

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

# MGF0843G

L to C BAND / 20W

non - matched

## DESCRIPTION

The MGF0843G, 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=43.5dBm(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=170mA
- Rg=60 $\Omega$

## 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	-3	mA
IGF	Forward gate current	60	mA
PT*1	Total power dissipation	39	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=6mA	-1	-	-5	V
P3dB	3dB gain compression power	VDS=47V, ID(RF off)=170mA	42.5	43.5	-	dBm
$\eta_d$	Drain efficiency	f=2.6GHz	-	60	-	%
GLP *2	Linear power gain	*2 : Pin=20dBm	13	14	-	dB
Rth(ch-c) *3	Thermal resistance	$\Delta V_f$ method	-	3.9	5.3	°C/W

\*3 :Channel-case

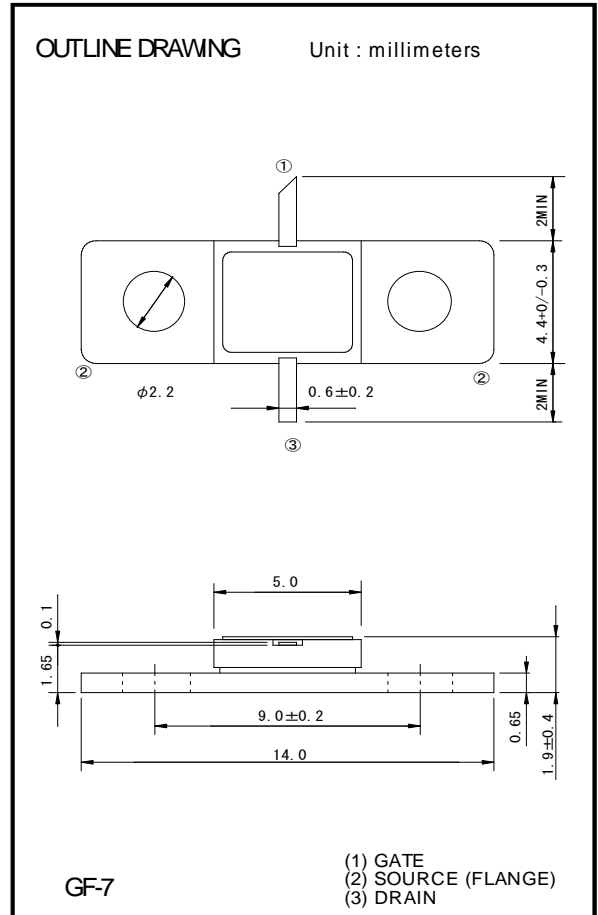
Specification are subject to change without notice.

## Note

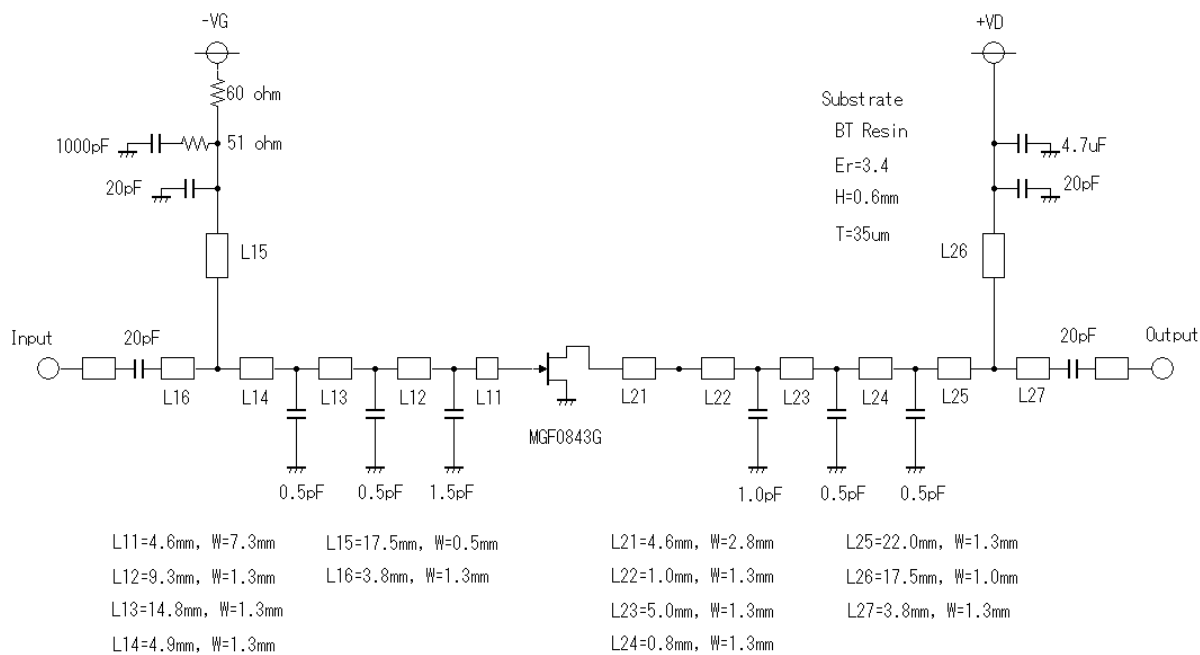
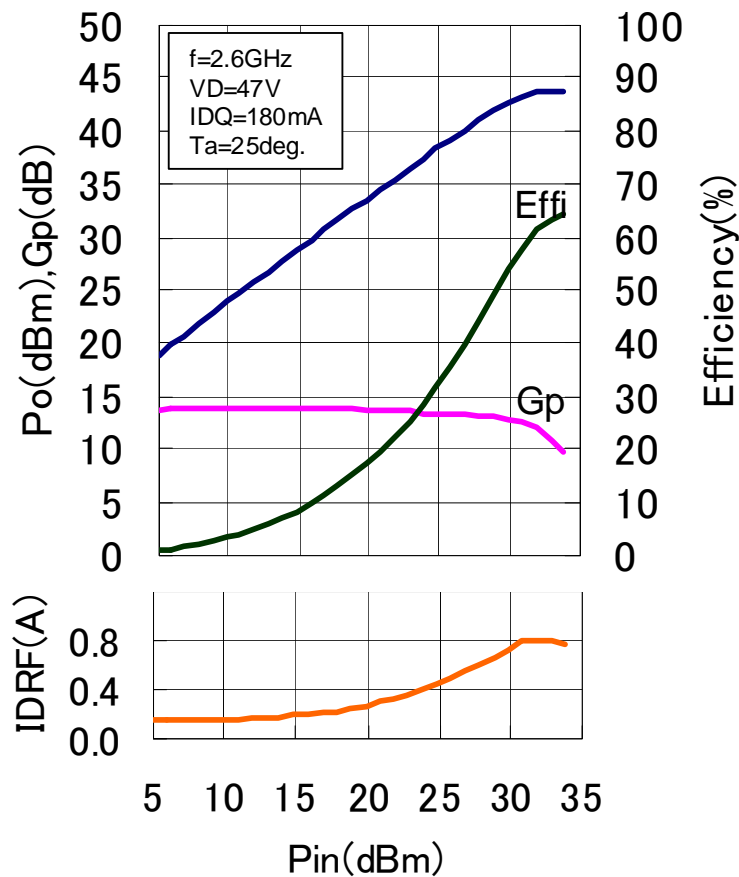
DC aging is recommended to perform before operating in order to stabilize a characteristics of GaN-HEMT. (Ta $\geq$ 80°C)

- Bias conditions  
Vds=47V , Ids=170mA
- Time  
10hrs

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**MGF0843G Example of Circuit Schematic and Charactreistics : f = 2.6 GHz**



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**MGF0843G S-parameters**( Ta=25deg.C , VDS=47(V),IDS=180(mA) )

f (GHz)	S Parameters(Typ.)							
	S11		S21		S12		S22	
	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)
0.6	0.941	-155.7	8.876	92.2	0.038	7.8	0.488	-154.4
1.0	0.841	-166.9	5.442	79.2	0.038	5.3	0.470	-163.8
1.4	0.839	-176.4	3.987	69.6	0.053	14.8	0.458	-168.9
1.8	0.854	176.0	3.255	61.3	0.042	-3.4	0.458	-169.0
2.2	0.835	170.9	2.744	52.5	0.048	-6.4	0.472	-172.5
2.6	0.850	164.3	2.305	42.4	0.043	-10.0	0.492	-175.9
3.0	0.819	155.7	2.115	34.6	0.037	-9.3	0.462	-177.8
3.4	0.850	149.3	1.966	25.1	0.048	-7.7	0.462	176.4
3.8	0.833	141.1	1.743	14.3	0.054	-10.0	0.488	170.6
4.2	0.856	136.0	1.590	6.6	0.049	-26.0	0.510	164.0
4.6	0.856	130.1	1.459	-0.8	0.044	-22.8	0.525	159.2
5.0	0.848	127.4	1.373	-7.5	0.045	-22.7	0.548	154.9
5.4	0.837	121.5	1.287	-15.2	0.048	-19.1	0.574	152.0
5.8	0.823	115.3	1.237	-23.7	0.051	-21.8	0.603	148.9
6.2	0.818	105.7	1.180	-32.3	0.057	-27.6	0.620	147.2
6.6	0.813	95.0	1.138	-41.6	0.057	-27.3	0.621	143.1
7.0	0.828	81.9	1.085	-52.3	0.061	-32.2	0.610	137.5
7.4	0.839	72.5	1.030	-61.1	0.064	-32.6	0.597	130.3
7.8	0.845	64.2	0.979	-70.2	0.062	-38.2	0.596	122.1
8.2	0.855	58.3	0.941	-78.3	0.071	-41.7	0.601	112.4

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