New Jersey Semi-Conductor Products, Inc.

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MRF607

The RF Line

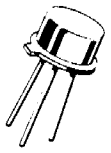
1.75 W — 175 MHz

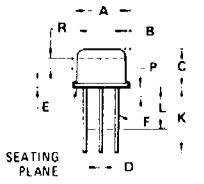
RF POWER
TRANSISTOR
NPN SILICON

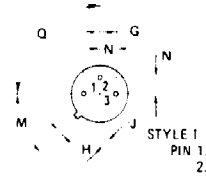
NPN SILICON RF POWER TRANSISTOR

. . . designed for amplifier, frequency multiplier, or oscillator applications in military, mobile, marine and citizens band equipment. Suitable for use as output driver or pre-driver stages in VHF and UHF equipment.

- Specified 12.5 Volt, 175 MHz Characteristics –
  Output Power = 1.75 Watts
  Minimum Gain = 11.5 dB
  Efficiency = 50%
- Characterized through 225 MHz







STYLE 1
PIN 1. EMITTER
2. BASE
3. COLLECTOR

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}	3.5	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 Range	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.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.89	9.40	0.350	0.370
B	8.00	8.51	0.315	0.335
C	6.10	6.60	0.240	0.260
D	0.406	0.533	0.016	0.021
E	0.229	3.18	0.009	0.125
F	0.406	0.483	0.016	0.019
G	4.83	5.33	0.190	0.210
H	0.711	0.864	0.028	0.034
J	0.737	1.02	0.029	0.040
K	12.70	–	0.500	–
L	6.35		0.250	–
M	45° NOM		45° NOM	
P	–	1.27	–	0.050
Q	90° NOM		90° NOM	
R	2.54	–	0.100	–

CASE 79-02
TO-39
All JEDEC notes and dimensions apply.

Quality Semi-Conductors

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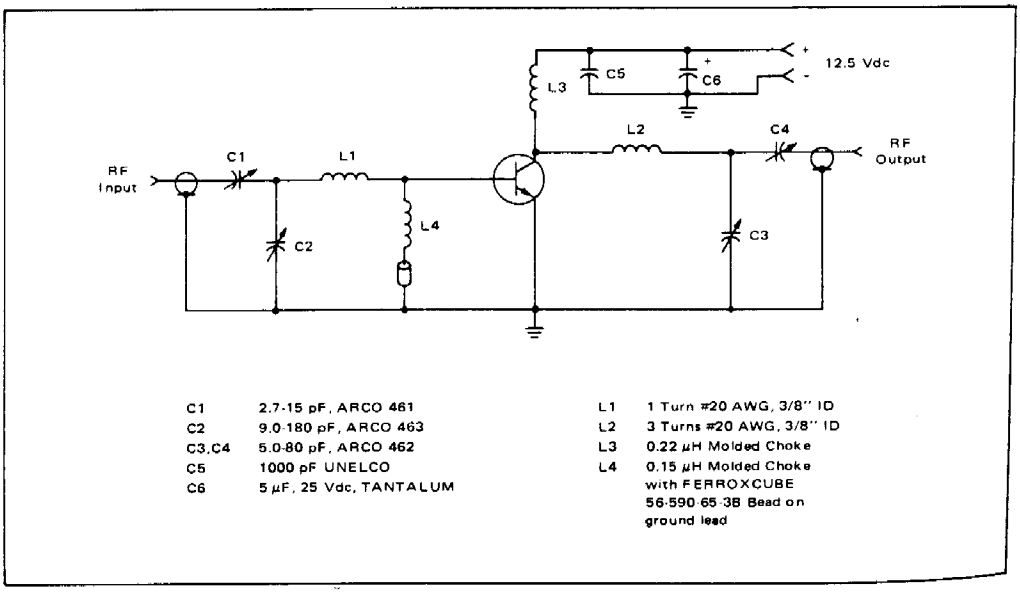
ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted.)

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)	$V_{(BR)EBO}$	3.5	–	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	–
DYNAMIC CHARACTERISTICS				
Output Capacitance (V_{CB} = 12 Vdc, I_E = 0, f = 1.0 MHz)	C_{ob}	–	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		