

DESCRIPTION

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

FEATURES

High gain and High P1dB
 $G_{lp}=10.5\text{dB}$, $P_{1\text{dB}}=13\text{dBm}$ (Typ.) @ $f=12\text{GHz}$

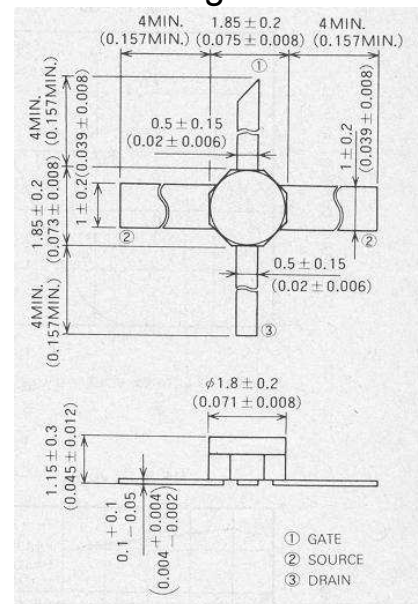
APPLICATION

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.

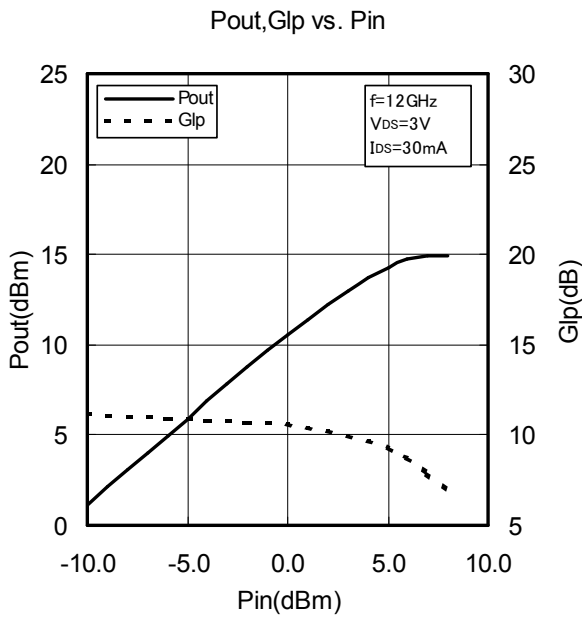
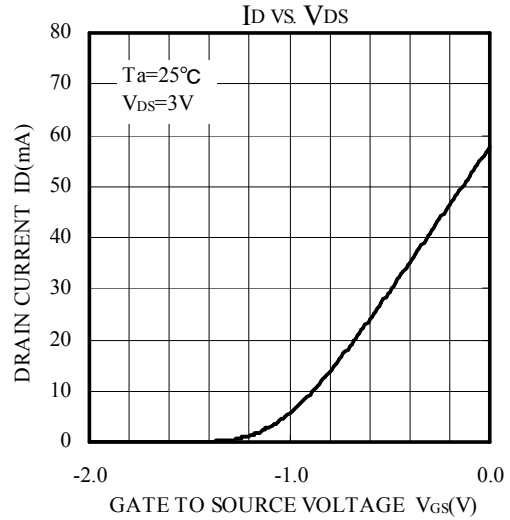
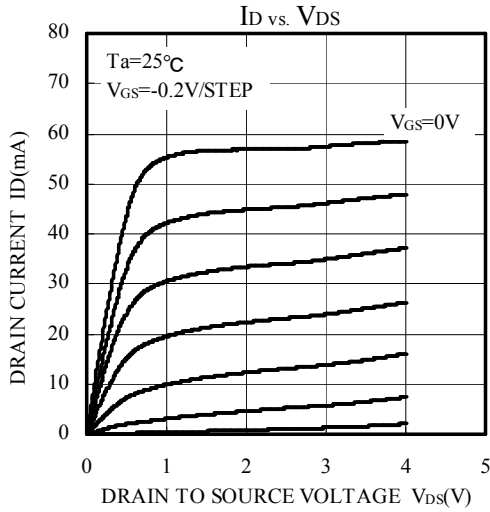
ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

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	I _G =-30 μA	-8	--	--	V
V(BR)GSO	Gate to source breakdown voltage	I _G =-30 μA	-8	--	--	V
I _{GSS}	Gate to source leakage current	V _{GS} =-3V V _{DS} =0V	--	--	10	μA
I _{DSS}	Saturated drain current	V _{GS} =0V V _{DS} =3V	35	60	120	mA
V _{GS(off)}	Gate to source cut-off voltage	V _{DS} =3V I _D =300 μA	-0.3	-1.4	-3.5	V
G _{lp}	Linear Power Gain	V _{DS} =3V I _D =30mA	9.0	10.5	--	dB
P _{1dB}	Output Power at 1dB gain Compression	f=12GHz	11.0	13.0	--	dBm
R _t	Thermal Resistance	--	--	--	420	°C/W

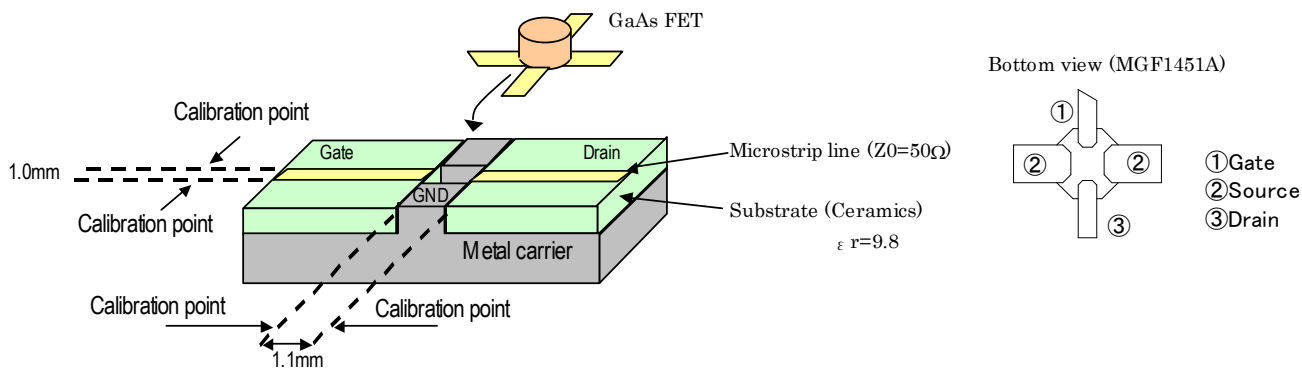
TYPICAL CHARACTERISTICS (Ta=25°C)



S PARAMETERS

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

freq (GHz)	S11		S21		S12		S22		K	MSG/MAG (dB)
	Mag.	Angle	Mag.	Angle	Mag.	Angle	Mag.	Angle		
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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