MRF607

CASE 79-02, STYLE 1
TO-39 (TO-205AD)

HIGH FREQUENCY TRANSISTOR

NPN SILICON

MAXIMUM RATINGS

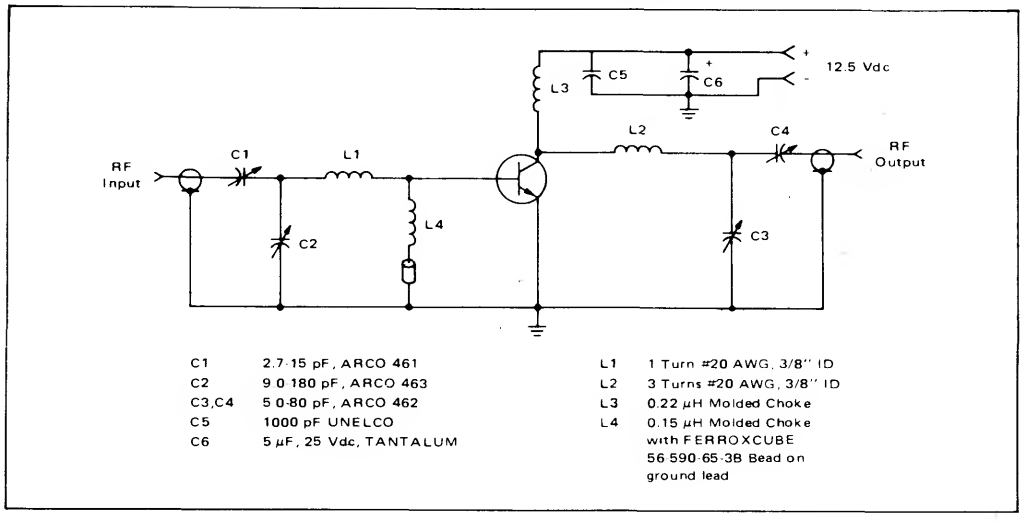
Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	16	Vdc
Collector-Base Voltage	V_{CBO}	36	Vdc
Emitter-Base Voltage	V_{EBO}	4.0	Vdc
Collector Current — Continuous	I_C	0.33	Adc
Total Device Dissipation @ T_C = 75°C(1) Derate above 75°C	P_D	3.5 28	Watts mW/°C
Storage Temperature	T_{stg}	−65 to +200	°C

(1) These devices are designed for RF operation. The total device dissipation rating applies only when the devices are operated as class B or C RF amplifiers.

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage (I_C = 25 mAdc, I_B = 0)	$V_{(BR)CEO}$	16	—	Vdc
Collector-Emitter Breakdown Voltage (I_C = 25 mAdc, V_{BE} = 0)	$V_{(BR)CES}$	36	—	Vdc
Emitter-Base Breakdown Voltage (I_E = 0.5 mAdc, I_C = 0)	$V_{(BR)EBO}$	4.0	—	Vdc
Collector Cutoff Current (V_{CE} = 10 Vdc, I_B = 0)	I_{CEO}	—	0.3	mAdc
ON CHARACTERISTICS				
DC Current Gain (I_C = 50 mAdc, V_{CE} = 5.0 Vdc)	h_{FE}	20	150	—
SMALL SIGNAL CHARACTERISTICS				
Output Capacitance (V_{CB} = 12 Vdc, I_E = 0, f = 1.0 MHz)	C_{obo}	—	15	pF
FUNCTIONAL TEST (FIGURE 1)				
Common-Emitter Amplifier Power Gain (P_{out} = 1.75 W, V_{CC} = 12.5 Vdc, f = 175 MHz)	G_{PE}	11.5	—	dB
Collector Efficiency (P_{out} = 1.75 W, V_{CC} = 12.5 Vdc, f = 175 MHz)	η	50	—	%

FIGURE 1 – 175 MHz TEST CIRCUIT SCHEMATIC



C1	2.7-15 pF, ARCO 461	L1	1 Turn #20 AWG, 3/8" ID
C2	9.0-180 pF, ARCO 463	L2	3 Turns #20 AWG, 3/8" ID
C3,C4	5.0-80 pF, ARCO 462	L3	0.22 μH Molded Choke
C5	1000 pF UNELCO	L4	0.15 μH Molded Choke with FERROXCUBE 56-590-65-3B Bead on ground lead
C6	5 μF, 25 Vdc, TANTALUM		

TYPICAL PERFORMANCE DATA

FIGURE 2 – OUTPUT POWER versus FREQUENCY

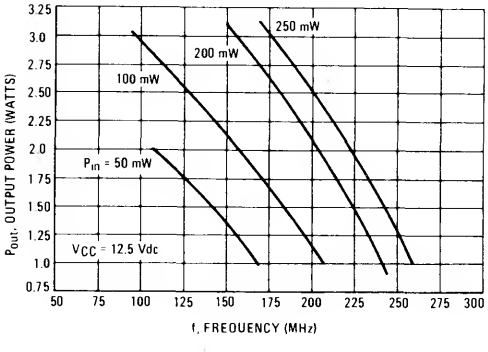


FIGURE 3 – OUTPUT POWER versus INPUT POWER

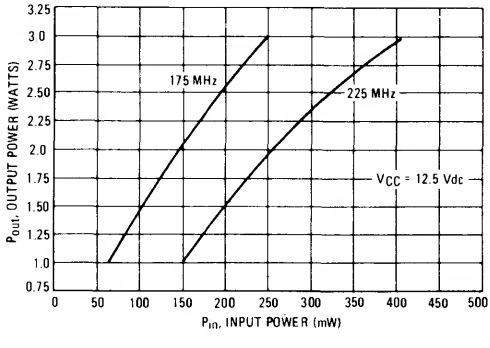


FIGURE 4 – OUTPUT POWER versus SUPPLY VOLTAGE

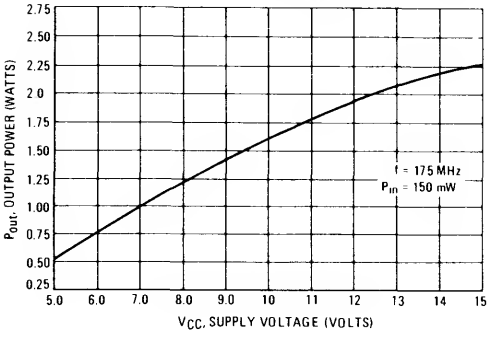


FIGURE 5 – SERIES EQUIVALENT IMPEDANCE PARAMETERS