

MITSUBISHI SEMICONDUCTOR <GaAs FET>  
**MGF1954A**

Microwave Power MES FET (Leadless Ceramic Package)

**DESCRIPTION**

The MGF1954A is designed for use in S to Ku band power amplifiers.  
The lead-less ceramic package assures minimum parasitic losses.

**FEATURES**

High gain and High P1dB  
Glp=5.0dB , P1dB=23dBm (Typ.) @ f=12GHz

**APPLICATION**

S to Ku band power Amplifiers

**QUALITY GRADE**

GG

**RECOMMENDED BIAS CONDITION**

$V_{DS}=6V$ ,  $I_D=100mA$

**ORDERING INFORMATION**

Tape & reel 3000pcs./reel

**Outline Drawing**

Fig.1

**ABSOLUTE MAXIMUM RATINGS** (Ta=25°C)

Symbol	Parameter	Ratings	Unit
V <sub>GDO</sub>	Gate to drain voltage	-10	V
V <sub>GSO</sub>	Gate to source voltage	-10	V
I <sub>D</sub>	Drain current	400	mA
PT	Total power dissipation	1	W
T <sub>ch</sub>	Channel temperature	125	°C
T <sub>stg</sub>	Storage temperature	-65 to +125	°C

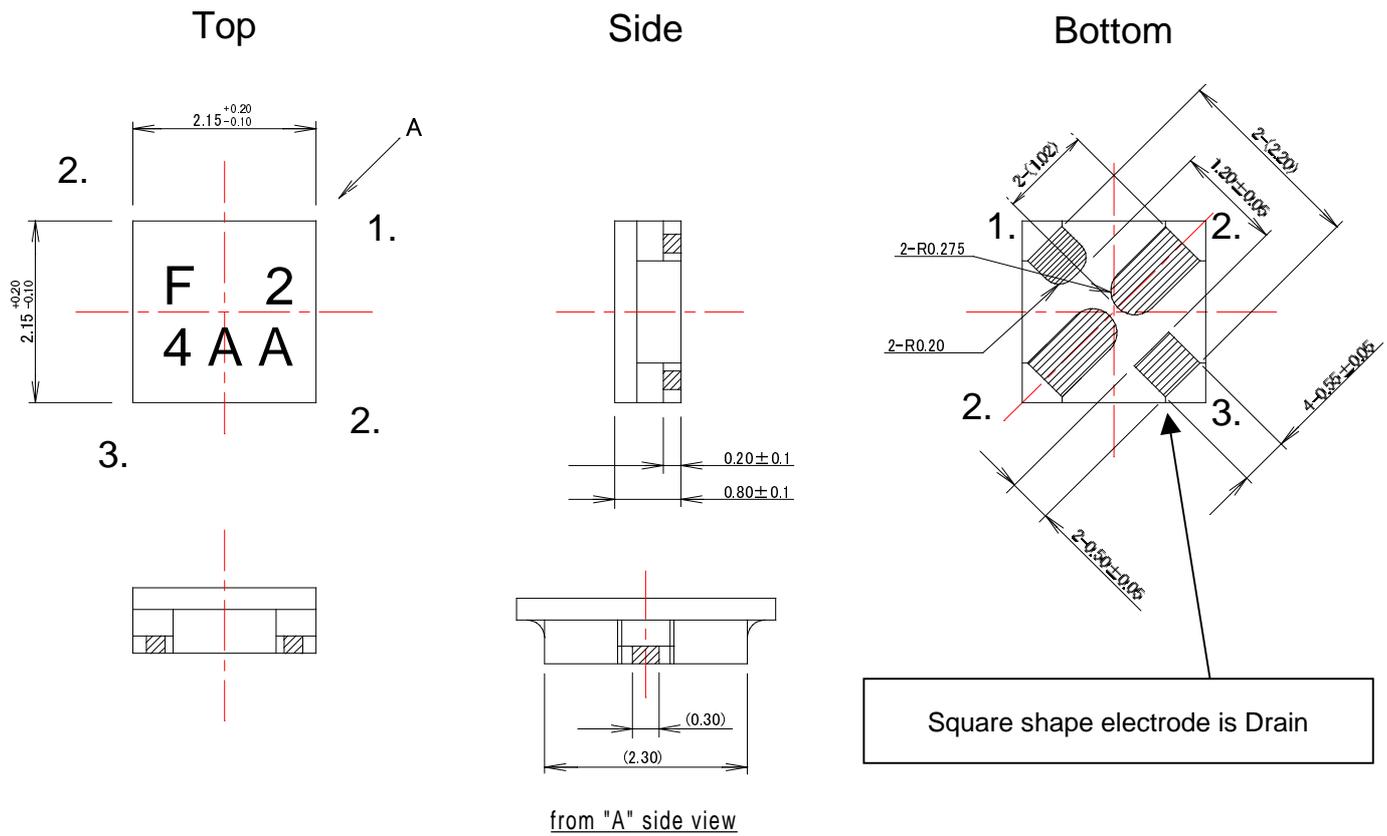
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**ELECTRICAL CHARACTERISTICS** (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			MIN.	TYP.	MAX	
V(BR)GDO	Gate to drain breakdown voltage	I <sub>g</sub> =-100μA	-10	-15	--	V
I <sub>DSS</sub>	Saturated drain current	V <sub>GS</sub> =0V, V <sub>DS</sub> =3V	105	200	400	mA
V <sub>GS(off)</sub>	Gate to source cut-off voltage	V <sub>DS</sub> =3V, I <sub>D</sub> =1mA	-0.3	-1.4	-3.5	V
P <sub>o</sub>	Output Power at 1dB gain compression	V <sub>DS</sub> =6V, I <sub>D</sub> =100mA f=12GHz	21	23	--	dBm
G <sub>lp</sub>	Linear Power Gain	V <sub>DS</sub> =6V, I <sub>D</sub> =100mA f=12GHz, Pin=5dBm	3	5	--	dB

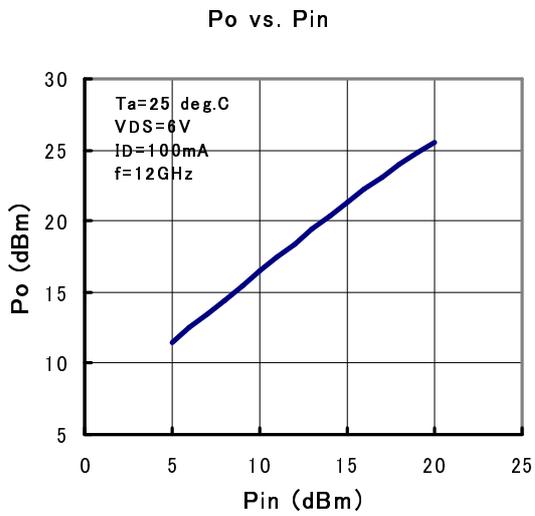
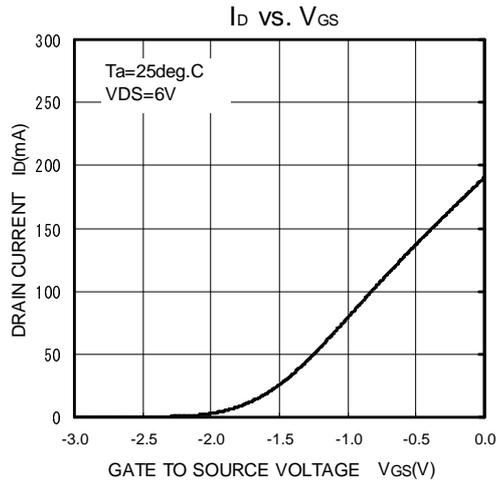
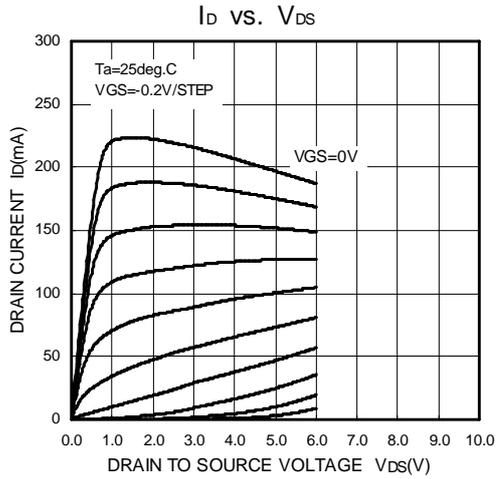
Fig.1

Unit : mm



- 1. Gate
- 2. Source
- 3. Drain

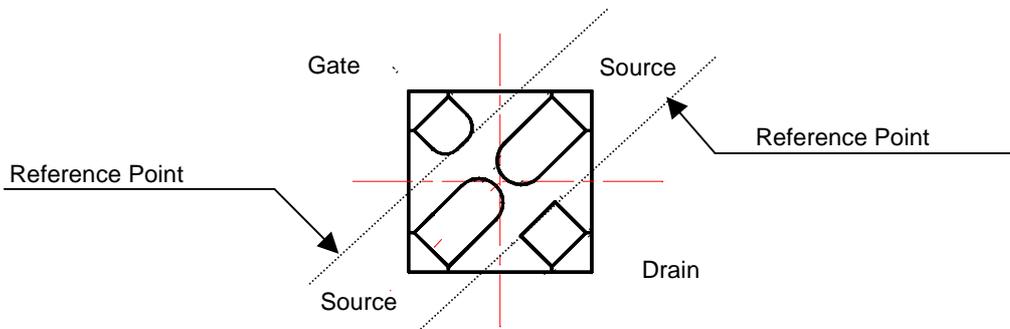
TYPICAL CHARACTERISTICS (Ta=25°C)



S PARAMETERS

(Conditions : VDS=6V, ID=100mA, Ta=25deg.C)

f (GHz)	S11		S21		S12		S22		K	MAG/MSG (dB)
	Mag.	Angle	Mag.	Angle	Mag.	Angle	Mag.	Angle		
1	0.903	-52.0	8.141	142.0	0.027	61.9	0.216	-45.4	0.41	24.8
2	0.771	-96.4	6.285	111.6	0.042	40.2	0.197	-82.6	0.74	21.8
3	0.697	-122.5	4.948	94.1	0.050	31.9	0.194	-99.7	1.00	20.0
4	0.672	-145.4	4.003	78.6	0.054	26.1	0.197	-116.0	1.19	16.0
5	0.659	-162.1	3.393	65.4	0.058	21.5	0.204	-123.3	1.34	14.2
6	0.652	-176.3	2.977	53.0	0.062	19.0	0.207	-125.7	1.46	12.8
7	0.649	169.9	2.685	40.2	0.067	15.7	0.209	-127.1	1.50	11.9
8	0.645	156.5	2.499	26.8	0.073	12.7	0.205	-128.9	1.49	11.2
9	0.640	142.2	2.322	13.9	0.080	7.5	0.190	-132.9	1.50	10.4
10	0.636	126.0	2.174	0.5	0.091	1.1	0.165	-139.4	1.47	9.8
11	0.620	107.6	2.005	-14.3	0.096	-8.8	0.124	-153.6	1.60	8.7
12	0.617	88.8	1.845	-29.4	0.101	-17.7	0.082	172.2	1.72	7.7
13	0.634	70.5	1.654	-44.6	0.104	-26.8	0.085	109.8	1.83	6.8
14	0.664	53.6	1.467	-59.3	0.105	-37.6	0.151	70.8	1.93	5.9
15	0.711	38.5	1.291	-73.1	0.102	-46.5	0.235	52.1	1.98	5.3
16	0.767	26.2	1.123	-86.4	0.101	-56.1	0.322	39.7	1.90	5.0
17	0.821	14.6	0.965	-99.2	0.097	-65.4	0.408	30.2	1.79	4.8
18	0.863	5.3	0.813	-112.1	0.094	-74.2	0.474	20.6	1.68	4.6



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