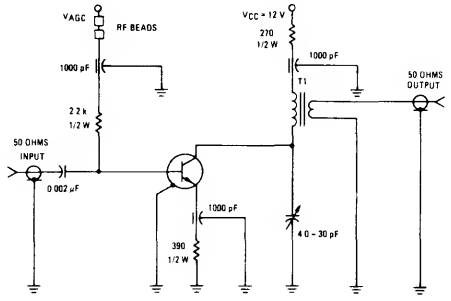


FIGURE 3 – 35 MHz FUNCTIONAL TEST CIRCUIT (UNNEUTRALIZED)



T_1 40/100 wire.
Primary 20 turns.
Secondary 3 turns.
Variable core.