

< High-power GaN HEMT (small signal gain stage) >

MGF0846G

L to C BAND / 40W

non - matched

DESCRIPTION

The MGF0846G, GaN HEMT with an N-channel schottky gate, is designed for MMDS/UMTS/WiMAX applications.

FEATURES

- High voltage operation
VDS=47V
- High output power
Po=46.5dBm(TYP.) @f=2.6GHz,P3dB
- High efficiency
 $\eta_d=60\%$ (TYP.) @f=2.6GHz,P3dB
- Designed for use in Class AB linear amplifiers

APPLICATION

- MMDS/UMTS/WiMAX

QUALITY

- GG

Packaging

- 4 inch Tray (25 pcs)

RECOMMENDED BIAS CONDITIONS

- Vds=47V • Ids=340mA • Rg=30 Ω

Absolute maximum ratings (Ta=25°C)

Symbol	Parameter	Ratings	Unit
VDS	Drain to Source Voltage	120	V
VGS	Gate to source voltage	-10	V
IGR	Reverse gate current	-6	mA
IGF	Forward gate current	120	mA
PT*1	Total power dissipation	64	W
Tch	Channel temperature	230	°C
Tstg	Storage temperature	-65 to +175	°C

*1:Tc=25°C

Electrical characteristics (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
VGS(off)	Gate to source cut-off voltage	VDS=47V, ID=12mA	-1	-	-5	V
P3dB	3dB gain compression power	VDS=47V, ID(RF off)=340mA	45.5	46.5	-	dBm
P1dB	1dB gain compression power	f=2.6GHz	-	45.5	-	dBm
η_d *2	Drain efficiency	*2 : @P3dB	-	60	-	%
GLP *3	Linear power gain	*3 : Pin=20dBm	12	13	-	dB
Rth(ch-c) *4	Thermal resistance	ΔV_f method	-	2.5	3.2	°C/W

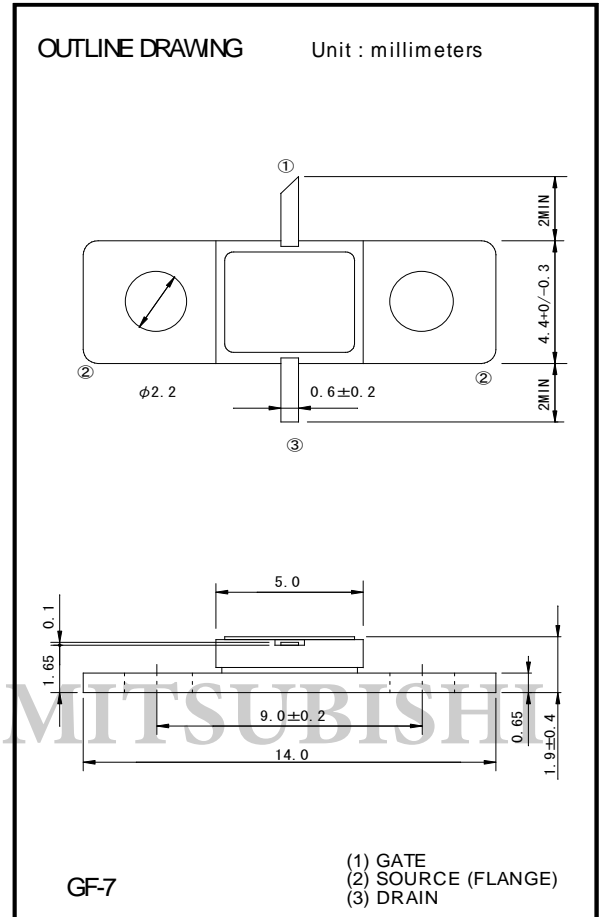
*4 :Channel-case

Specification are subject to change without notice.

Note

DC aging is recommended to perform before operating in order to stabilize a characteristics of GaN-HEMT. (Ta \geq 80°C)

- Bias conditions Vds=47V , Ids=340mA
- Time 10hrs

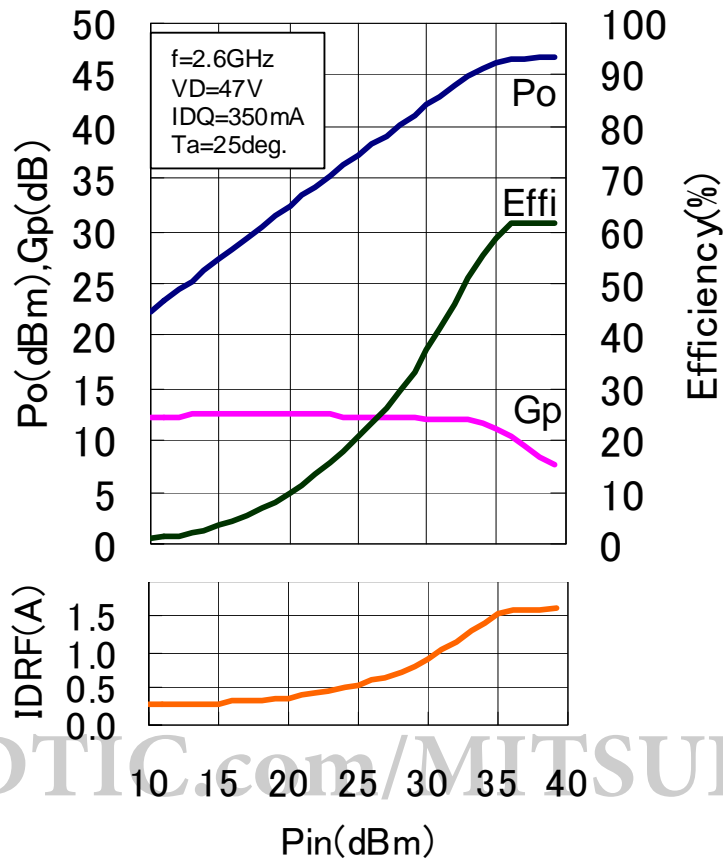


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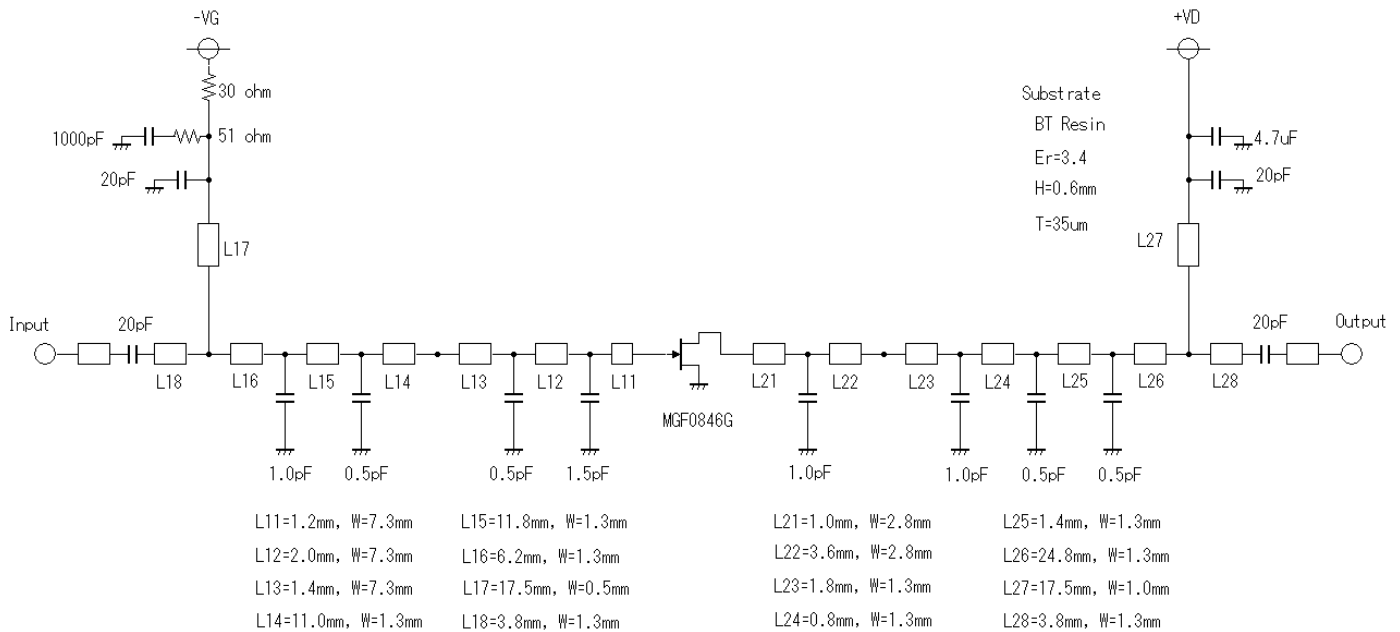
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MGF0846G Example of Circuit Schematic and Charactreistics : f = 2.6 GHz



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MGF0846G S-parameters(Ta=25deg.C , VDS=47(V),IDS=350(mA))

f (GHz)	S Parameters(Typ.)							
	S11		S21		S12		S22	
	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)
0.6	0.966	-173.6	5.549	85.5	0.029	30.5	0.660	-173.7
1.0	0.910	-176.4	3.379	74.4	0.028	3.6	0.643	-179.5
1.4	0.893	176.6	2.433	66.6	0.027	9.1	0.632	178.5
1.8	0.903	174.0	1.992	59.5	0.029	6.7	0.632	178.4
2.2	0.897	168.3	1.675	52.0	0.033	-1.2	0.648	175.2
2.6	0.909	163.9	1.402	42.0	0.026	4.1	0.664	173.0
3.0	0.875	157.0	1.293	34.7	0.031	-1.7	0.628	168.0
3.4	0.905	151.1	1.206	25.6	0.034	11.6	0.635	162.8
3.8	0.894	144.3	1.051	15.3	0.048	1.3	0.644	158.0
4.2	0.907	140.7	0.945	7.4	0.036	-19.0	0.666	152.3
4.6	0.911	136.7	0.853	1.2	0.038	-22.2	0.682	147.7
5.0	0.908	134.5	0.793	-4.8	0.035	-5.2	0.702	144.5
5.4	0.901	130.9	0.728	-10.9	0.039	-3.8	0.715	142.1
5.8	0.894	126.8	0.695	-18.1	0.041	-9.1	0.740	139.3
6.2	0.891	119.4	0.658	-25.5	0.046	-12.4	0.742	137.2
6.6	0.887	110.9	0.630	-33.8	0.049	-14.7	0.751	133.2
7.0	0.894	99.5	0.600	-43.6	0.049	-22.0	0.735	127.9
7.4	0.899	91.5	0.570	-51.5	0.056	-25.4	0.731	120.9
7.8	0.902	83.8	0.530	-60.5	0.052	-32.9	0.733	113.1
8.2	0.906	78.8	0.500	-68.5	0.058	-36.3	0.756	103.9

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