Preliminary

MGF0846G

40 W GaN HEMT [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 = 47 V
- High output power : Po = 46.0 dBm (typ.) @ P3dB
- High efficiency : ηd = 60 % (typ.) @ P3dB
- Designed for use in Class AB linear amplifiers

APPLICATIONS

- MMDS/UMTS/WiMAX

QUALITY

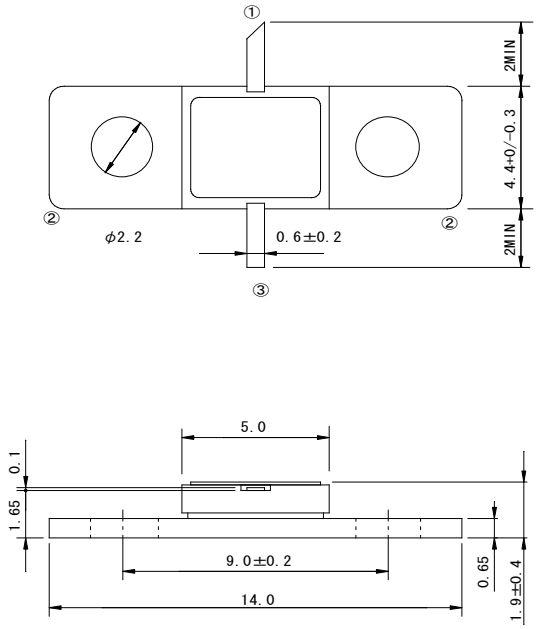
- GG

RECOMMENDED BIAS CONDITIONS

•Vds = 47 V • Ids = 340 mA • Rg = 30 Ω

Packaging 4 inch Tray (25 pcs)

OUTLINE DRAWING Unit : millimeters



GF-7

(1) GATE
(2) SOURCE (FLANGE)
(3) DRAIN

Absolute maximum ratings (Ta = 25° C)

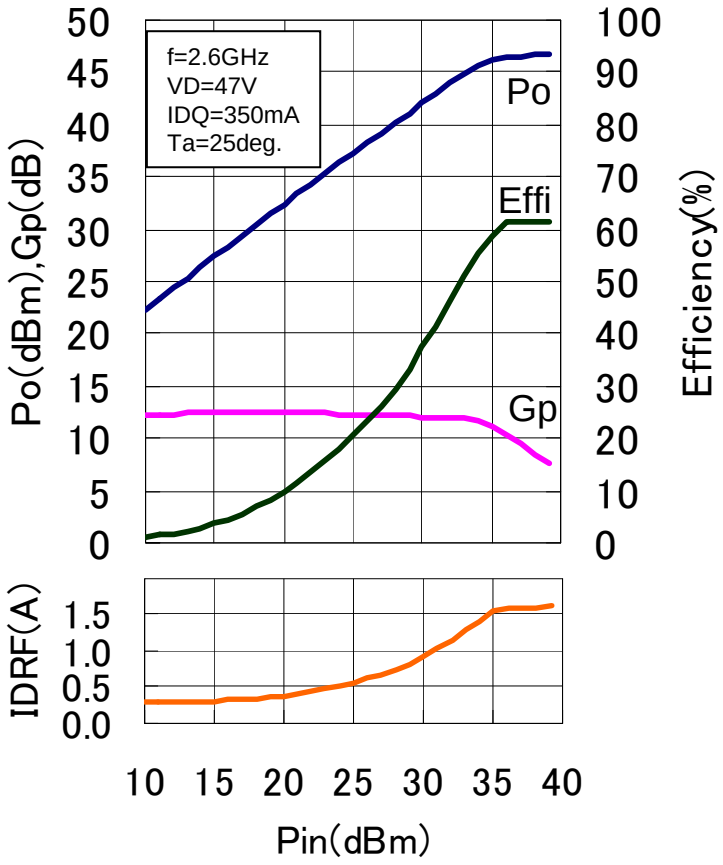
Symbol	Parameter	Ratings	Unit
VDS	Drain to Source Voltage	120	V
VGS	Gate to Source Voltage	- 10	V
PT	Total power dissipation	64	W
IGR	Reverse gate current	- 6	mA
IGF	Forward gate current	+ 120	mA
Tch	Channel temperature	230	°C
Tstg	Storage temperature	- 65 to +175	°C

Electrical characteristics (Ta = 25° C)

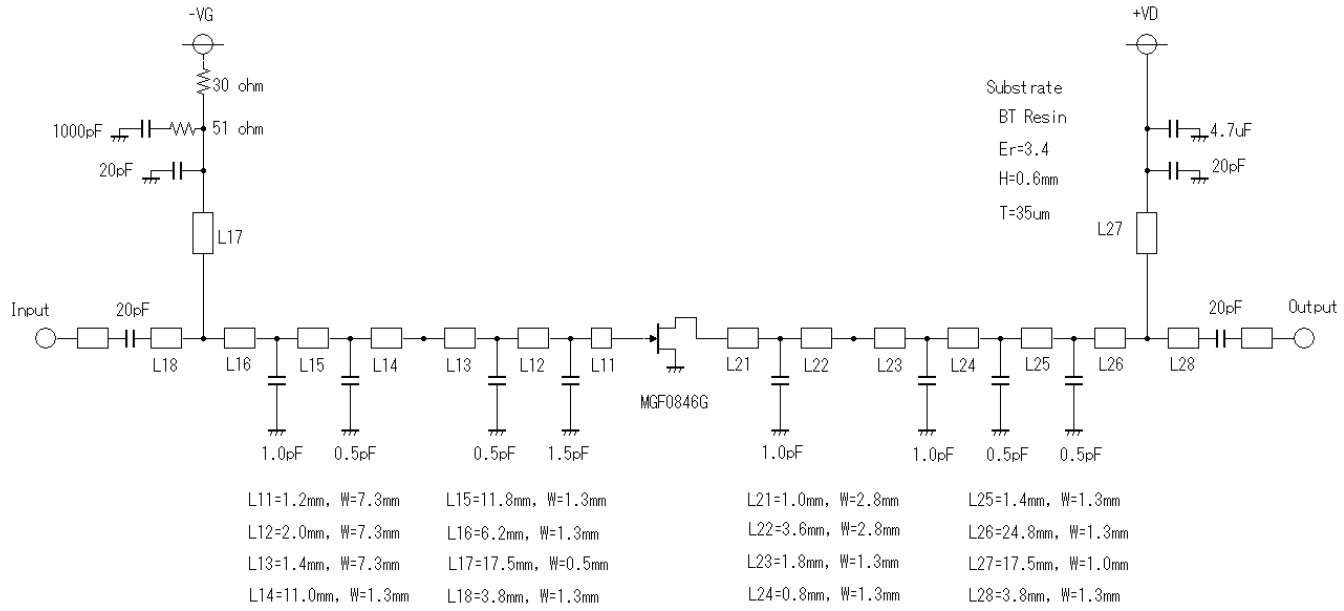
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
VGS(off)	Gate to source cut-off voltage	VDS = 47 V, IDS = 12 mA	-1.0	-	-5.0	V
P3dB	3dB gain compression power	VDS = 47 V, IDQ = 340 mA, f = 2.6 GHz	45.0	46.0	–	dBm
ηd	Drain efficiency		–	60	–	%
GLP *1	Linear power gain	*1 : Pin=20dBm	11.0	12.0	–	dB
Rth(ch-c)	Thermal resistance *2	ΔVf Method	–	2.5	3.2	°C/W

*2 : Channel to case
Specifications are subject to change without notice.

Example of Circuit Schematic and Characteristics : f = 2.6 GHz



Example of circuit



S-parameters:

Condition: VD = 47 V, ID = 350 mA, Ta = 25 deg. C

Freq.	S11		S21		S12		S22	
(GHz)	(mag)	(ang)	(mag)	(ang)	(mag)	(ang)	(mag)	(ang)
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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