ADVANCED POWER TECHNOLOGY RF®

150W, 50V, 150MHz
N-CHANNEL RF POWER VERTICAL MOSFET

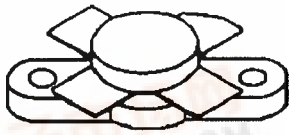
PRELIMINARY INFORMATION

VRF150

BROADBAND HF/VHF VERTICAL D-MOS
ISM & MILITARY/COMMERCIAL COMMUNICATIONS APPLICATIONS

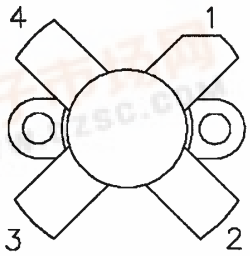
Features

- 150W WITH 10dB TYPICAL GAIN @ 150MHz, 50V
- 150W WITH 18dB MIN GAIN @ 30MHz, 50V
- EXCELLENT STABILITY & LOW IMD
- COMMON SOURCE CONFIGURATION
- 30:1 LOAD VSWR CAPABILITY AT SPECIFIED OPERATING CONDITIONS
- NITRIDE PASSIVATED
- REFRACTORY GOLD METALLIZATION



.500 4LFL (M174)
epoxy sealed

PIN CONNECTION



1. DRAIN
2. SOURCE
3. GATE
4. SOURCE

DESCRIPTION:

The VRF150 is a gold metallized silicon, n-channel RF power transistor designed for broadband commercial and military applications requiring high power and gain without compromising reliability, ruggedness, and intermodulation distortion.

ABSOLUTE MAXIMUM RATINGS (Tcase = 25°C)

Symbol	Parameter	Value	Unit
$V_{(BR)DSS}$	Drain-Source Voltage	125	V
V_{DGO}	Drain-Gate Voltage	125	V
V_{GS}	Gate-Source Voltage	±40	V
I_D	Drain Current	16	A
P_{DISS}	Total Device Power Dissipation	300	W
T_J	Max Operating Junction Temperature	+200	°C
T_{STG}	Storage Temperature	-65 to +150	°C

Thermal Data

$R_{è(J-C)}$	Thermal Resistance Junction-Case	0.6	°C/W

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ELECTRICAL SPECIFICATIONS (Tcase = 25°C)

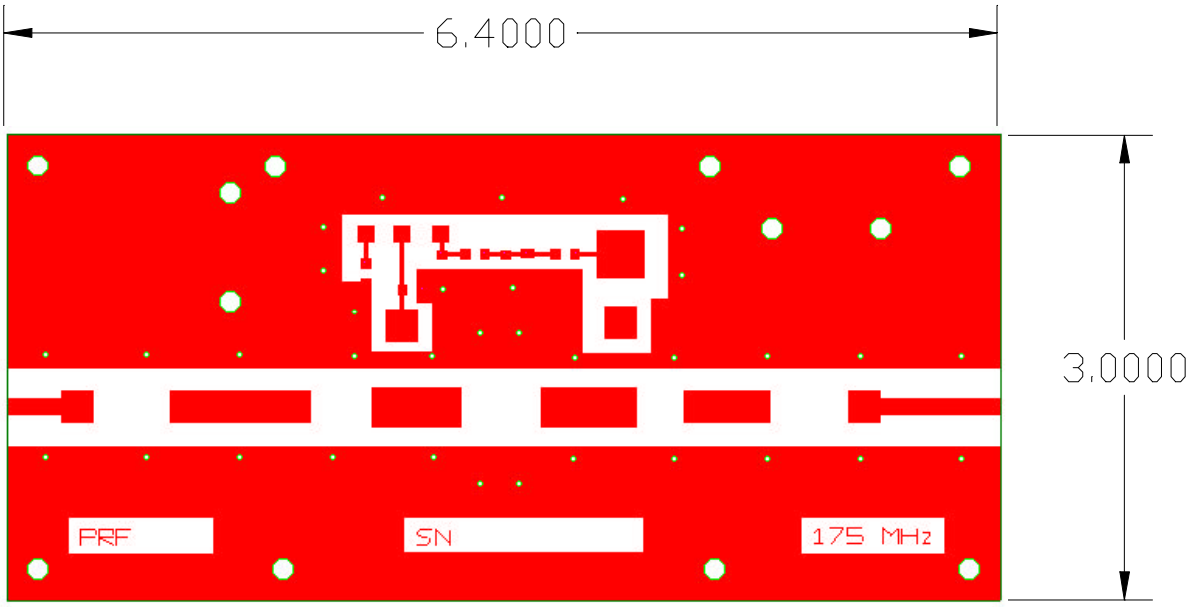
STATIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
Off Characteristics:							
$V_{(BR)DSS}$	V_{GS} = 0V	I_{DS} = 100mA		125	---	---	V
I_{DSS}	V_{GS} = 0V	V_{DS} = 50V		---	---	5.0	mA
I_{GSS}	V_{GS} = 20V	V_{DS} = 0V		---	---	1.0	µA
On Characteristics:							
$V_{GS(Q)}$	V_{DS} = 10V	I_D = 250mA		1.0	3.0	5.0	V
$V_{DS(ON)}$	V_{GS} = 10V	I_D = 10A		1.0	2.0	5.0	V
G_{FS}	V_{DS} = 10V	I_D = 250mA		5.0	---	---	mho
Dynamic Characteristics:							
C_{ISS}	V_{GS} = 0V	V_{DS} = 50V	f = 1 MHz	---	480	---	pF
C_{OSS}	V_{GS} = 0V	V_{DS} = 50V	f = 1 MHz	---	230	---	pF
C_{RSS}	V_{GS} = 0V	V_{DS} = 50V	f = 1 MHz	---	40	---	pF

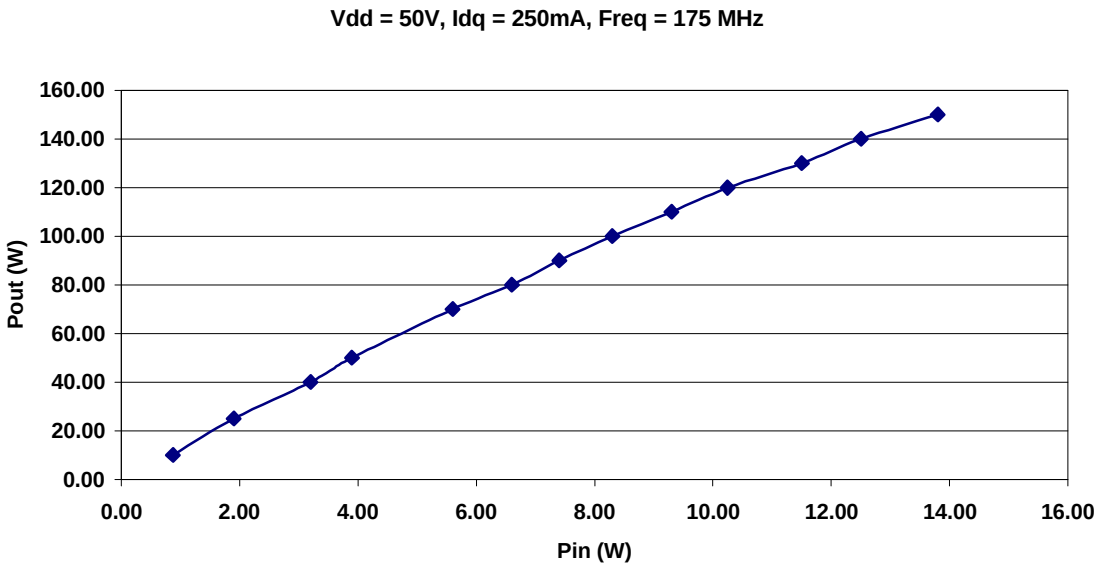
FUNCTIONAL TESTS

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_{OUT}	f = 150MHz V_{DD} = 50V I_{DQ} = 250mA	150		---	W
G_{PS}	f = 150MHz V_{DD} = 50V P_{OUT} = 150W_{PEP} I_{DQ} = 250mA	---	10	---	dB
G_{PS}	f = 30MHz V_{DD} = 50V P_{OUT} = 150W_{PEP} I_{DQ} = 250mA	---	18	---	dB
η_D	f = 150MHz V_{DD} = 50V P_{OUT} = 150W_{PEP} I_{DQ} = 250mA	---	50	---	%
$IMD_{(d3)}$	f1 = 30MHz f2=30.001MHz P_{OUT} = 150W_{PEP} V_{DD} = 50V I_{DQ} = 250mA	---	-32	---	dBc
Load Mismatch	f = 30MHz V_{DD} = 50V P_{OUT} = 150W_{PEP} V_{DQ} = 250mA 30:1 VSWR - All Phase Angles	No degradation in Output Power			

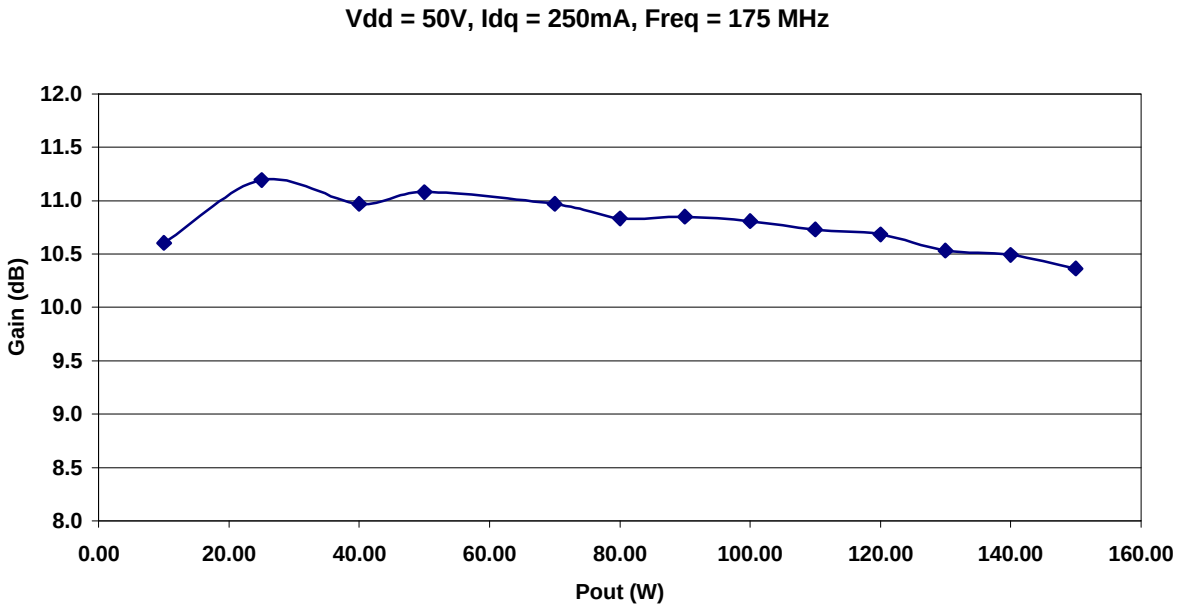
TEST CIRCUIT INFORMATION



Power Out vs. Power In



Gain vs. Power Out



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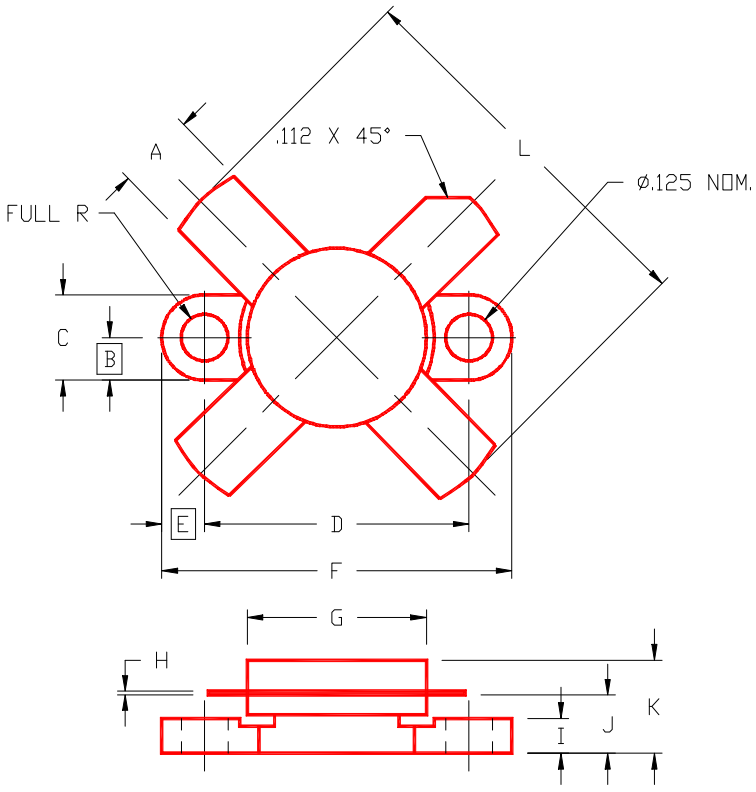
PACKAGE MECHANICAL DATA

PACKAGE STYLE M174



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.220/5,59	.230/5,84	I	.090/2,29	.110/2,79
B	.125/3,18		J	.160/4,06	.175/4,45
C	.245/6,22	.255/6,48	K		.280/7,11
D	.720/18,28	.730/18,54	L		1.050/26,67
E	.125/3,18				
F	.970/24,64	.980/24,89			
G	.495/12,57	.505/12,83			
H	.003/0,08	.007/0,18			