DESCRIPTION

The MGF4934AM super-low noise HEMT (High Electron Mobility Transistor) is designed for use in S to Ku band amplifiers.

The 4pin flat lead package is small-thin size, and offers high cost performance.

FEATURES

Low noise figure @ f=12GHz
NFmin. = 0.60dB (Typ.)

High associated gain @ f=12GHz
Gs = 12.5dB (Typ.)

APPLICATION

S to Ku band low noise amplifiers

QUALITY GRADE

GG

RECOMMENDED BIAS CONDITIONS

V_{DS}=2V , I_D=10mA

ORDERING INFORMATION

Tape & reel 3000pcs/reel

Outline Drawing

Fig.1

Keep Safety first in your circuit designs!

Mitsubishi Electric Corporation puts the maximum effort into making semiconductor products better and more reliable , but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury , fire or property damage. Remember to give due consideration to safety when making your circuit designs , with appropriate measure such as (I) placement of substitutive , auxiliary circuits , (ii) use of non-flammable material or (iii) prevention against any malfunction or mishap.

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	IDSS	mA
PT	Total power dissipation	50	mW
T_{ch}	Channel temperature	125	°C
T_{stg}	Storage temperature	-55 to +125	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C)

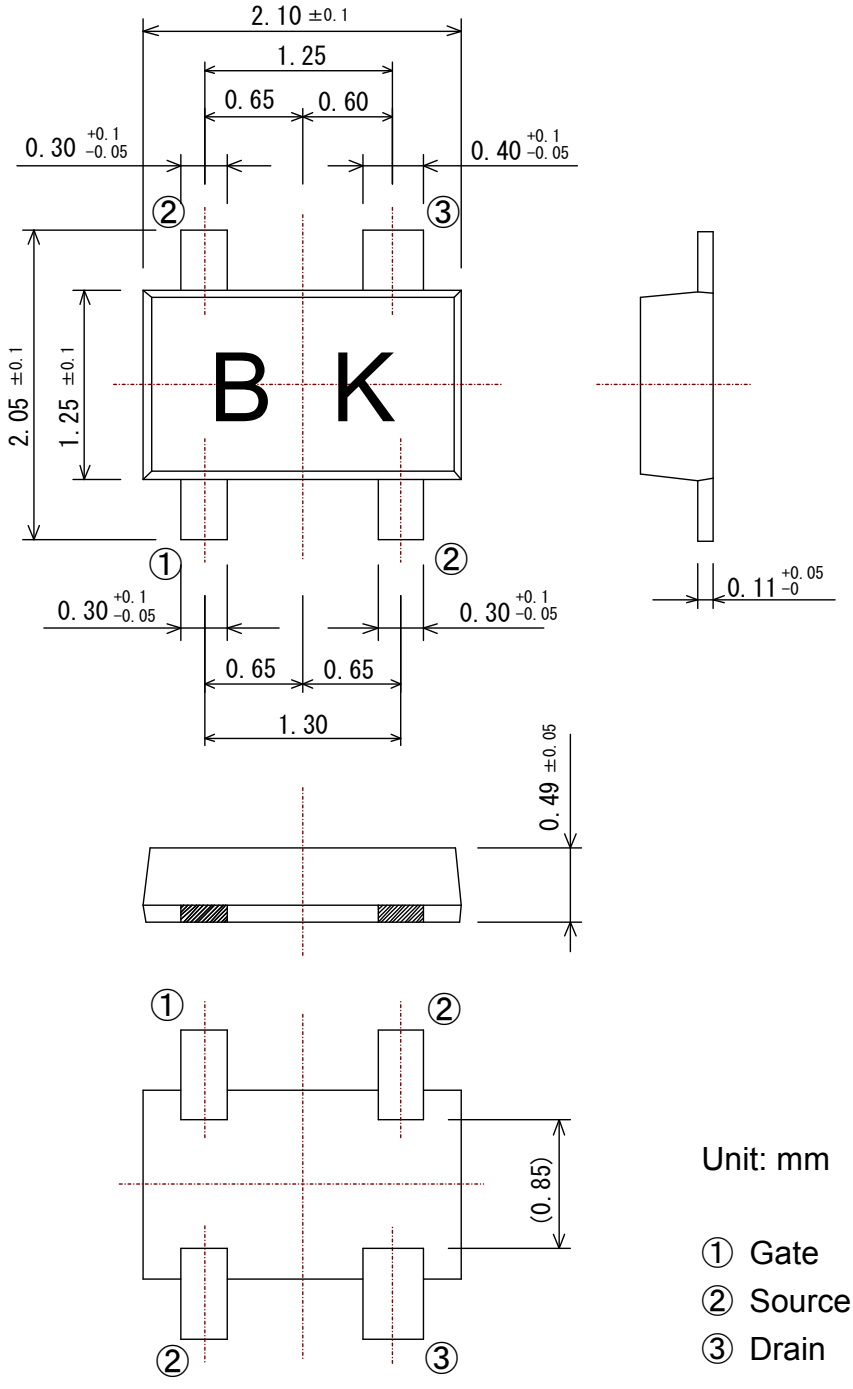
Symbol	Parameter	Test conditions	Limits			Unit
			MIN.	TYP.	MAX	
$V_{(BR)GDO}$	Gate to drain breakdown voltage	I_G=-10μA	-3.5	--	--	V
I_{GSS}	Gate to source leakage current	V_{GS}=-2V,V_{DS}=0V	--	--	50	μA
I_{DSS}	Saturated drain current	V_{GS}=0V,V_{DS}=2V	12	--	60	mA
$V_{GS(off)}$	Gate to source cut-off voltage	V_{DS}=2V,I_D=500μA	-0.1	--	-1.5	V
Gs	Associated gain	V_{DS}=2V,	11.5	12.5	--	dB
NFmin.	Minimum noise figure	I_D=10mA,f=12GHz	--	0.60	0.80	dB

Fig.1

Top

Side

Bottom



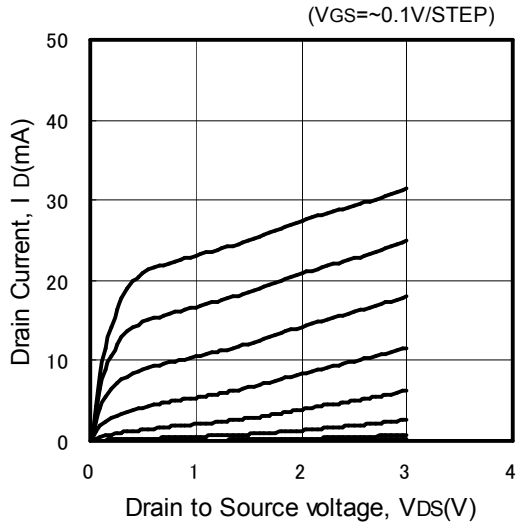
Unit: mm

① Gate
② Source
③ Drain

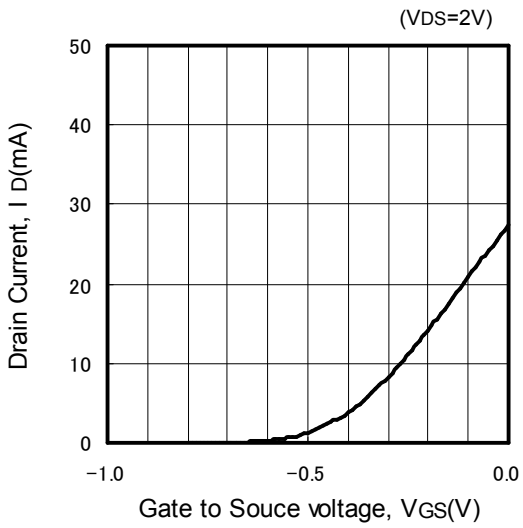
(GD-30)

TYPICAL CHARACTERISTICS (Ta=25°C)

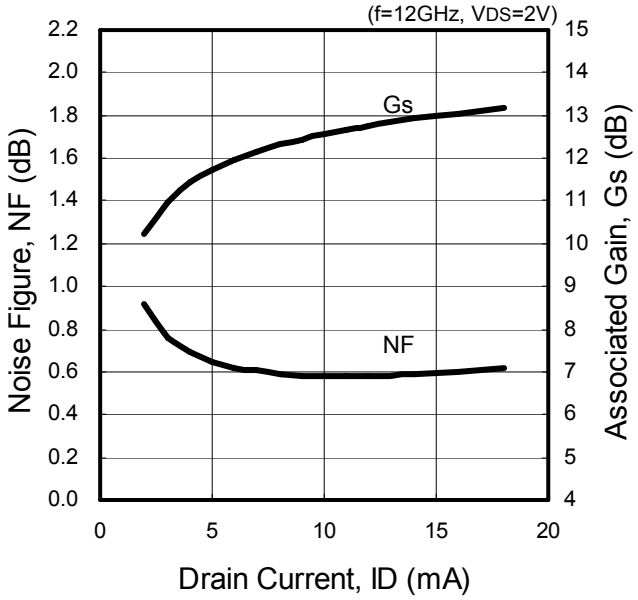
ID vs. VDS



ID vs. VGS



NF & Gs vs. ID



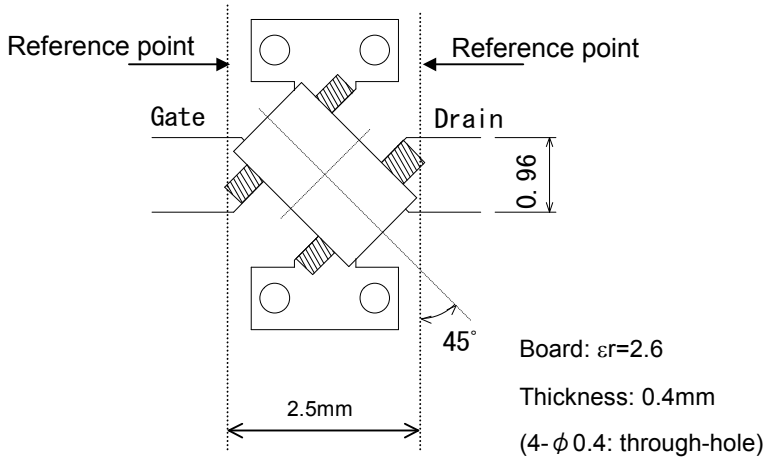
S PARAMETERS

(VDS=2V,ID=10mA,Ta=room temperature)

Freq.	S11		S21		S12		S22	
(GHz)	(mag)	(ang)	(mag)	(ang)	(mag)	(ang)	(mag)	(ang)
1	0.993	-14.3	4.422	163.3	0.014	77.5	0.710	-11.8
2	0.965	-29.0	4.400	147.4	0.028	69.1	0.688	-22.9
3	0.919	-42.9	4.401	132.3	0.041	59.8	0.654	-32.5
4	0.851	-56.0	4.330	117.8	0.050	51.7	0.601	-41.2
5	0.792	-67.7	4.299	104.4	0.059	46.0	0.556	-49.9
6	0.702	-85.4	4.208	88.1	0.069	39.7	0.519	-61.0
7	0.626	-101.5	4.131	73.5	0.077	34.3	0.488	-70.6
8	0.560	-114.2	4.064	61.7	0.084	29.7	0.461	-78.7
9	0.503	-132.2	3.902	48.3	0.090	24.4	0.433	-84.7
10	0.470	-153.3	3.706	33.7	0.095	18.5	0.392	-95.5
11	0.459	-174.9	3.465	19.0	0.099	12.8	0.337	-111.3
12	0.460	166.7	3.231	5.5	0.104	8.0	0.297	-131.0
13	0.457	151.3	3.044	-6.6	0.111	4.2	0.277	-149.8
14	0.456	136.6	2.965	-18.7	0.123	-0.1	0.276	-166.6

Noise Parameter (V_{DS}=2V,I_D=10mA, Ta=room temperature))

f	Γ opt		Rn	NFmin
(GHz)	Magn.	Angle(deg.)	(Ω)	(dB)
12	0.326	162.2	3.0	0.56



Board: εr=2.6

Thickness: 0.4mm

(4-φ0.4: through-hole)

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