

< Low Noise GaAs HEMT >

# MGF4934CM

4pin flat lead package

## DESCRIPTION

The MGF4934CM super-low noise InGaAs 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. = 0.50dB (Typ.)
- High associated gain @ f=12GHz  
Gs = 13.0dB (Typ.)

## APPLICATION

S to Ku band low noise amplifiers

## QUALITY GRADE

GG

## RECOMMENDED BIAS CONDITIONS

VDS=2V, ID=10mA

## ORDERING INFORMATION

General part number: MGF4934CM-75

Tape & reel 15000pcs/reel

## RoHS COMPLIANT

MGF4934CM 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
VGDO	Gate to drain voltage	-3	V
VGSO	Gate to source voltage	-3	V
ID	Drain current	IDSS	mA
PT	Total power dissipation	50	mW
Tch	Channel temperature	125	°C
Tstg	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	IG=-10μA	-3.5	--	--	V
I <sub>GSS</sub>	Gate to source leakage current	VGS=-2V, VDS=0V	--	--	50	μA
IDSS	Saturated drain current	VGS=0V, VDS=2V	12	--	60	mA
VGS(off)	Gate to source cut-off voltage	VDS=2V, ID=500μA	-0.1	--	-1.5	V
Gs	Associated gain	VDS=2V, ID=10mA, f=12GHz	11.5	13.0	--	dB
NFmin.	Minimum noise figure		--	0.50	0.75	dB

Note: Gs and NFmin. are tested with sampling inspection.

Outline Drawing

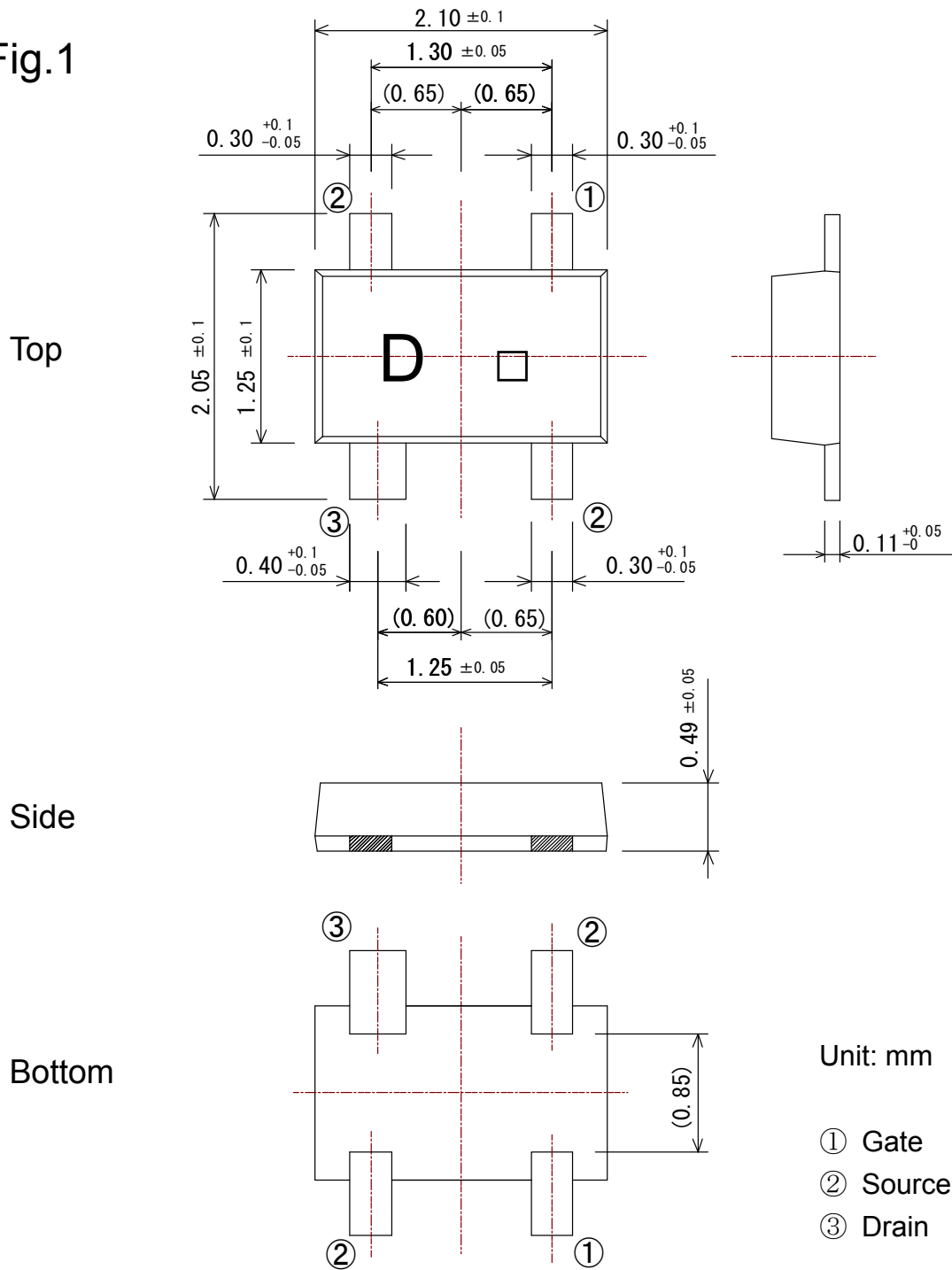
Fig.1

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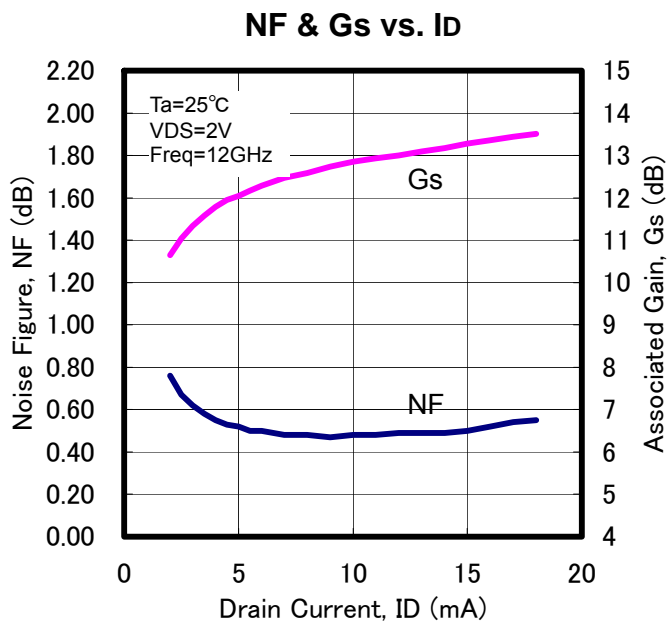
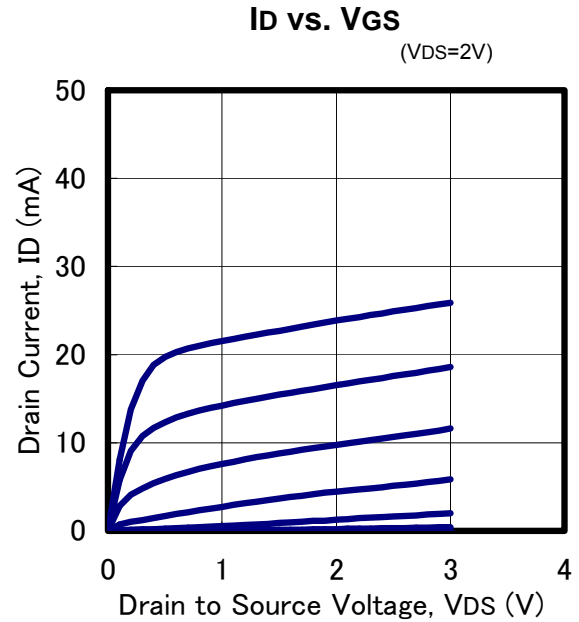
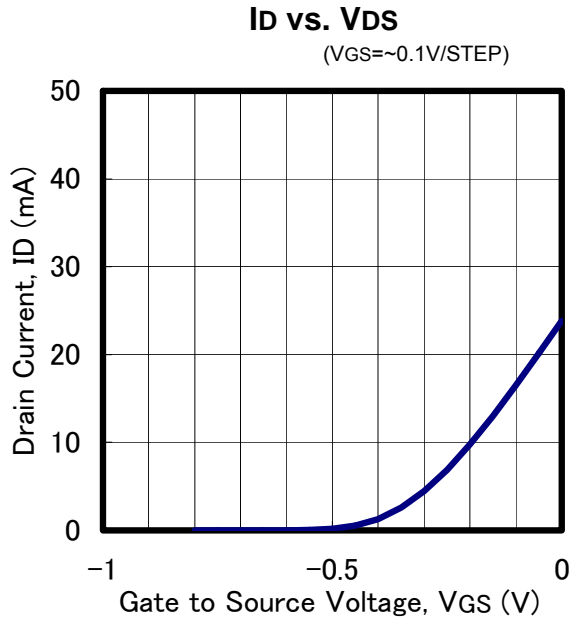
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**MGF4934CM**  
 4pin flat lead package

Fig.1



(GD-30)

TYPICAL CHARACTERISTICS (Ta=25°C)



# MGF4934CM

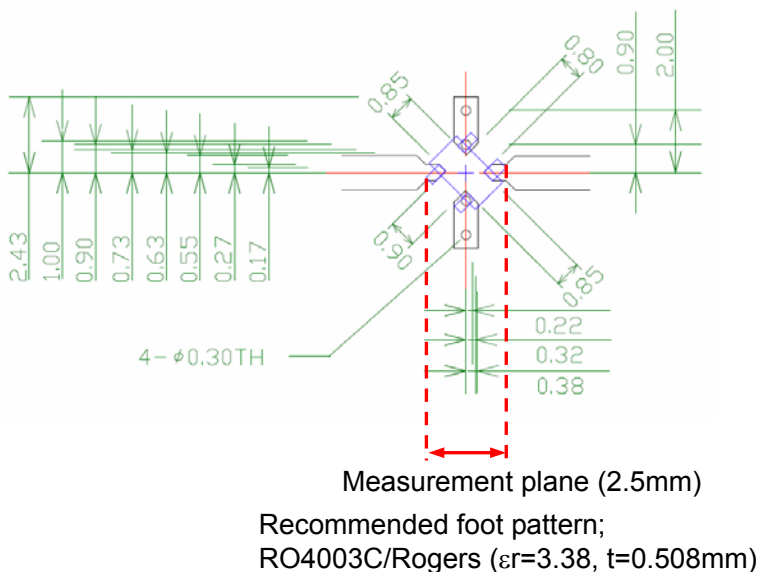
4pin flat lead package

## S PARAMETERS (V<sub>DS</sub>=2V, I<sub>D</sub>=10mA, T<sub>a</sub>=room temperature)

Freq. (GHz)	S11		S21		S12		S22	
	(mag)	(ang)	(mag)	(ang)	(mag)	(ang)	(mag)	(ang)
1	0.997	-24.9	5.499	155.2	0.031	68.3	0.750	-15.2
2	0.981	-38.3	5.255	141.5	0.037	60.1	0.720	-26.2
3	0.931	-51.7	5.010	127.8	0.043	51.9	0.690	-37.2
4	0.881	-65.1	4.766	114.1	0.049	43.6	0.660	-48.2
5	0.819	-81.5	4.601	98.8	0.057	33.5	0.627	-59.6
6	0.760	-97.5	4.434	83.8	0.062	24.4	0.591	-70.7
7	0.697	-114.1	4.249	68.9	0.065	15.0	0.551	-81.5
8	0.646	-131.5	4.070	54.1	0.070	5.7	0.509	-92.9
9	0.585	-147.6	3.864	40.6	0.068	-2.3	0.467	-102.5
10	0.538	-163.8	3.709	27.4	0.062	-7.5	0.435	-111.8
11	0.516	179.9	3.612	14.5	0.062	-8.9	0.417	-121.6
12	0.498	162.7	3.521	1.4	0.062	-10.4	0.400	-132.4
13	0.491	144.8	3.445	-11.9	0.064	-13.5	0.387	-144.3
14	0.497	128.1	3.424	-25.3	0.064	-13.9	0.392	-155.9
15	0.513	111.8	3.385	-39.3	0.067	-18.8	0.396	-169.8
16	0.547	94.1	3.227	-55.4	0.079	-23.6	0.415	167.7
17	0.579	78.4	3.136	-70.5	0.085	-30.0	0.427	150.4
18	0.611	64.3	2.976	-85.4	0.093	-38.3	0.441	129.8

## Noise Parameter (V<sub>DS</sub>=2V, I<sub>D</sub>=10mA, T<sub>a</sub>=room temperature)

Freq. (GHz)	NFmin (dB)	Γ <sub>opt</sub>		R <sub>n</sub> (Ω)
		(mag)	(ang)	
1	0.20	0.98	-8.9	16.5
2	0.21	0.95	5.3	15.0
3	0.22	0.89	19.5	13.5
4	0.24	0.82	33.7	12.1
5	0.26	0.76	47.9	10.6
6	0.28	0.69	62.1	9.1
7	0.32	0.63	76.3	7.6
8	0.34	0.56	91.5	6.2
9	0.37	0.50	107.8	4.6
10	0.42	0.45	125.1	3.1
11	0.47	0.41	143.3	2.6
12	0.51	0.38	162.5	2.0
13	0.56	0.35	-177.3	2.0
14	0.61	0.35	-156.2	2.4
15	0.65	0.36	-134.2	3.3
16	0.69	0.39	-111.1	4.8
17	0.74	0.43	-88.1	6.2
18	0.79	0.46	-65.0	7.7



**Note:**

We are ready to provide nonlinear model for ADS and MWO users. If you are interested, please contact our sales offices.

## S PARAMETERS

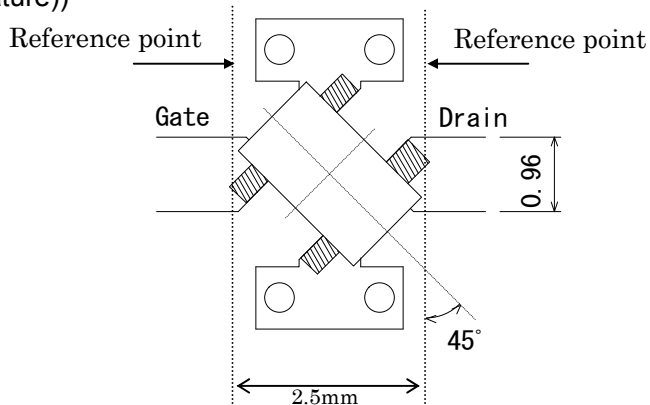
(V<sub>DS</sub>=2V, I<sub>D</sub>=10mA, T<sub>a</sub>=room temperature)

Freq. (GHz)	S11		S21		S12		S22	
	(mag)	(ang)	(mag)	(ang)	(mag)	(ang)	(mag)	(ang)
1	0.990	-16.3	5.156	158.7	0.032	79.5	0.758	-9.2
2	0.985	-30.1	4.971	145.3	0.037	70.2	0.728	-19.5
3	0.930	-43.8	4.787	131.9	0.042	60.9	0.698	-29.9
4	0.860	-57.5	4.602	118.5	0.047	51.6	0.668	-40.3
5	0.802	-72.1	4.470	103.9	0.055	43.4	0.634	-50.0
6	0.737	-87.3	4.343	89.3	0.061	36.2	0.594	-59.5
7	0.668	-103.2	4.212	74.6	0.066	29.7	0.555	-68.9
8	0.599	-119.6	4.042	60.2	0.070	24.0	0.514	-78.3
9	0.533	-136.5	3.852	46.4	0.072	18.9	0.473	-87.3
10	0.477	-152.0	3.672	33.9	0.072	17.3	0.440	-95.2
11	0.442	-168.0	3.537	21.6	0.076	17.1	0.418	-104.2
12	0.421	175.7	3.429	9.5	0.083	17.2	0.400	-114.1
13	0.406	159.0	3.331	-2.4	0.090	15.9	0.383	-124.4
14	0.405	142.8	3.264	-14.1	0.099	14.1	0.375	-135.6
15	0.425	126.5	3.236	-26.9	0.115	10.1	0.379	-150.3
16	0.460	110.8	3.214	-40.8	0.137	5.3	0.403	-168.9
17	0.503	94.9	3.149	-54.5	0.156	-2.2	0.417	172.6
18	0.547	80.2	3.058	-68.3	0.175	-11.2	0.448	153.5

## Noise Parameter

(V<sub>DS</sub>=2V, I<sub>D</sub>=10mA, T<sub>a</sub>=room temperature)

Freq. (GHz)	NFmin (dB)	Γ <sub>opt</sub>		R <sub>n</sub> (Ω)
		(mag)	(ang)	
1	0.25	0.97	8.2	17.5
2	0.25	0.97	14.5	15.4
3	0.26	0.94	22.9	14.0
4	0.29	0.91	30.2	12.5
5	0.30	0.88	40.2	11.0
6	0.32	0.82	48.2	9.5
7	0.35	0.74	61.2	8.0
8	0.37	0.65	75.5	6.5
9	0.39	0.57	91.3	5.0
10	0.42	0.49	108.4	3.6
11	0.46	0.44	127.0	2.6
12	0.49	0.39	146.9	1.9
13	0.53	0.34	168.2	1.8
14	0.57	0.30	-169.1	2.0



Board: ε<sub>r</sub>=2.6

Thickness: 0.4mm

(4-φ0.4: through-hole)

### Note:

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