MITSUBISHI SEMICONDUCTOR <GaAs FET>

MGF4851A

SUPER LOW NOISE InGaAs HEMT (Leadless Ceramic Package)

DESCRIPTION

The MGF4851A HEMT (High Electron Mobility Transistor) is designed for use in S to K band amplifiers and oscillators.

The lead-less ceramic package assures minimum parasitic losses.

FEATURES

High gain and High P1dB

Glp=11dB , P1dB=14.5dBm (Typ.) @ f=12GHz

APPLICATION

S to K band power Amplifiers

QUALITY GRADE

GG

ORDERING INFORMATION

Tape & reel 3000pcs./reel

Outline Drawing

Fig.1

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 measure such as (I) placement of substitutive , auxiliary circuits , (ii) use of non-flammable material or (iii) prevention against any malfunction or mishap.

ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Symbol	Parameter	Ratings	Unit
V_{GDO}	Gate to drain voltage	-5	V
V_{GSO}	Gate to source voltage	-5	V
I_D	Drain current	IDSS	mA
PT	Total power dissipation	100	mW
T_{ch}	Channel temperature	125	°C
T_{stg}	Storage temperature	-65~125	°C

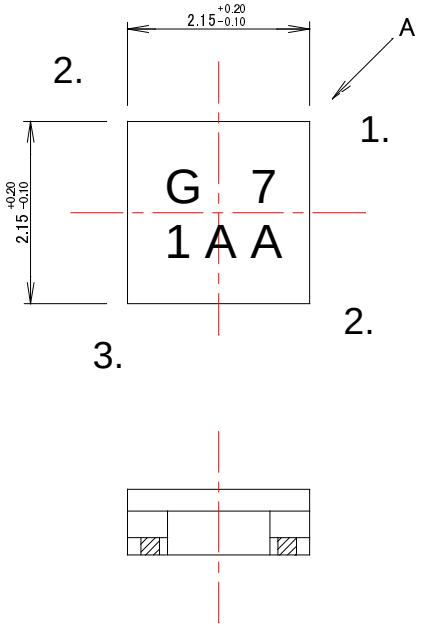
ELECTRICAL CHARACTERISTICS (Ta=25°C)

Synbol	Parameter	Test conditions	Limits			Unit
			MIN.	TYP.	MAX	
$V_{(BR)GDO}$	Gate to drain breakdown voltage	Ig=-10μA	-5	-8	--	V
I_{DSS}	Saturated drain current	V_{GS}=0V,V_{DS}=2.5V	35	60	120	mA
$V_{GS(off)}$	Gate to source cut-off voltage	V_{DS}=2.5V,I_D=500μA	-0.1	-0.8	-2.0	V
P1dB	Output Power at 1dB gain Compression	V_{DS}=2.5V,ID=25mA f=12GHz	12	14.5	--	dBm
Glp	Linear Power Gain	V_{DS}=2.5V,ID=25mA f=12GHz,Pin=-5dBm	9	11	--	dB

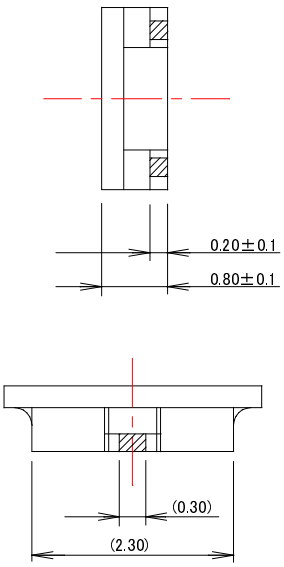
Fig.1

Unit : mm

Top

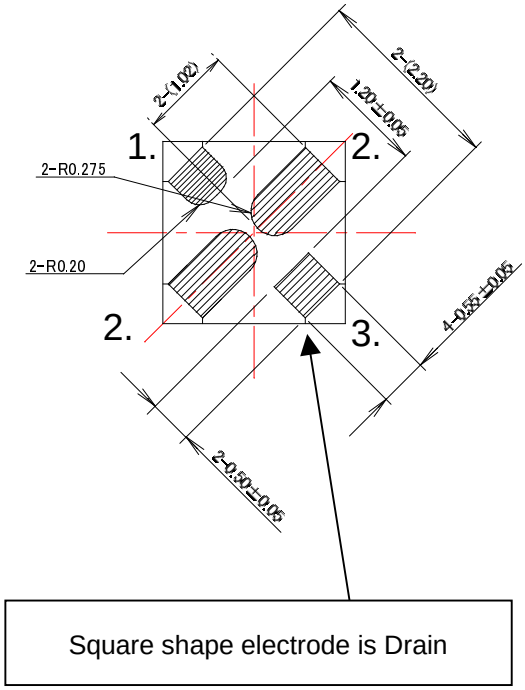


Side



from "A" side view

Bottom

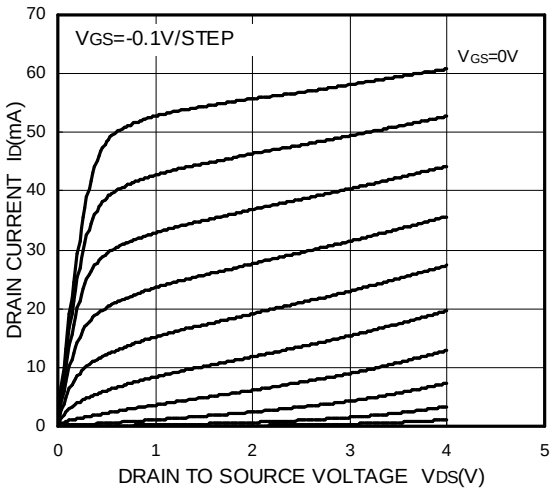


Square shape electrode is Drain

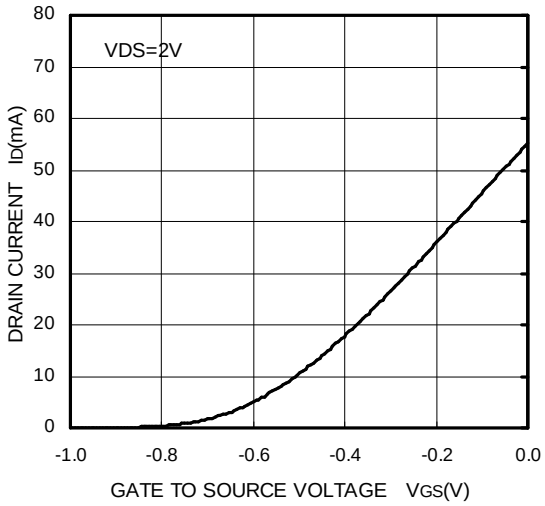
1. Gate
2. Source
3. Drain

TYPICAL CHARACTERISTICS (Ta=25°C)

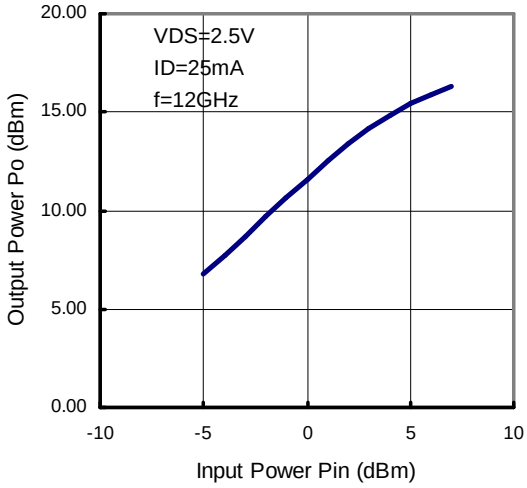
ID vs. VDS



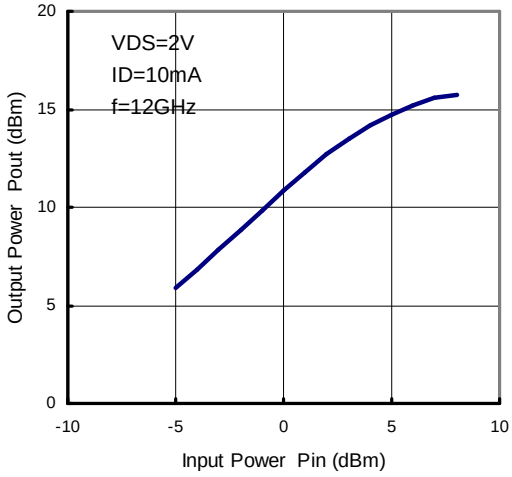
ID vs. VGS



Po vs. Pin



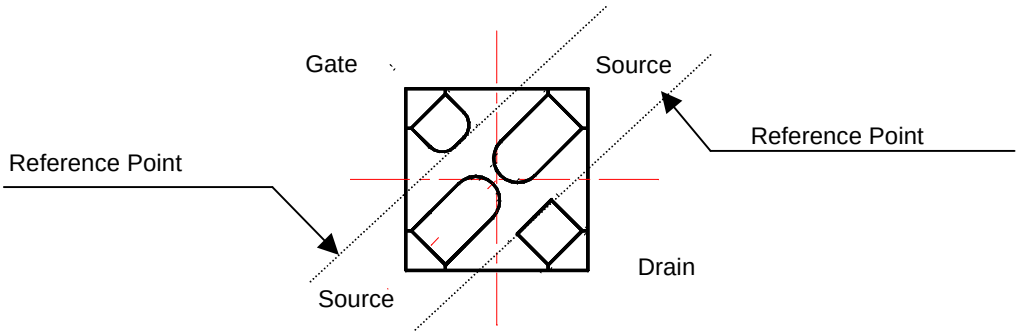
Po vs. Pin



S PARAMETERS

(Conditions : VDS=2.5V,ID=25mA,Ta=25deg.C)

f	S11		S21		S12		S22	
(GHz)	Magn.	Angle	Magn.	Angle	Magn.	Angle	Magn.	Angle
1	0.986	-16.1	6.558	165.2	0.015	79.0	0.539	-13.6
2	0.959	-35.1	6.385	148.7	0.028	65.3	0.531	-30.0
3	0.933	-47.6	6.118	136.8	0.040	56.6	0.525	-38.9
4	0.898	-64.4	5.865	123.4	0.050	46.8	0.502	-49.8
5	0.867	-76.5	5.505	112.8	0.058	38.6	0.498	-58.1
6	0.840	-86.5	5.187	103.8	0.064	32.3	0.492	-63.8
7	0.813	-96.0	4.891	94.8	0.069	26.7	0.487	-67.9
8	0.792	-106.6	4.710	83.6	0.073	18.8	0.487	-74.3
9	0.766	-114.9	4.538	74.9	0.077	14.2	0.486	-77.8
10	0.744	-123.4	4.500	66.5	0.083	10.6	0.483	-81.1
11	0.709	-133.5	4.514	57.5	0.092	3.1	0.468	-86.3
12	0.658	-146.0	4.549	47.0	0.099	-4.6	0.437	-91.4
13	0.607	-160.7	4.589	36.3	0.106	-12.3	0.392	-97.5
14	0.561	176.4	4.607	20.9	0.113	-25.3	0.324	-109.3
15	0.523	151.0	4.547	7.2	0.116	-36.3	0.241	-118.6
16	0.542	123.0	4.470	-6.8	0.120	-48.5	0.140	-131.0
17	0.598	95.1	4.267	-21.7	0.119	-59.8	0.030	-165.6
18	0.679	70.3	3.880	-37.6	0.113	-71.3	0.097	43.6
19	0.760	51.1	3.447	-51.9	0.105	-83.2	0.214	30.0
20	0.827	35.4	3.005	-65.2	0.094	-94.0	0.323	19.9
21	0.890	21.0	2.560	-80.4	0.084	-106.2	0.407	8.0
22	0.921	10.8	2.187	-90.3	0.074	-111.9	0.481	2.4
23	0.932	2.6	1.879	-100.1	0.064	-117.3	0.570	-2.3
24	0.933	-3.9	1.555	-108.1	0.056	-124.3	0.625	-6.3
25	0.947	-9.0	1.330	-114.7	0.049	-127.9	0.681	-7.6
26	0.947	-14.4	1.146	-121.8	0.042	-128.9	0.730	-8.8



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