

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

MGF0840G

L to C BAND / 10W

non - matched

DESCRIPTION

The MGF0840G, 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=40.5dBm(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=90mA • Rg=120 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	-1.5	mA
IGF	Forward gate current	30	mA
PT*1	Total power dissipation	21	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=3mA	-1	-	-5	V
P3dB	3dB gain compression power	VDS=47V, ID(RF off)=90mA	39.5	40.5	-	dBm
P1dB	1dB gain compression power	f=2.6GHz	-	39.5	-	dBm
η_d *2	Drain efficiency	*2 : @P3dB	-	60	-	%
GLP *3	Linear power gain	*3 : Pin=20dBm	14	15	-	dB
Rth(ch-c) *4	Thermal resistance	ΔV_f method	-	6.8	9.8	°C/W

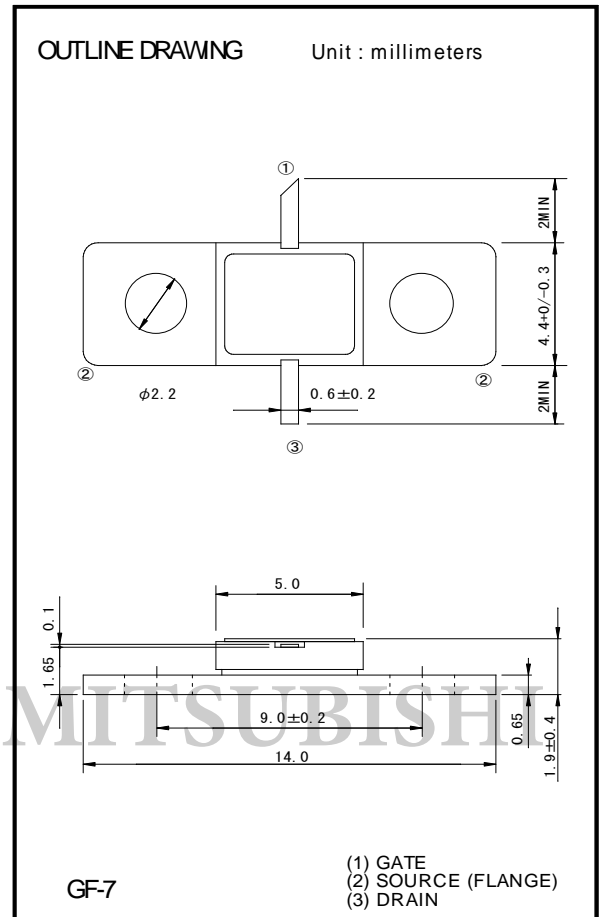
*4 :Channel-case

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=90mA
- Time 10hrs

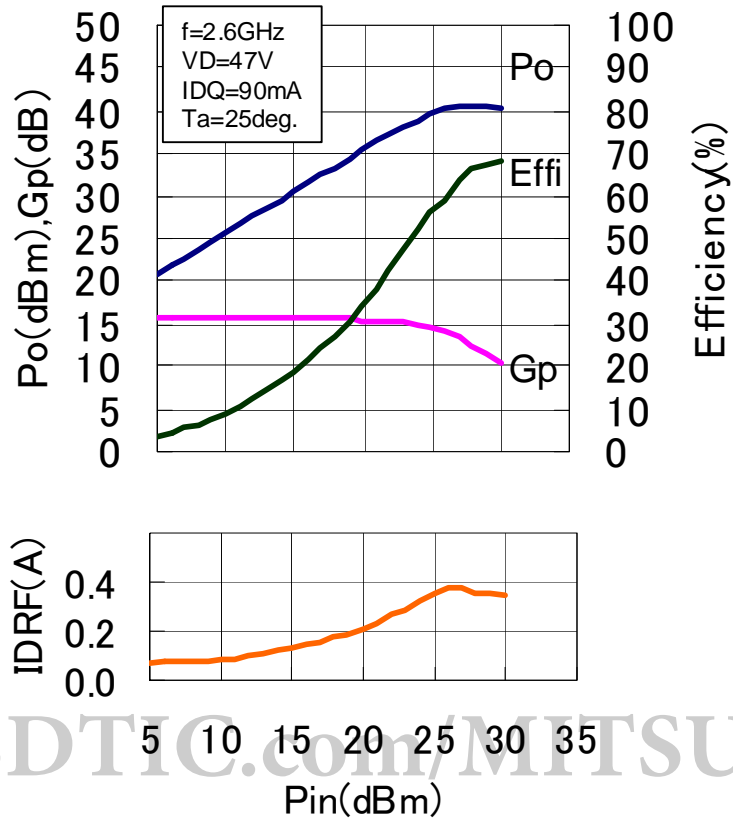


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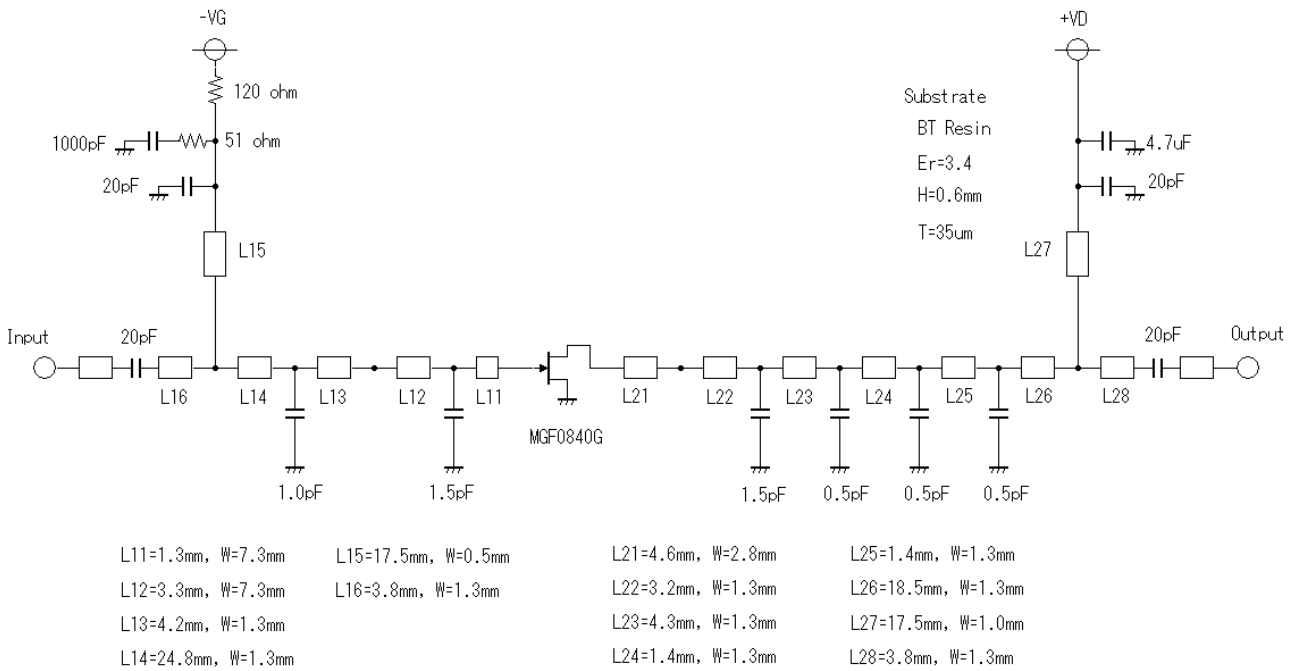
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MGF0840G Example of Circuit Schematic and Charactreistics : f = 2.6 GHz



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MGF0840G S-parameters(Ta=25deg.C , VDS=47(V),IDS=90(mA))

f (GHz)	S Parameters(Typ.)							
	S11		S21		S12		S22	
	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)
0.6	0.884	-114.8	11.163	107.9	0.068	-6.7	0.446	-102.7
1.0	0.803	-144.0	7.081	88.7	0.058	0.3	0.389	-120.9
1.4	0.808	-158.2	5.344	76.2	0.056	4.0	0.356	-129.0
1.8	0.792	-169.5	4.327	66.7	0.065	-1.3	0.379	-130.1
2.2	0.773	-178.2	3.730	56.7	0.059	-10.8	0.389	-137.9
2.6	0.777	172.1	3.184	45.1	0.062	-18.1	0.407	-143.8
3.0	0.730	162.4	2.945	36.9	0.057	-22.6	0.379	-144.0
3.4	0.761	153.0	2.767	26.9	0.064	-22.3	0.374	-148.9
3.8	0.753	141.7	2.505	15.1	0.067	-26.5	0.394	-156.2
4.2	0.777	133.4	2.335	5.9	0.063	-39.3	0.400	-165.8
4.6	0.781	123.8	2.191	-3.2	0.063	-42.4	0.402	-172.7
5.0	0.760	116.5	2.107	-11.7	0.060	-40.3	0.418	-178.9
5.4	0.745	105.0	2.040	-22.2	0.058	-41.0	0.444	175.9
5.8	0.723	93.4	1.985	-33.3	0.060	-41.7	0.476	170.6
6.2	0.719	77.3	1.906	-44.6	0.059	-50.0	0.495	165.8
6.6	0.733	61.2	1.819	-56.3	0.060	-49.6	0.495	161.0
7.0	0.772	44.8	1.713	-68.7	0.056	-53.2	0.478	154.9
7.4	0.801	32.9	1.613	-79.1	0.058	-52.6	0.450	147.0
7.8	0.826	23.4	1.546	-89.0	0.057	-52.6	0.430	137.0
8.2	0.853	13.9	1.513	-99.1	0.061	-48.6	0.420	125.8

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