

MGF2148G

6249829 MITSUBISHI (DISCRETE SC)

91D 10105 D T-39-87

**FOR MICROWAVE POWER AMPLIFIERS
CHIP-CARRIER TYPE**

DESCRIPTION

The MGF2148G combines the advantages of the least parasitics of a chip device and the easy assembly of a package device. The device gives excellent performance even in Ku-band.

FEATURES

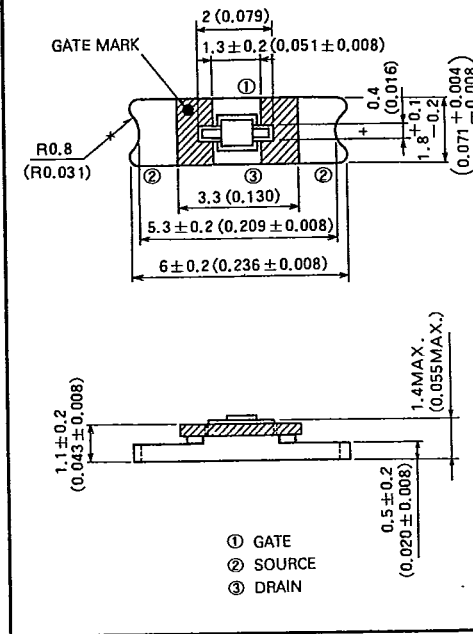
- Chip-carrier type 1.8 mm Width
- Flip-chip mounted
- High output power
 $P_{1dB} = 1.2 \text{ W (TYP.) @ } f = 14 \text{ GHz}$
- High linear power gain
 $G_{LP} = 4.7 \text{ dB (TYP.) @ } f = 14 \text{ GHz}$
- High power added efficiency
 $\eta_{add} = 14\% \text{ (TYP.) @ } f = 14 \text{ GHz, } P_{1dB}$

QUALITY GRADE

- IG

OUTLINE DRAWING

Unit: millimeters (inches)



ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Symbol	Parameter	Rating	Unit
V _{GD0}	Gate to drain voltage	-11	V
V _{GS0}	Gate to source voltage	-11	V
I _D	Drain current	1600	mA
I _{GR}	Reverse gate current	-4.0	mA
I _{GF}	Forward gate current	9.0	mA
P _T	Total power dissipation	10	W
T _{oh}	Channel temperature	175	°C
T _{stg}	Storage temperature	-55 ~ +175	°C
R _{th(ch-o)}	Thermal resistance	15	°C/W

ELECTRICAL CHARACTERISTICS (Ta=25°C)

Symbol	Parameter	Conditions	Limits			Unit
			Min	Typ	Max	
I _{DSS}	Saturated drain current	V _{DS} =3V, V _{GS} =0V	900	1300	1600	mA
V _{GS(off)}	Gate to source cut-off voltage	V _{DS} =3V, I _D =1mA	-2		-7	V
g _m	Transconductance	V _{DS} =3V, I _D =600mA	360	500		mS
P _{1dB} *	Output power at 1 dB gain compression	V _{DS} =8V, I _D =600mA	f=12GHz	1.2	1.6	W
			f=14GHz		1.2	
G _{LP} *	Linear power gain		f=12GHz	4.7	5.2	dB
			f=14GHz		4.7	
η _{add} *	Power added efficiency		f=12GHz		20	%
			f=14GHz		14	

* Sampling inspection

MGF2148G

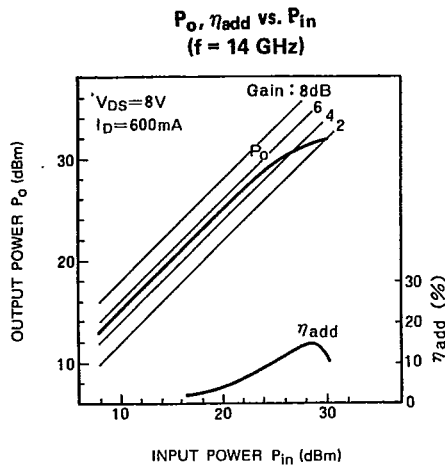
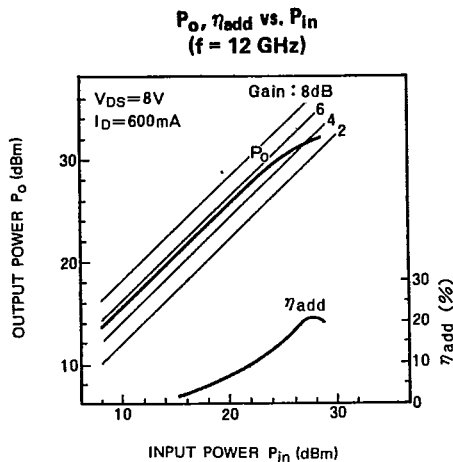
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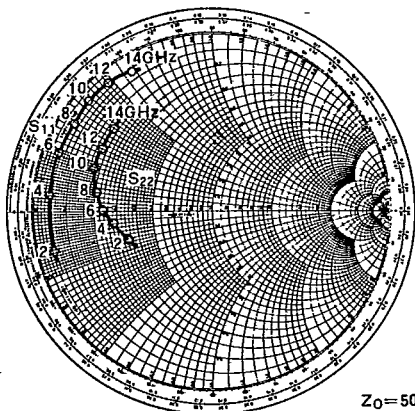
**FOR MICROWAVE POWER AMPLIFIERS
 CHIP-CARRIER TYPE**

T-39-07

TYPICAL CHARACTERISTICS (Ta=25°C)

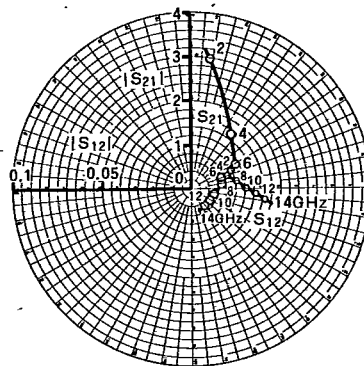


S_{11}, S_{22} vs. f



$Z_0=50 \Omega$
 $V_{DS}=8V$
 $I_D=600mA$

S_{12}, S_{21} vs. f



$Z_0=50 \Omega$
 $V_{DS}=8V$
 $I_D=600mA$

S PARAMETERS (Ta=25°C, VDS=8V, ID=600mA)

f (GHz)	S Parameters (TYP.)							
	S_{11}		S_{12}		S_{21}		S_{22}	
	Magn.	Angle (deg.)	Magn.	Angle (deg.)	Magn.	Angle (deg.)	Magn.	Angle (deg.)
2	0.913	-166.8	0.023	25.5	3.140	82.3	0.485	-158.8
4	0.902	173.0	0.021	17.4	1.508	53.3	0.543	-172.0
6	0.898	159.1	0.018	11.4	1.120	28.4	0.612	179.9
8	0.901	147.2	0.010	10.0	0.680	7.6	0.653	170.5
10	0.912	137.4	0.029	1.2	0.515	-12.0	0.701	160.3
12	0.908	128.5	0.034	-4.3	0.475	-24.7	0.708	151.0
14	0.900	119.1	0.041	-8.7	0.415	-43.1	0.712	139.5