

**The RF Line
NPN Silicon
RF Power Transistor**

... designed for 12.5 Volt VHF large-signal power amplifier applications required in commercial and industrial equipment operating to VHF frequencies.

- Specified 12.5 Volt, 175 MHz Characteristics —
 - Output Power = 40 W
 - Power Gain = 4.5 dB Min
 - Efficiency = 70% Min

MRF224

**40 W, 175 MHz
RF POWER
TRANSISTOR
NPN SILICON**

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V _{CEO}	18	Vdc
Collector-Base Voltage	V _{CBO}	36	Vdc
Emitter-Base Voltage	V _{EBO}	4.0	Vdc
Collector Current — Continuous	I _C	7.0	Adc
Total Device Dissipation @ T _C = 25°C (2) Derate above 25°C	P _D	80 0.46	Watts W/°C
Storage Temperature Range	T _{stg}	-65 to +200	°C
Stud Torque (1)	—	6.5	in. lb.

CASE 211-07.

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

Characteristic	Symbol	Min	Typ	Max	Unit
----------------	--------	-----	-----	-----	------

OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage (I _C = 100 mA _{dc} , I _E = 0)	V _{(BR)CEO}	18	—	—	Vdc
Collector-Emitter Breakdown Voltage (I _C = 20 mA _{dc} , V _{BE} = 0)	V _{(BR)CES}	36	—	—	Vdc
Emitter-Base Breakdown Voltage (I _E = 10 mA _{dc} , I _C = 0)	V _{(BR)EBO}	4.0	—	—	Vdc
Collector Cutoff Current (V _{CE} = 15 Vdc, V _{BE} = 0, T _C = +55°C)	I _{CES}	—	—	10	mA _{dc}
Collector Cutoff Current (V _{CB} = 15 Vdc, I _E = 0)	I _{CBO}	—	—	2.5	mA _{dc}

ON CHARACTERISTICS

DC Current Gain (I _C = 1.0 Adc, V _{CE} = 5.0 Vdc)	h _{FE}	5.0	—	—	—
--	-----------------	-----	---	---	---

DYNAMIC CHARACTERISTICS

Output Capacitance (V _{CB} = 15 Vdc, I _E = 0, f = 0.1 MHz)	C _{ob}	—	170	200	pF
---	-----------------	---	-----	-----	----

FUNCTIONAL TESTS

Common-Emitter Amplifier Power Gain (P _{out} = 40 W, V _{CC} = 12.5 Vdc, f = 175 MHz)	G _{PE}	4.5	—	—	dB
Collector Efficiency (P _{out} = 40 W, V _{CC} = 12.5 Vdc, f = 175 MHz)	η	70	—	—	%

NOTES:

- For repeated assembly use 5 in. lb.
- These devices are designed for RF operation. The total device dissipation rating applies only when the devices are operated as RF amplifiers.



NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.