MITSUBISHI SEMICONDUCTOR <GaAs FET>

MGF4955A

SUPER LOW NOISE InGaAs HEMT (Leadless Ceramic Package)

DESCRIPTION

The MGF4955A super-low noise HEMT (High Electron Mobility Transistor) is designed for use in C to K band amplifiers.

The lead-less ceramic package assures minimum parasitic losses.

FEATURES

Low noise figure @ f=12GHz

MGF4955A : NFmin. = 0.40dB (Typ.)

High associated gain @ f=12GHz

Gs = 12.0dB (Typ.)

APPLICATION

C to K band low noise amplifiers

QUALITY GRADE

GG

RECOMMENDED BIAS CONDITIONS

V_{DS}=2V , I_D=7.5mA

ORDERING INFORMATION

Tape & reel 3000pcs./reel

Outline Drawing

Fig.1

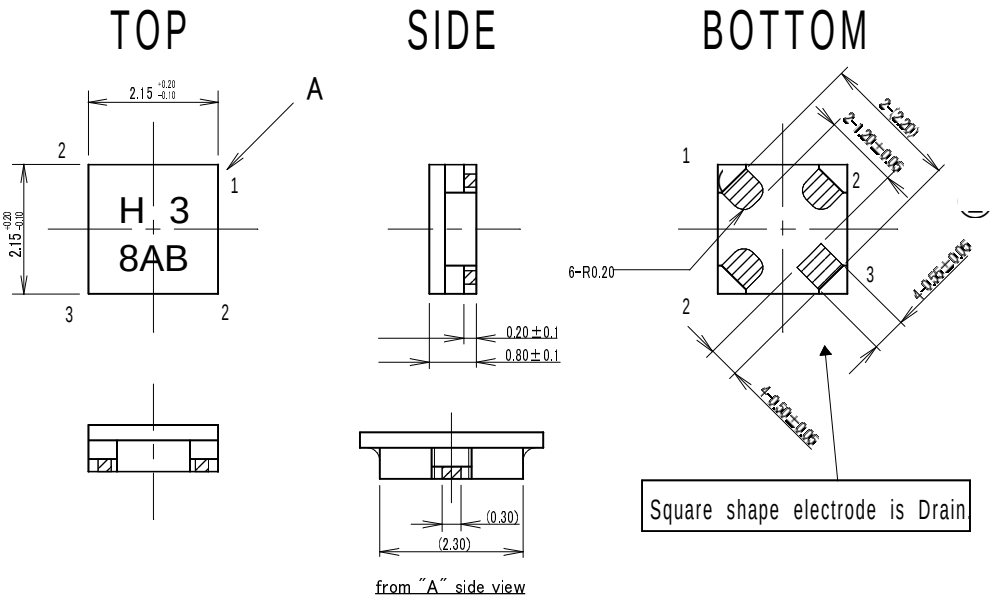
ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Symbol	Parameter	Ratings	Unit
V_{GDO}	Gate to drain voltage	-4	V
V_{GSO}	Gate to source voltage	-4	V
I_D	Drain current	60	mA
PT	Total power dissipation	50	mW
T_{ch}	Channel temperature	125	°C
T_{stg}	Storage temperature	-65 to +125	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C)

Synbol	Parameter	Test conditions	Limits			Unit
			MIN.	TYP.	MAX	
$V_{(BR)GDO}$	Gate to drain breakdown voltage	I_G=-10μA	-3	--	--	V
I_{GSS}	Gate to source leakage current	V_{GS}=-2V,V_{DS}=0V	--	--	50	μA
I_{DSS}	Saturated drain current	V_{GS}=0V,V_{DS}=2V	15	--	60	mA
$V_{GS(off)}$	Gate to source cut-off voltage	V_{DS}=2V,I_D=500μA	-0.1	--	-1.5	V
Gs	Associated gain	V_{DS}=2V, I_D=7.5mA	11.0	12.0	--	dB
NFmin.	Minimum noise figure	f=12GHz	--	0.40	0.50	dB

Fig.1

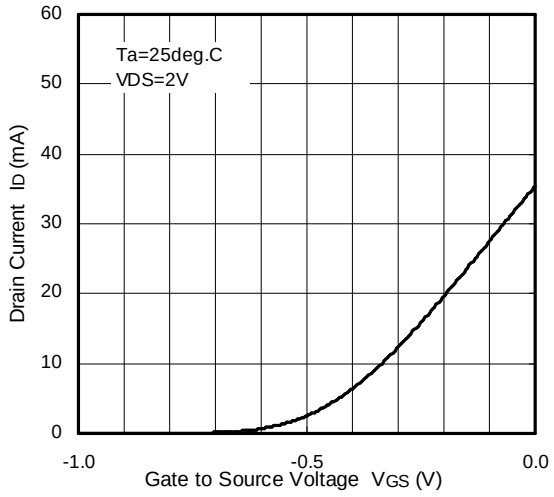


1. Gate
2. Source
3. Drain

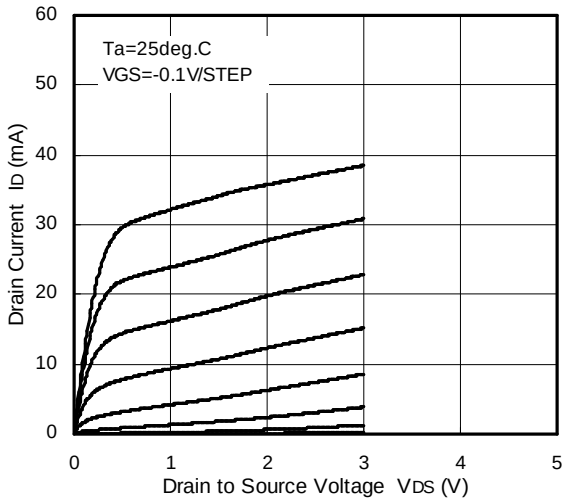
unit : mm

TYPICAL CHARACTERISTICS (Ta=25°C)

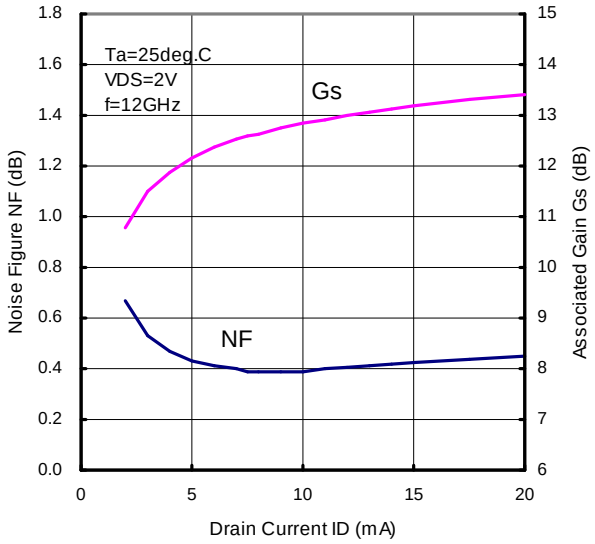
ID vs. VGS



ID vs. VDS



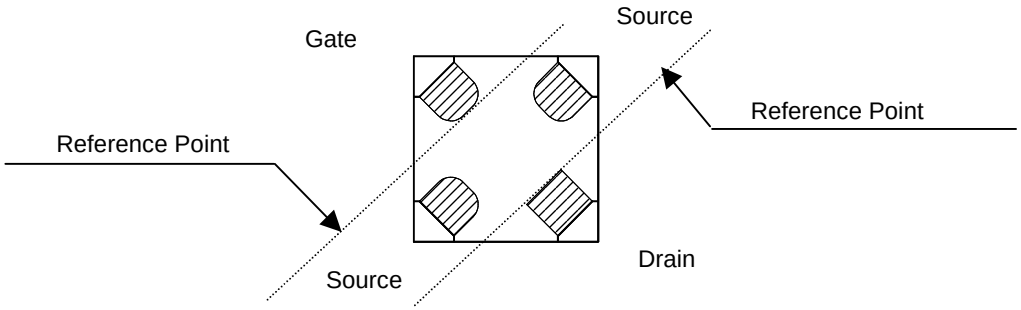
NF & Gs vs. ID



S PARAMETERS

(Conditions:VDS=2V,ID=7.5mA,Ta=25deg.C)

Freq. (GHz)	S11		S21		S12		S22	
	(mag)	(ang)	(mag)	(ang)	(mag)	(ang)	(mag)	(ang)
1	0.986	-12.7	4.455	166.3	0.013	80.8	0.721	-9.5
2	0.973	-24.8	4.336	153.2	0.026	71.4	0.709	-19.8
3	0.939	-37.1	4.171	140.5	0.037	63.3	0.698	-28.0
4	0.910	-50.7	4.038	127.8	0.047	55.7	0.671	-35.9
5	0.877	-61.1	3.844	116.7	0.055	48.1	0.663	-42.9
6	0.840	-69.9	3.653	106.7	0.061	42.6	0.655	-49.7
7	0.808	-77.6	3.486	97.1	0.065	38.1	0.654	-54.4
8	0.775	-84.6	3.359	88.4	0.067	35.1	0.650	-57.3
9	0.738	-92.0	3.288	79.5	0.072	32.0	0.641	-60.7
10	0.697	-99.0	3.237	70.5	0.075	30.7	0.635	-63.4
11	0.651	-107.6	3.266	61.3	0.084	28.4	0.632	-66.2
12	0.578	-115.6	3.263	51.5	0.090	23.8	0.602	-69.9
13	0.511	-124.4	3.296	41.2	0.096	20.9	0.586	-74.2
14	0.433	-136.0	3.334	30.4	0.103	17.4	0.551	-77.8
15	0.345	-151.4	3.367	18.8	0.113	12.9	0.513	-84.0
16	0.263	-173.2	3.390	6.7	0.123	8.6	0.477	-90.8
17	0.214	150.1	3.402	-6.5	0.134	2.6	0.418	-100.3
18	0.242	107.4	3.373	-20.3	0.146	-4.2	0.361	-110.6
19	0.348	76.8	3.320	-34.9	0.160	-12.5	0.268	-124.3
20	0.476	56.7	3.204	-50.4	0.170	-22.2	0.177	-152.6
21	0.639	42.2	3.007	-67.6	0.177	-32.9	0.098	138.6
22	0.791	27.6	2.730	-84.6	0.180	-44.9	0.223	71.3
23	0.894	16.9	2.360	-100.7	0.170	-56.1	0.368	45.2
24	0.970	7.7	1.957	-116.6	0.157	-67.5	0.533	24.3
25	1.027	0.5	1.560	-129.5	0.135	-75.7	0.682	15.3
26	1.047	-4.6	1.254	-139.9	0.120	-81.7	0.761	9.4



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