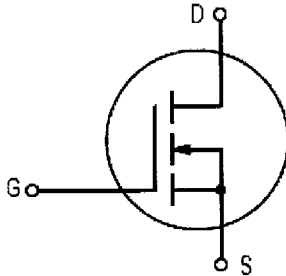
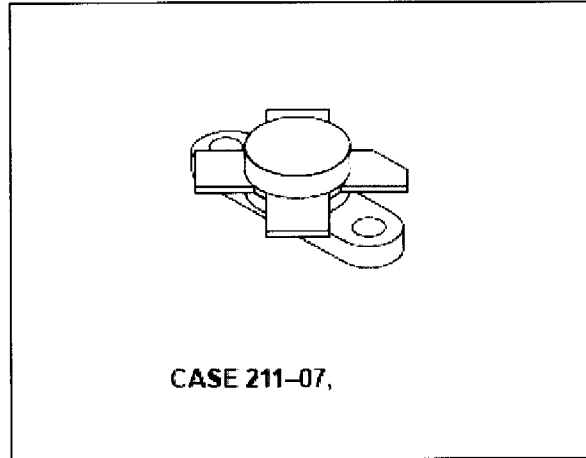


MRF148A

Designed for power amplifier applications in industrial, commercial and amateur radio equipment to 175MHz.

- Superior high order IMD
 IMD(d3) (30W PEP): -35 dB (Typ.)
 IMD(d11) (30W PEP): -60 dB (Typ.)
- Specified 50V, 30MHz characteristics:
 Output power: 30W
 Gain: 18dB (Typ.)
 Efficiency: 40% (Typ.)
- 100% tested for load mismatch at all phase angles with 30:1 VSWR
- Lower reverse transfer capacitance (3.0 pF typ.)

Product Image



MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain-Source Voltage	V _{DSS}	120	Vdc
Drain-Gate Voltage	V _{DGO}	120	Vdc
Gate-Source Voltage	V _{GS}	±40	Vdc
Drain Current — Continuous	I _D	6.0	Adc
Total Device Dissipation @ T _C = 25°C Derate above 25°C	P _D	115 0.66	Watts W/°C
Storage Temperature Range	T _{stg}	-65 to +150	°C
Operating Junction Temperature	T _J	200	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	R _{θJC}	1.52	°C/W

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.



ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Drain–Source Breakdown Voltage ($V_{GS} = 0, I_D = 10\text{ mA}$)	$V_{(BR)DSS}$	125	—	—	Vdc
Zero Gate Voltage Drain Current ($V_{DS} = 50\text{ V}, V_{GS} = 0$)	I_{DSS}	—	—	1.0	mAdc
Gate–Body Leakage Current ($V_{GS} = 20\text{ V}, V_{DS} = 0$)	I_{GSS}	—	—	100	nAdc

ON CHARACTERISTICS

Gate Threshold Voltage ($V_{DS} = 10\text{ V}, I_D = 10\text{ mA}$)	$V_{GS(th)}$	1.0	2.5	5.0	Vdc
Drain–Source On–Voltage ($V_{GS} = 10\text{ V}, I_D = 2.5\text{ A}$)	$V_{DS(on)}$	1.0	3.0	5.0	Vdc
Forward Transconductance ($V_{DS} = 10\text{ V}, I_D = 2.5\text{ A}$)	g_{fs}	0.8	1.2	—	mhos

DYNAMIC CHARACTERISTICS

Input Capacitance ($V_{DS} = 50\text{ V}, V_{GS} = 0, f = 1.0\text{ MHz}$)	C_{iss}	—	62	—	pF
Output Capacitance ($V_{DS} = 50\text{ V}, V_{GS} = 0, f = 1.0\text{ MHz}$)	C_{oss}	—	35	—	pF
Reverse Transfer Capacitance ($V_{DS} = 50\text{ V}, V_{GS} = 0, f = 1.0\text{ MHz}$)	C_{rss}	—	3.0	—	pF

FUNCTIONAL TESTS (SSB)

Common Source Amplifier Power Gain ($V_{DD} = 50\text{ V}, P_{out} = 30\text{ W (PEP)}, I_{DQ} = 100\text{ mA}$)	G_{ps}	—	18 15	—	dB
Drain Efficiency ($V_{DD} = 50\text{ V}, f = 30\text{ MHz}, I_{DQ} = 100\text{ mA}$)	η	—	40 50	—	%
Intermodulation Distortion ($V_{DD} = 50\text{ V}, P_{out} = 30\text{ W (PEP)}, f = 30, 30.001\text{ MHz}, I_{DQ} = 100\text{ mA}$)	$IMD_{(d3)}$ $IMD_{(d11)}$	—	—35 —60	—	dB
Load Mismatch ($V_{DD} = 50\text{ V}, P_{out} = 30\text{ W (PEP)}, f = 30, 30.001\text{ MHz}, I_{DQ} = 100\text{ mA}, VSWR 30:1$ at all Phase Angles)	ψ	No Degradation in Output Power			

CLASS A PERFORMANCE

Intermodulation Distortion (1) and Power Gain ($V_{DD} = 50\text{ V}, P_{out} = 10\text{ W (PEP)}, f_1 = 30\text{ MHz}, f_2 = 30.001\text{ MHz}, I_{DQ} = 1.0\text{ A}$)	G_{PS} $IMD_{(d3)}$ $IMD_{(d9-13)}$	—	20 —50 —70	—	dB
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NOTE:

- To MIL–STD–1311 Version A, Test Method 2204B, Two Tone, Reference Each Tone.