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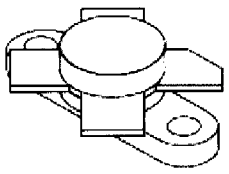
MRF148A

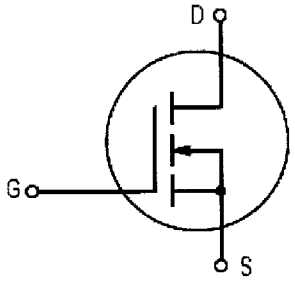
Designed for power amplifier applications in industrial, commercial and amateur radio equipment to 175MHz.

- 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



CASE 211–07,



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	$R_{\theta JC}$	1.52	°C/W

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

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Drain–Source Breakdown Voltage (V_{GS} = 0, I_D = 10 mA)	$V_{(BR)DSS}$	125	—	—	Vdc
Zero Gate Voltage Drain Current (V_{DS} = 50 V, V_{GS} = 0)	I_{DSS}	—	—	1.0	mAdc
Gate–Body Leakage Current (V_{GS} = 20 V, V_{DS} = 0)	I_{GSS}	—	—	100	nAdc
ON CHARACTERISTICS					
Gate Threshold Voltage (V_{DS} = 10 V, I_D = 10 mA)	$V_{GS(th)}$	1.0	2.5	5.0	Vdc
Drain–Source On–Voltage (V_{GS} = 10 V, I_D = 2.5 A)	$V_{DS(on)}$	1.0	3.0	5.0	Vdc
Forward Transconductance (V_{DS} = 10 V, I_D = 2.5 A)	g_{fs}	0.8	1.2	—	mhos
DYNAMIC CHARACTERISTICS					
Input Capacitance (V_{DS} = 50 V, V_{GS} = 0, f = 1.0 MHz)	C_{iss}	—	62	—	pF
Output Capacitance (V_{DS} = 50 V, V_{GS} = 0, f = 1.0 MHz)	C_{oss}	—	35	—	pF
Reverse Transfer Capacitance (V_{DS} = 50 V, V_{GS} = 0, f = 1.0 MHz)	C_{rss}	—	3.0	—	pF
FUNCTIONAL TESTS (SSB)					
Common Source Amplifier Power Gain (30 MHz) (V_{DD} = 50 V, P_{out} = 30 W (PEP), I_{DQ} = 100 mA) (175 MHz)	G_{ps}	— —	18 15	— —	dB
Drain Efficiency (30 W PEP) (V_{DD} = 50 V, f = 30 MHz, I_{DQ} = 100 mA) (30 W CW)	η	— —	40 50	— —	%
Intermodulation Distortion (V_{DD} = 50 V, P_{out} = 30 W (PEP), f = 30; 30.001 MHz, I_{DQ} = 100 mA)	$IMD_{(d3)}$ $IMD_{(d11)}$	— —	−35 −60	— —	dB
Load Mismatch (V_{DD} = 50 V, P_{out} = 30 W (PEP), f = 30; 30.001 MHz, I_{DQ} = 100 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 V, P_{out} = 10 W (PEP), f1 = 30 MHz, f2 = 30.001 MHz, I_{DQ} = 1.0 A)	G_{PS} $IMD_{(d3)}$ $IMD_{(d9-13)}$	— — —	20 −50 −70	— — —	dB

NOTE:

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