MITSUBISHI ELECTRIC

< Power GaAs FET >

MGF1953A

Leadless ceramic package

DESCRIPTION

The MGF1953A power MES FET is designed for use in S to Ku band power amplifiers.

The lead-less ceramic package assures minimum parasitic losses.

Outline Drawing

Fig.1

FEATURES

High gain and High P1dB

Glp=6.0dB , P1dB=20dBm (Typ.) @ f=12GHz

APPLICATION

S to Ku band low noise amplifiers

QUALITY GRADE

GG

RECOMMENDED BIAS CONDITIONS

V_{DS}=4V , I_D=100mA

ORDERING INFORMATION

Tape & reel 3,000pcs/reel

RoHS COMPLIANT

MGF1953A is a RoHS compliant product. RoHS compliance is indicated by the letter “G” after the Lot Marking.

ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

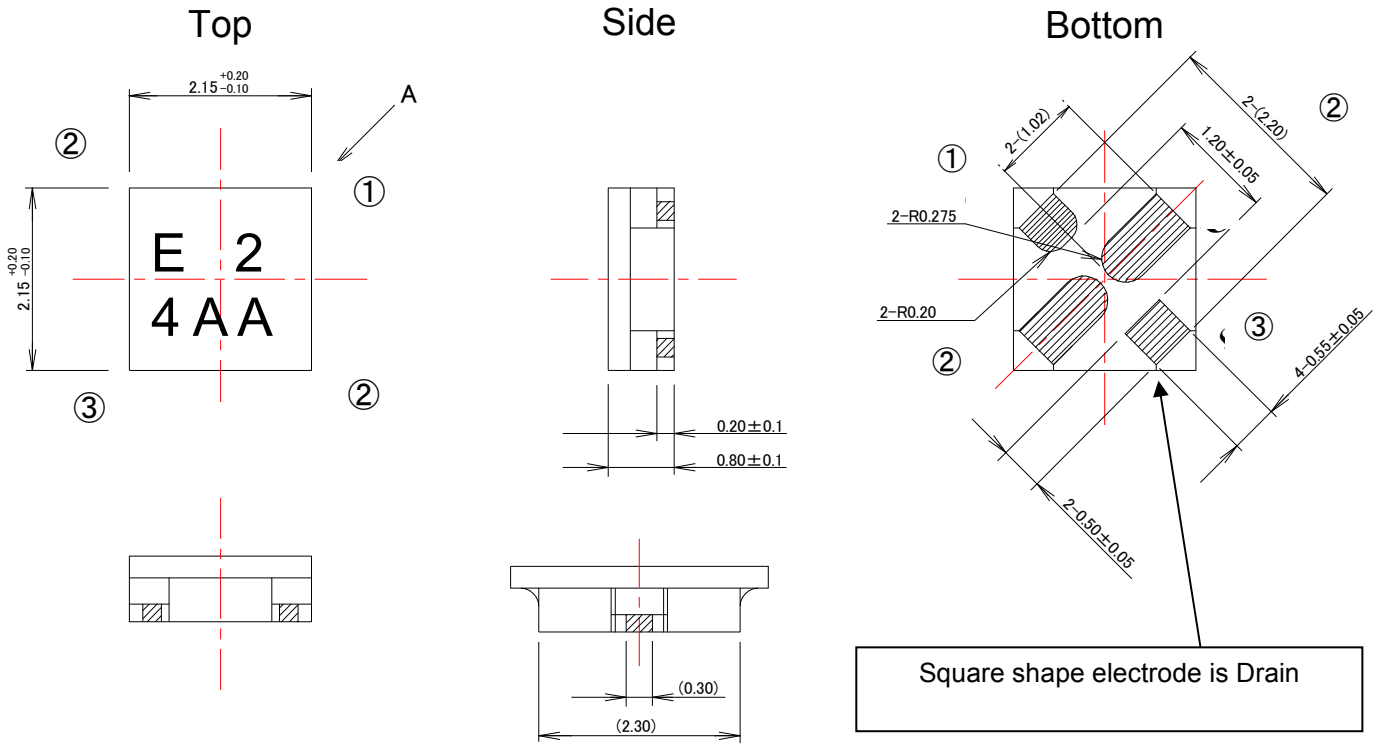
Symbol	Parameter	Ratings	Unit
V_{GDO}	Gate to drain voltage	-8	V
V_{GSO}	Gate to source voltage	-8	V
I_D	Drain current	400	mA
PT	Total power dissipation	1	W
T_{ch}	Channel temperature	125	°C
T_{stg}	Storage temperature	-65 to +125	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			MIN.	TYP.	MAX	
$V_{(BR)GDO}$	Gate to drain breakdown voltage	I_G=-100μA	-8	-15	--	V
I_{DSS}	Saturated drain current	V_{GS}=0V,V_{DS}=3V	105	200	400	mA
$V_{GS(off)}$	Gate to source cut-off voltage	V_{DS}=3V,I_D=1mA	-0.3	-1.4	-3.5	V
P1dB	Output power at 1dB gain compression	V_{DS}=4V, ID=100mA, f=12GHz	18	20	--	dBm
Glp	Linear power gain	V_{DS}=4V, ID=100mA, f=12GHz, Pin=-5dBm	4	6	--	dB

Note: P1B and Glp are tested with sampling inspection.

Fig.1



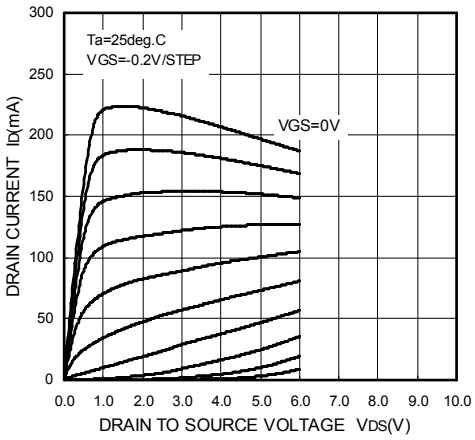
from "A" side view

Unit: mm

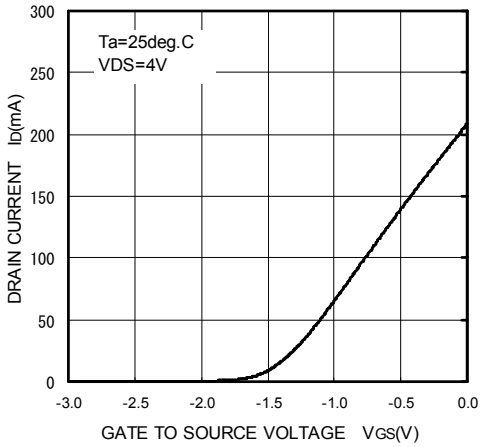
① Gate
② Source
③ Drain

TYPICAL CHARACTERISTICS (Ta=25°C)

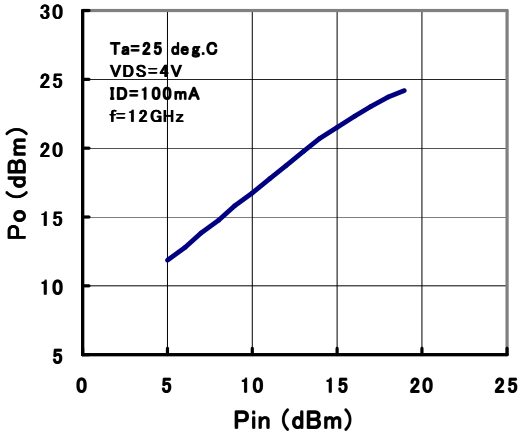
I_D vs. V_{DS}



I_D vs. V_{GS}



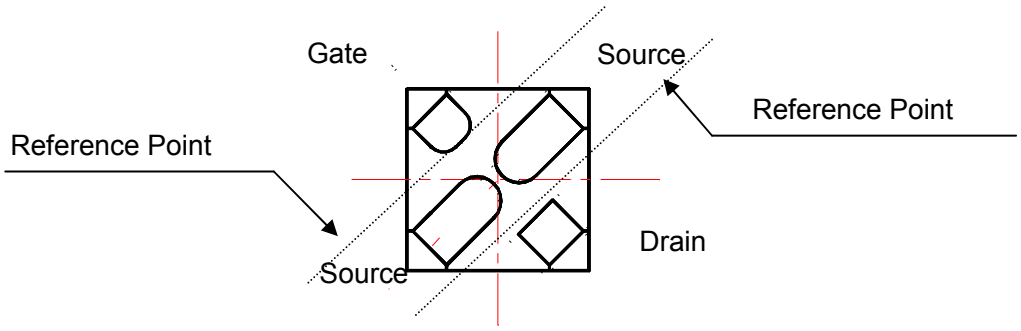
Po vs. Pin



S PARAMETERS

(Conditions : VDS=4V,ID=100mA,Ta=25deg.C)

f	S11		S21		S12		S22		K	MAG/MSG
(GHz)	Mag.	Angle	Mag.	Angle	Mag.	Angle	Mag.	Angle		(dB)
1	0.907	-51.1	8.288	143.0	0.026	63.3	0.148	-62.0	0.40	25.0
2	0.775	-95.1	6.461	112.7	0.041	42.5	0.161	-105.9	0.73	21.9
3	0.702	-121.5	5.090	95.3	0.049	34.4	0.173	-123.3	0.99	20.1
4	0.674	-144.5	4.128	79.9	0.055	28.9	0.187	-138.9	1.16	16.3
5	0.661	-161.3	3.521	66.9	0.060	23.7	0.190	-145.1	1.29	14.5
6	0.653	-175.4	3.105	54.6	0.065	20.8	0.185	-146.9	1.38	13.1
7	0.650	170.8	2.810	41.7	0.071	17.5	0.175	-147.3	1.41	12.2
8	0.650	157.4	2.609	28.9	0.078	12.7	0.164	-149.1	1.40	11.5
9	0.642	143.3	2.440	16.2	0.086	6.9	0.142	-154.0	1.40	10.8
10	0.640	127.4	2.270	2.4	0.096	-0.1	0.114	-165.1	1.39	10.0
11	0.623	109.0	2.091	-12.5	0.103	-10.3	0.083	166.0	1.50	8.9
12	0.619	90.0	1.908	-27.6	0.106	-20.4	0.085	113.6	1.63	7.9
13	0.634	71.7	1.710	-42.4	0.108	-29.8	0.140	75.8	1.75	7.0
14	0.666	54.3	1.507	-57.2	0.107	-41.2	0.217	54.5	1.86	6.2
15	0.713	39.4	1.314	-70.2	0.105	-50.7	0.300	41.8	1.89	5.5
16	0.769	27.0	1.139	-82.8	0.101	-59.9	0.378	32.0	1.84	5.2
17	0.822	15.6	0.976	-95.2	0.097	-68.4	0.455	23.4	1.76	5.0
18	0.865	5.9	0.821	-107.2	0.091	-77.2	0.513	15.3	1.67	4.7



Note

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