

< High-power GaAs FET (small signal gain stage) >

# MGF0951P

L & S BAND / 1.2W

SMD / Plastic Mold non - matched

## DESCRIPTION

The MGF0951P GaAs FET with an N-channel schottky Gate, is designed for use L/S band amplifiers.

## FEATURES

- High output power  
Po=31dBm(TYP.) @f=2.15GHz,Pin=20dBm
- High power gain  
Gp=13dB(TYP.) @f=2.15GHz
- High power added efficiency  
ηadd=50%(TYP.) @f=2.15GHz,Pin=20dBm
- Plastic Mold Lead – less Package

## APPLICATION

- For L/S Band power amplifiers

## QUALITY

- GG

## RECOMMENDED BIAS CONDITIONS

- Vds=10V • Ids=200mA • Rg=500Ω

Delivery Tape & Reel(1.5K)

## Absolute maximum ratings (Ta=25°C)

Symbol	Parameter	Ratings	Unit
VGSO	Gate to source breakdown voltage	-15	V
VGDO	Gate to drain breakdown voltage	-15	V
ID	Drain current	800	mA
I <sub>GR</sub>	Reverse gate current	-2.5	mA
I <sub>GF</sub>	Forward gate current	5.4	mA
PT	Total power dissipation	6.0	W
T <sub>ch</sub>	Channel temperature	150	°C
T <sub>stg</sub>	Storage temperature	-40 to +150	°C

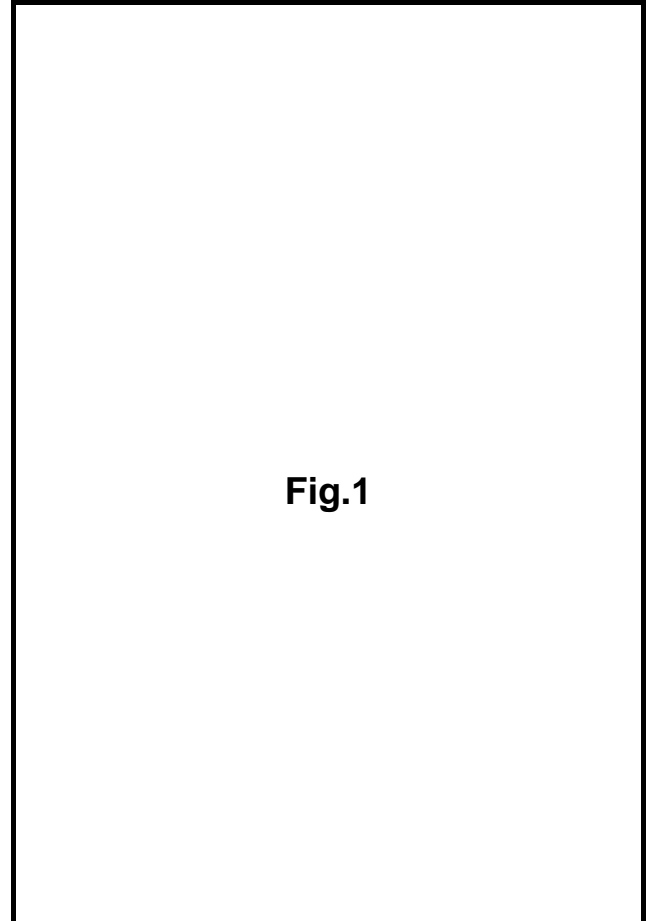


Fig.1

## Electrical characteristics (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
VGS(off)	Gate to source cut-off voltage	VDS=3V, ID=2.5mA	-1	-	-5	V
gm	Transconductance	VDS=3V, ID=300mA	-	200	-	mS
Po	Output power	VDS=10V, ID=200mA, f=2.15GHz	29.5	31	-	dBm
ηadd *1	Power added Efficiency	*1:Pin=20dBm, *2:Pin=10dB	-	50	-	%
GLP *2	Linear Power Gain	*3:f1=2.15GHz, f2=2.16GHz	11	13	-	dB
IM3 *3	3rd order Modulation Distortion	Po(SCL)=20dBm	-	-45	-	dBc
Rth(ch-c)	Thermal Resistance *4	ΔVf Method	-	20	25	°C/W

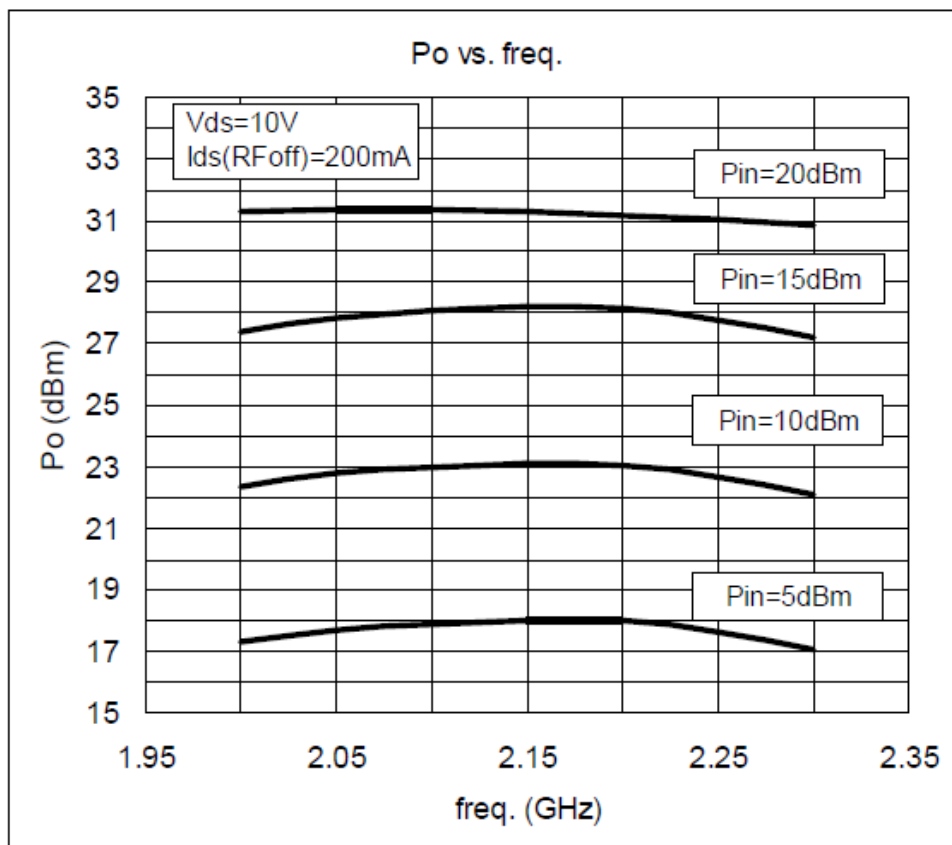
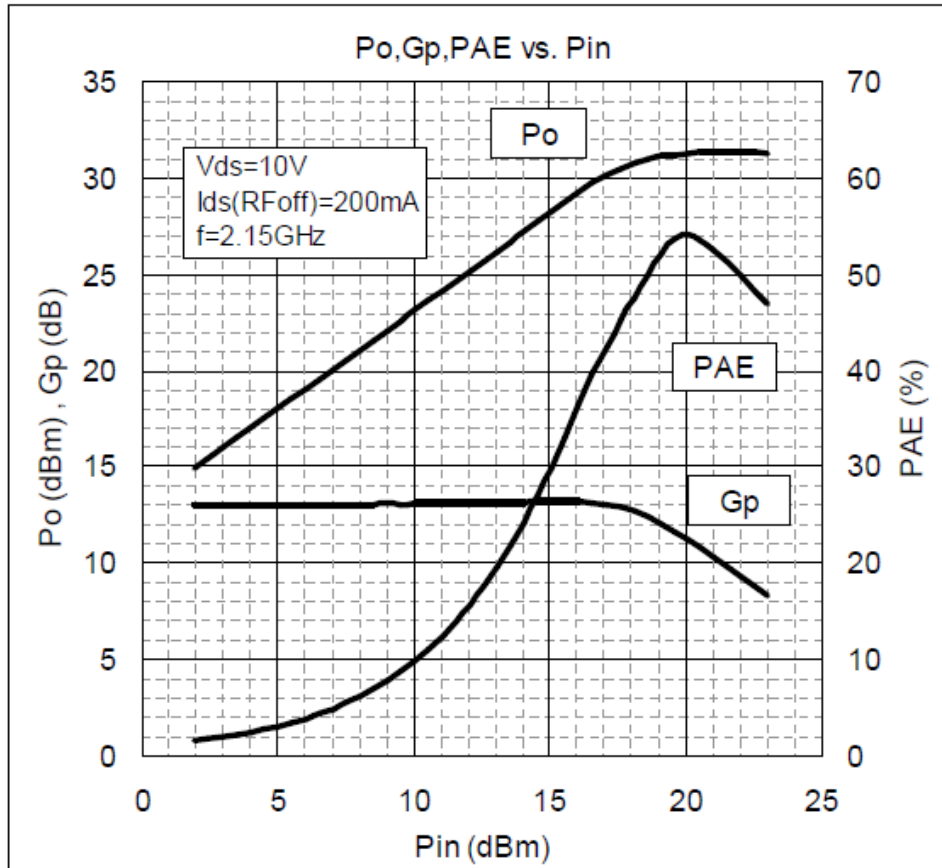
\*4:Channel to case / Above parameters, ratings, limits are subject to change.

# MGF0951P

L & S BAND / 1.2W

SMD / Plastic Mold non - matched

## MGF09151P TYPICAL CHARACTERISTICS



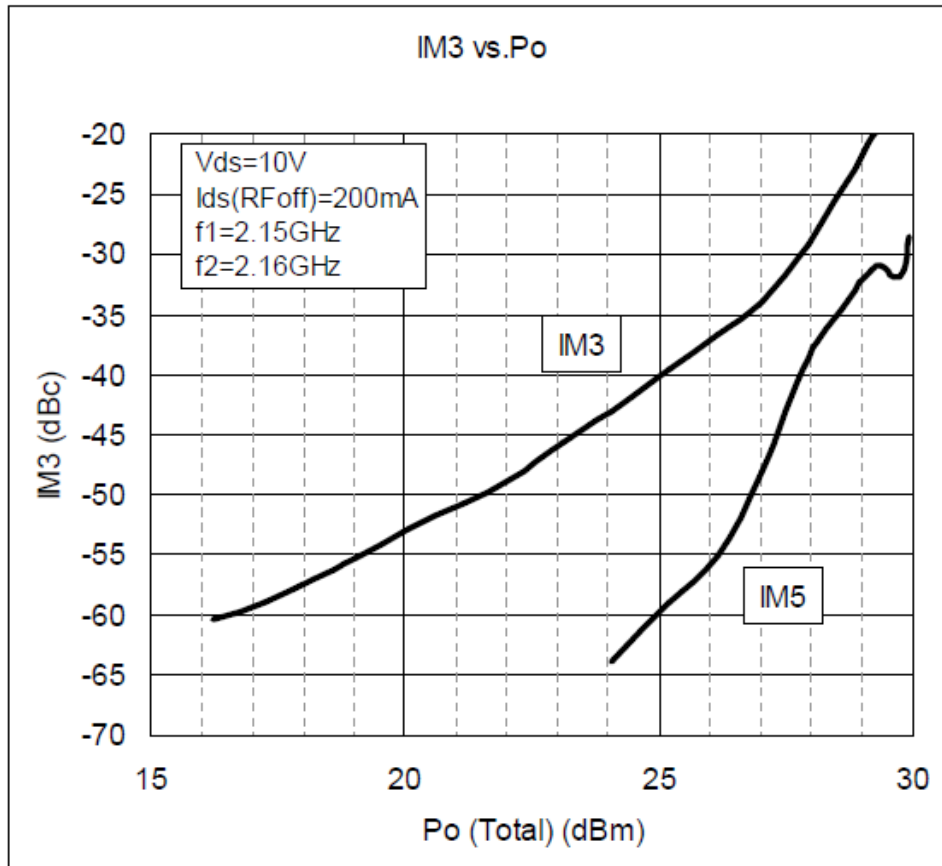
< High-power GaAs FET (small signal gain stage) >

# MGF0951P

L & S BAND / 1.2W

SMD / Plastic Mold non - matched

## MGF09151P TYPICAL CHARACTERISTICS



< High-power GaAs FET (small signal gain stage) >

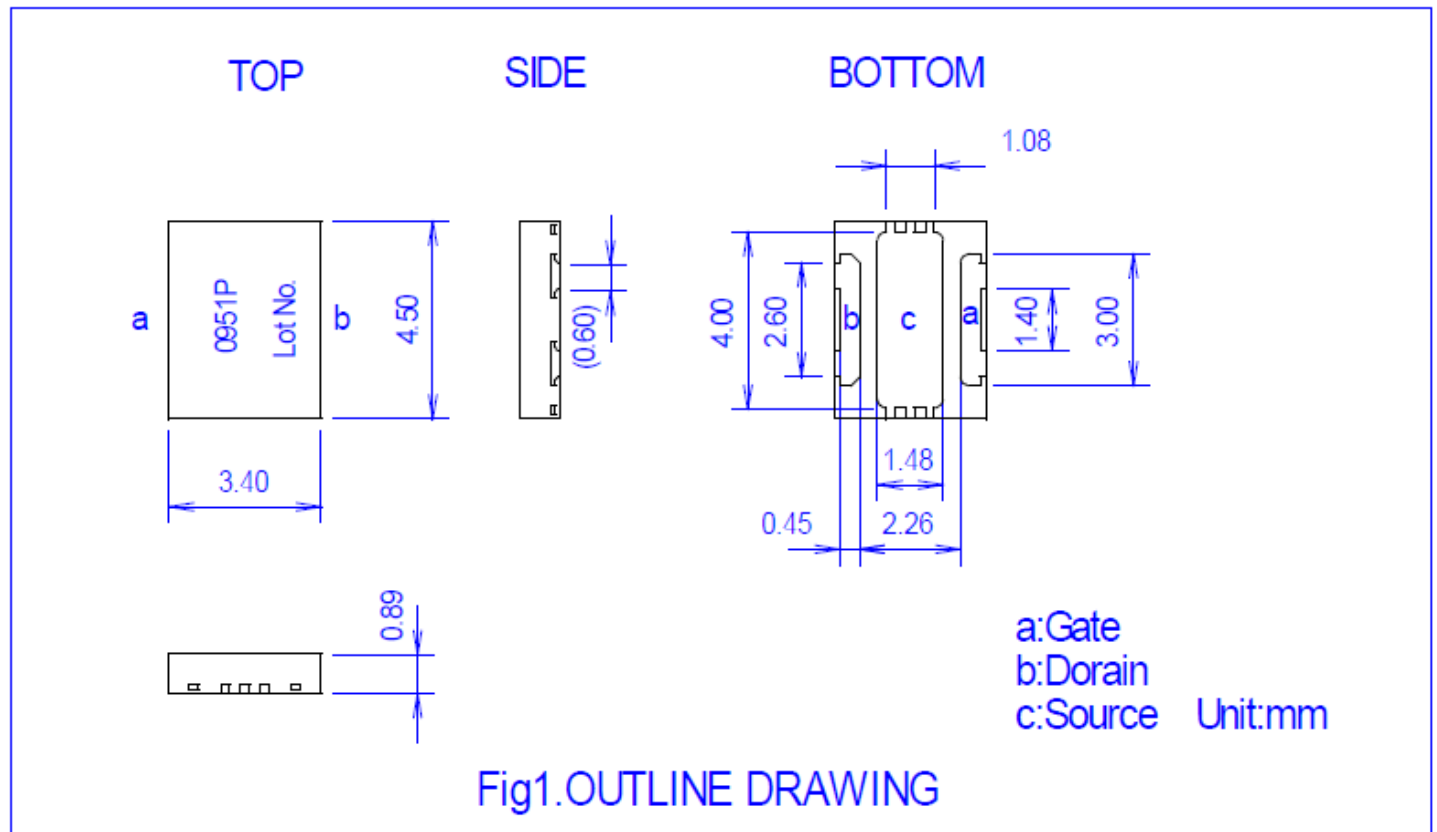
# MGF0951P

L & S BAND / 1.2W

SMD / Plastic Mold non - matched

## MGF0951P S PARAMETERS (Ta=25°C, VD=10V, ID=200mA, Reference Plane see Fig.1)

f (MHz)	S Parameter(TYP.)								K	MSG/MAG (dB)
	S11		S21		S12		S22			
	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)		
600	0.847	-98.9	7.176	117.6	0.039	44.1	0.186	-115.6	0.476	22.7
800	0.827	-115.4	5.972	106.5	0.043	37.8	0.207	-126.0	0.564	21.4
1000	0.807	-127.9	5.076	97.3	0.046	34.1	0.225	-133.2	0.666	20.4
1200	0.797	-137.6	4.392	89.6	0.048	31.5	0.240	-137.7	0.767	19.6
1400	0.785	-145.0	3.867	82.8	0.051	29.6	0.256	-140.5	0.855	18.8
1600	0.777	-151.3	3.450	76.6	0.052	29.0	0.270	-142.7	0.951	18.2
1800	0.772	-156.1	3.127	71.0	0.053	28.2	0.284	-143.5	1.027	16.7
2000	0.763	-160.3	2.865	65.7	0.056	28.0	0.295	-144.3	1.099	15.2
2200	0.754	-164.1	2.655	60.8	0.058	27.2	0.303	-144.8	1.173	14.1
2400	0.745	-167.7	2.485	55.8	0.060	27.4	0.314	-145.3	1.223	13.3
2600	0.733	-171.3	2.342	50.9	0.064	26.7	0.325	-145.4	1.269	12.5
2800	0.720	-175.0	2.223	46.1	0.067	25.9	0.335	-145.3	1.312	11.9
3000	0.709	-178.8	2.114	41.4	0.070	25.4	0.342	-145.4	1.358	11.3
3200	0.698	-177.4	2.023	36.7	0.073	24.8	0.346	-146.1	1.399	10.7
3400	0.689	-173.5	1.939	31.8	0.076	23.9	0.350	-147.5	1.426	10.2
3600	0.678	-169.7	1.867	27.2	0.080	22.8	0.351	-148.9	1.451	9.7
3800	0.669	-166.0	1.807	22.6	0.084	22.0	0.351	-149.5	1.462	9.3
4000	0.660	-162.4	1.756	18.1	0.089	21.6	0.346	-150.5	1.458	8.9
4200	0.651	-158.4	1.715	13.4	0.095	20.2	0.340	-152.0	1.451	8.6
4400	0.641	-154.1	1.677	8.5	0.101	18.6	0.334	-154.4	1.442	8.3
4600	0.630	-149.4	1.640	3.6	0.108	16.8	0.332	-156.5	1.413	8.0
4800	0.619	-144.6	1.604	-1.2	0.114	15.0	0.328	-158.4	1.410	7.7
5000	0.608	-140.0	1.572	-6.1	0.122	12.9	0.323	-160.6	1.398	7.4
5200	0.599	-135.2	1.543	-11.1	0.129	10.5	0.318	-163.5	1.378	7.1
5400	0.589	-130.4	1.512	-16.2	0.137	7.9	0.316	-167.3	1.356	6.9
5600	0.577	-125.2	1.486	-21.3	0.146	5.1	0.316	-170.5	1.337	6.6
5800	0.563	-120.3	1.466	-26.4	0.156	2.2	0.314	-172.9	1.305	6.4
6000	0.549	-115.0	1.453	-31.6	0.165	-0.9	0.307	-175.5	1.287	6.2
6200	0.533	-108.4	1.440	-37.1	0.177	-4.6	0.300	-178.9	1.263	6.0
6400	0.518	-101.4	1.427	-42.9	0.189	-8.3	0.293	-177.0	1.243	5.8
6600	0.505	-93.1	1.417	-48.9	0.201	-12.7	0.286	-173.4	1.222	5.6
6800	0.497	-84.1	1.403	-55.3	0.213	-17.2	0.269	-169.2	1.206	5.4
7000	0.501	-74.8	1.386	-61.9	0.226	-22.5	0.245	-162.5	1.185	5.3



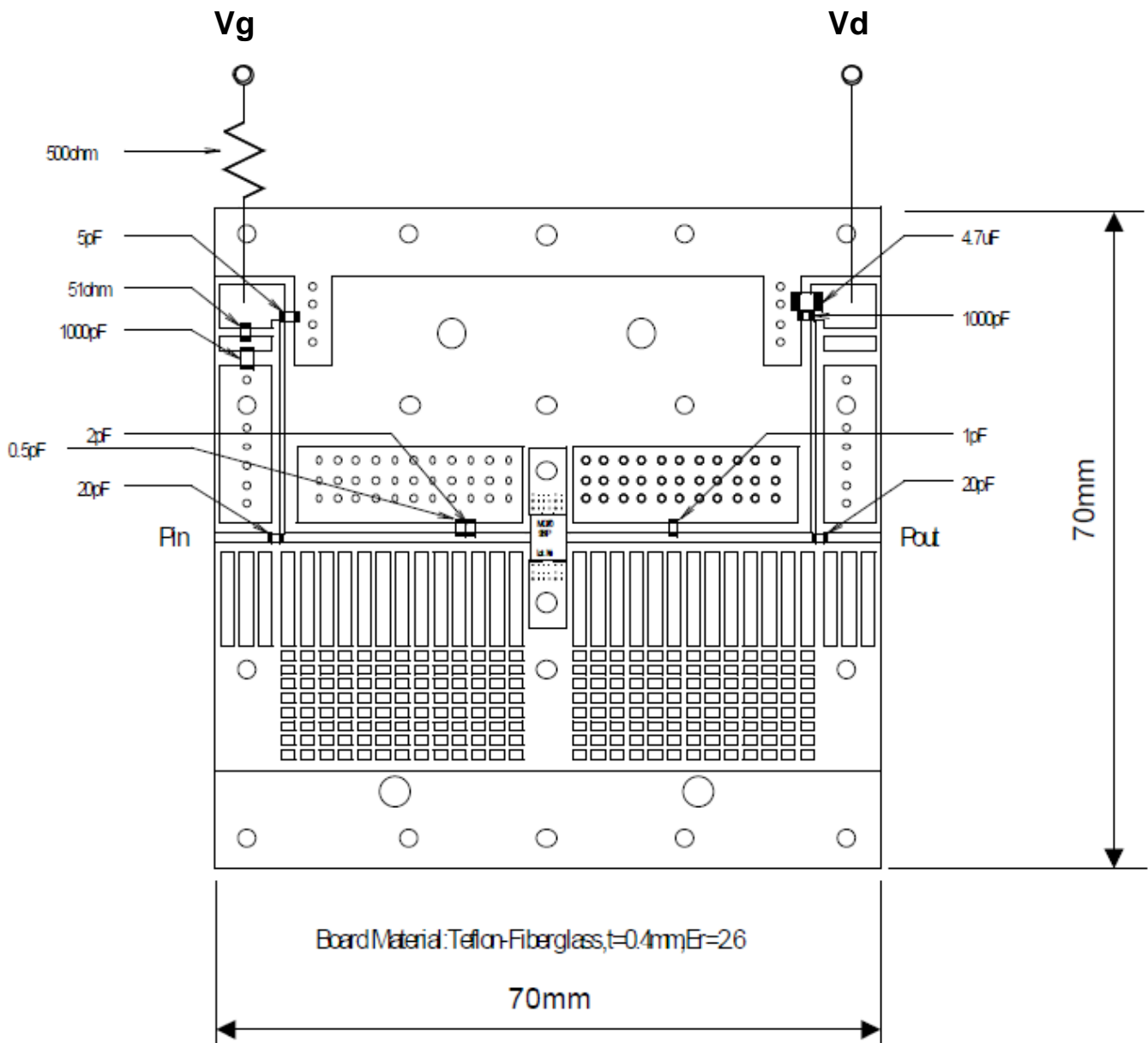
< High-power GaAs FET (small signal gain stage) >

# MGF0951P

L & S BAND / 1.2W

SMD / Plastic Mold non - matched

MGF0951P TEST FIXTURE :  $f=2.15\text{GHz}$



### **Keep safety first in your circuit designs!**

Mitsubishi Electric Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage. Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of non-flammable material or (iii) prevention against any malfunction or mishap.

### **Notes regarding these materials**

- These materials are intended as a reference to assist our customers in the selection of the Mitsubishi semiconductor product best suited to the customer's application; they do not convey any license under any intellectual property rights, or any other rights, belonging to Mitsubishi Electric Corporation or a third party.
- Mitsubishi Electric Corporation assumes no responsibility for any damage, or infringement of any third-party's rights, originating in the use of any product data, diagrams, charts, programs, algorithms, or circuit application examples contained in these materials.
- All information contained in these materials, including product data, diagrams, charts, programs and algorithms represents information on products at the time of publication of these materials, and are subject to change by Mitsubishi Electric Corporation without notice due to product improvements or other reasons. It is therefore recommended that customers contact Mitsubishi Electric Corporation or an authorized Mitsubishi Semiconductor product distributor for the latest product information before purchasing a product listed herein.

The information described here may contain technical inaccuracies or typographical errors. Mitsubishi Electric Corporation assumes no responsibility for any damage, liability, or other loss rising from these inaccuracies or errors.

Please also pay attention to information published by Mitsubishi Electric Corporation by various means, including the Mitsubishi Semiconductor home page (<http://www.MitsubishiElectric.com/>).

- When using any or all of the information contained in these materials, including product data, diagrams, charts, programs, and algorithms, please be sure to evaluate all information as a total system before making a final decision on the applicability of the information and products. Mitsubishi Electric Corporation assumes no responsibility for any damage, liability or other loss resulting from the information contained herein.
- Mitsubishi Electric Corporation semiconductors are not designed or manufactured for use in a device or system that is used under circumstances in which human life is potentially at stake. Please contact Mitsubishi Electric Corporation or an authorized Mitsubishi Semiconductor product distributor when considering the use of a product contained herein for any specific purposes, such as apparatus or systems for transportation, vehicular, medical, aerospace, nuclear, or undersea repeater use.
- The prior written approval of Mitsubishi Electric Corporation is necessary to reprint or reproduce in whole or in part these materials.
- If these products or technologies are subject to the Japanese export control restrictions, they must be exported under a license from the Japanese government and cannot be imported into a country other than the approved destination.  
Any diversion or re-export contrary to the export control laws and regulations of Japan and/or the country of destination is prohibited.
- Please contact Mitsubishi Electric Corporation or an authorized Mitsubishi Semiconductor product distributor for further details on these materials or the products contained therein.