MITSUBISHI SEMICONDUTOR <GaAs FET>

MGF1451A

Low Noise MES FET

DESCRIPTION

The MGF1451A is designed for use in S to Ku band power amplifiers.

FEATURES

High gain and High P1dB

Glp=10.5dB , P1dB=13dBm (Typ.) @ f=12GHz

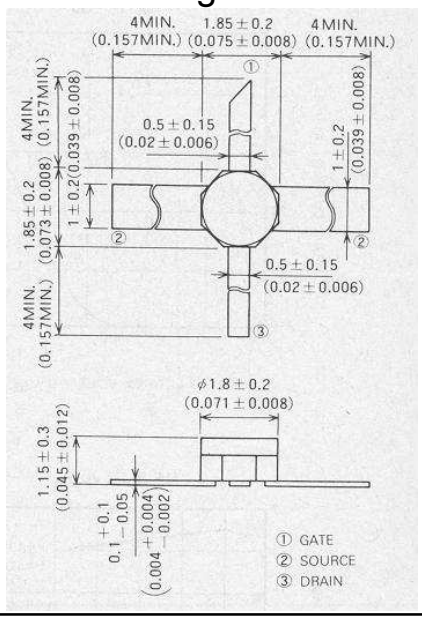
APPLICATION

S to Ku band power Amplifiers

QUALITY GRADE

IG

Outline Drawing



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.

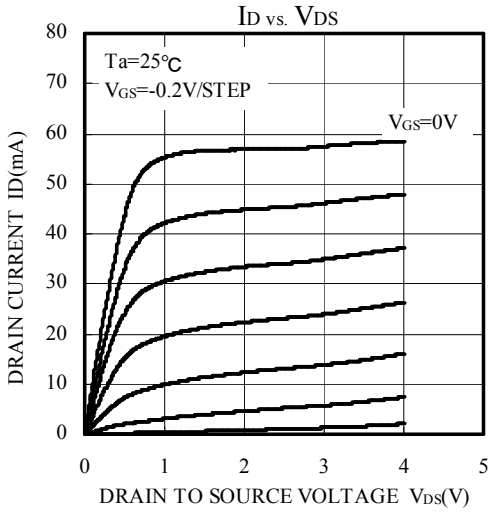
ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

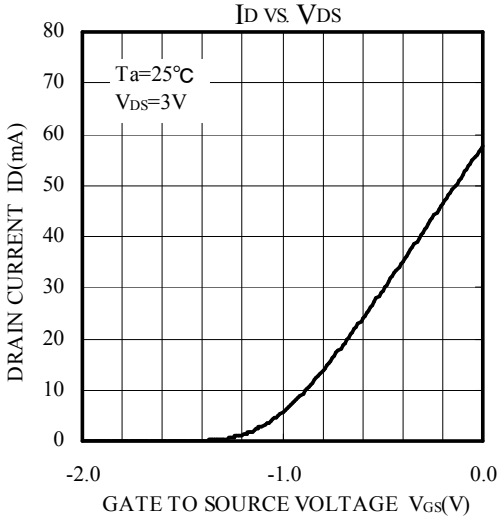
Symbol	Parameter	Ratings	Unit
V_{GDO}	Gate to drain voltage	-8	V
V_{GSO}	Gate to source voltage	-8	V
I_D	Drain current	120	mA
PT	Total power dissipation	300	mW
T_{ch}	Channel temperature	175	°C
T_{stg}	Storage temperature	-55 to +175	°C

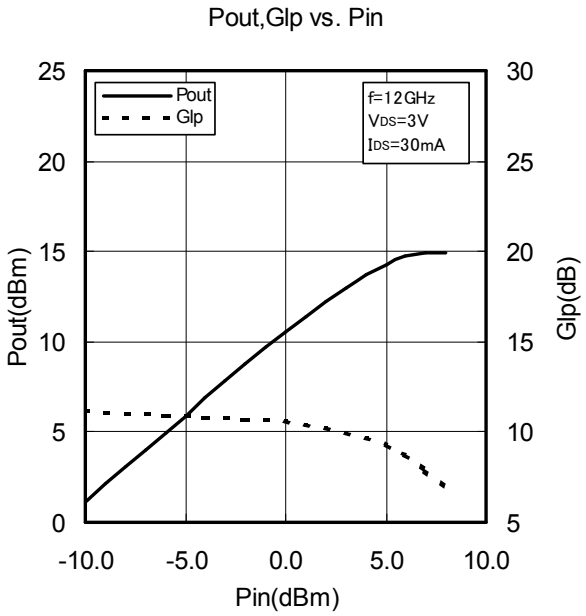
ELECTRICAL CHARACTERISTICS (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			MIN.	TYP.	MAX	
V(BR)GDO	Gate to drain breakdown voltage	IG=-30 μA	-8	--	--	V
V(BR)GSO	Gate to source breakdown voltage	IG=-30 μA	-8	--	--	V
IGSS	Gate to source leakage current	VGS=-3V VDS=0V	--	--	10	uA
IDSS	Saturated drain current	VGS=0V VDS=3V	35	60	120	mA
VGS(off)	Gate to source cut-off voltage	VDS=3V ID=300 μA	-0.3	-1.4	-3.5	V
Glp	Linear Power Gain	VDS=3V ID=30mA f=12GHz	9.0	10.5	--	dB
P1dB	Output Power at 1dB gain Compression		11.0	13.0	--	dBm
Rt.	Thermal Resistance	--	--	--	420	°C/W

TYPICAL CHARACTERISTICS (Ta=25°C)



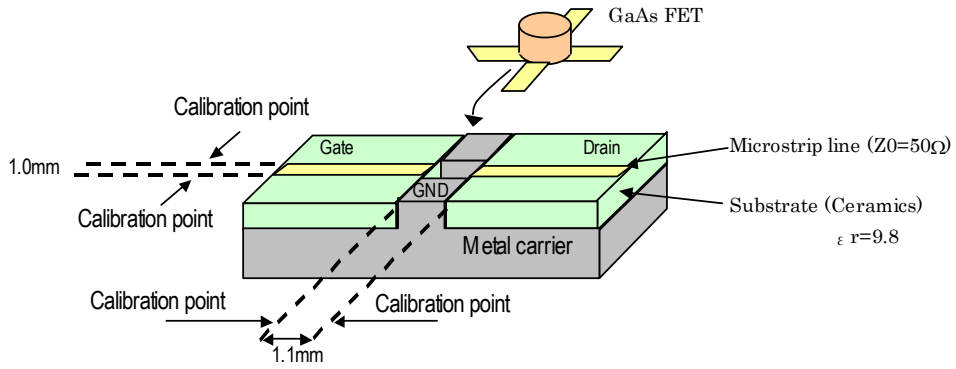


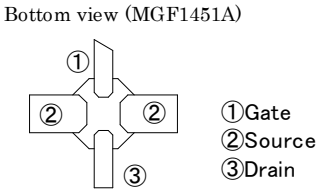


S PARAMETERS

(Conditions:VDS=3V,IDS=30mA,Ta=25deg.C)

freq	S11		S21		S12		S22		K	MSG/MAG
(GHz)	Mag.	Angle	Mag.	Angle	Mag.	Angle	Mag.	Angle		(dB)
1	0.986	-21.3	4.089	159.6	0.016	75.2	0.542	-15.9	0.17	24.1
2	0.953	-41.0	3.848	140.9	0.029	61.4	0.544	-31.0	0.30	21.2
3	0.921	-58.6	3.570	124.1	0.039	50.8	0.542	-43.3	0.40	19.6
4	0.886	-74.3	3.274	109.1	0.046	41.7	0.539	-52.9	0.51	18.5
5	0.850	-90.2	3.054	93.5	0.052	31.2	0.528	-64.5	0.64	17.7
6	0.810	-101.0	2.823	80.9	0.054	24.8	0.531	-72.5	0.82	17.2
7	0.784	-111.5	2.686	68.9	0.055	19.3	0.541	-79.2	0.93	16.9
8	0.748	-121.3	2.588	57.3	0.055	15.5	0.547	-85.4	1.08	14.9
9	0.714	-131.5	2.542	45.4	0.057	13.5	0.552	-91.2	1.17	14.0
10	0.667	-143.9	2.541	33.2	0.062	11.2	0.560	-96.6	1.18	13.5
11	0.606	-157.3	2.562	19.6	0.067	4.4	0.556	-103.4	1.27	12.7
12	0.521	-173.0	2.586	5.6	0.069	-4.9	0.544	-109.9	1.46	11.7
13	0.447	165.7	2.653	-9.6	0.073	-13.3	0.526	-117.9	1.52	11.4
14	0.386	134.3	2.686	-26.7	0.076	-23.5	0.496	-125.7	1.58	11.0
15	0.382	95.5	2.674	-45.2	0.078	-37.5	0.451	-135.0	1.60	10.8
16	0.460	57.9	2.619	-65.5	0.080	-54.5	0.379	-144.3	1.57	10.7
17	0.578	29.8	2.445	-86.0	0.080	-73.9	0.282	-154.0	1.54	10.5
18	0.688	8.2	2.224	-106.6	0.077	-95.0	0.169	-157.6	1.51	10.4
19	0.767	-8.0	1.979	-126.1	0.075	-117.1	0.060	-138.7	1.46	10.2
20	0.794	-20.5	1.736	-145.0	0.077	-140.2	0.083	-42.8	1.48	9.4





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