



SGF35 — For C to Ku-Band Local Oscillator and Amplifier

N-Channel GaAs MESFET

Features

- Lower Phase Noise.
- Highly reliable protection film.
- Automatic surface mounting supported.
- MCPH4 package.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V _{DS}		6	V
Gate-to-Source Voltage	V _{GS}		-5	V
Drain Current	I _D		100	mA
Allowable Power Dissipation	P _D	Mounted on copper foil (area : 0.96mm ²) Glass epoxy board (145X80X1.6mm)	400	mW
Junction Temperature	T _J		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gate-to-Source Leakage Current	I _{GSO}	V _{GS} =-5V			-10	μA
Saturated Drain Current	I _{DSS}	V _{DS} =3V, V _{GS} =0	30	50	70	mA
Cutoff Voltage	V _{GS(off)}	V _{DS} =3V, I _D =100μA	-0.5	-1.6	-2.7	V
Forward Transfer Admittance	y _{fs}	V _{DS} =3V, I _D =10mA		34		mS

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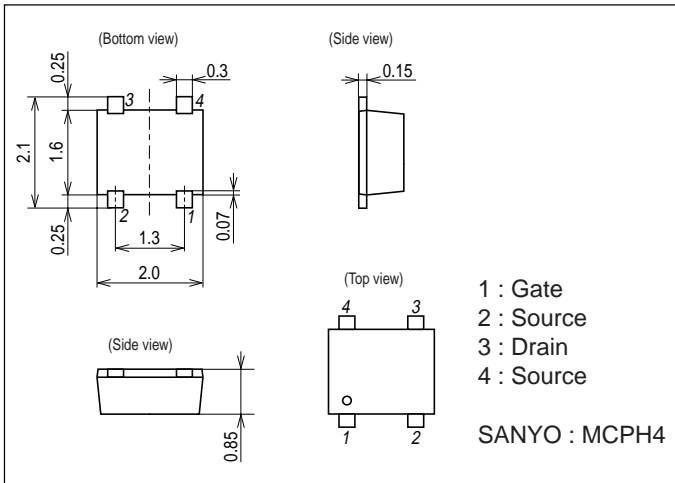
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SGF35

Package Dimensions

unit : mm

1316



S-Parameter

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$V_{DS}=3V$ $I_{DS}=30mA$

FREQUENCY MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
3000.0000	0.801	-74.0	2.944	111.4	0.048	56.0	0.675	-35.0
4000.0000	0.731	-94.3	2.622	93.6	0.052	53.0	0.659	-43.3
5000.0000	0.678	-110.8	2.363	78.4	0.056	54.3	0.646	-50.0
6000.0000	0.622	-122.9	2.230	65.2	0.063	58.6	0.636	-56.5
7000.0000	0.544	-137.6	2.181	50.8	0.077	60.6	0.630	-66.3
8000.0000	0.459	-162.4	2.120	34.6	0.094	58.2	0.627	-76.9
9000.0000	0.446	168.1	2.007	18.3	0.112	53.3	0.614	-87.1
10000.0000	0.475	147.3	1.904	4.1	0.133	48.1	0.587	-96.7
11000.0000	0.488	129.6	1.857	-11.1	0.156	40.4	0.543	-111.2
12000.0000	0.500	104.0	1.827	-29.0	0.187	27.9	0.550	-133.8
13000.0000	0.575	74.3	1.676	-49.1	0.200	13.0	0.573	-158.2
14000.0000	0.669	58.8	1.467	-65.7	0.206	-0.4	0.546	-178.2
15000.0000	0.716	52.3	1.345	-81.0	0.213	-11.5	0.507	159.5
16000.0000	0.752	40.7	1.257	-99.6	0.226	-27.8	0.516	126.4

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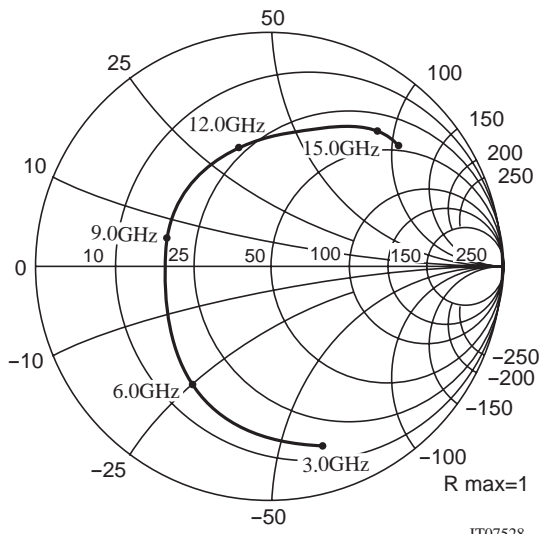
$V_{DS}=3V$ $I_{DS}=30mA$

FREQUENCY MHz	GUmax dB	GAmix dB	$ S21 ^2$ dB	$ S12 ^2$ dB	K	Delay ns	Mason's U dB	G1 dB	G2 dB
3000.0000	16.47		9.38	-26.35	0.700	0.054	23.536	4.45	2.64
4000.0000	14.17		8.37	-25.60	0.910	0.045	22.112	3.32	2.47
5000.0000	12.49	14.50	7.47	-25.04	1.080	0.040	20.756	2.67	2.34
6000.0000	11.33	13.07	6.96	-24.06	1.100	0.031	19.970	2.12	2.25
7000.0000	10.49	12.53	6.77	-22.29	1.110	0.041	20.335	1.52	2.19
8000.0000	9.72	12.15	6.52	-20.57	1.050	0.044	18.841	1.03	2.17
9000.0000	9.07		6.05	-19.00	0.950	0.047	17.935	0.96	2.06
10000.0000	8.54		5.59	-17.50	0.850	0.037	17.025	1.11	1.84
11000.0000	8.07		5.37	-16.13	0.810	0.044	14.524	1.18	1.52
12000.0000	8.05		5.23	-14.58	0.700	0.057	14.643	1.25	1.57
13000.0000	7.96		4.49	-13.97	0.620	0.057	14.090	1.75	1.73
14000.0000	7.45		3.33	-13.74	0.570	0.033	13.143	2.58	1.54
15000.0000	6.99		2.58	-13.42	0.570	0.046	11.181	3.12	1.29
16000.0000	6.95		1.99	-12.90	0.540	0.055	10.481	3.62	1.35

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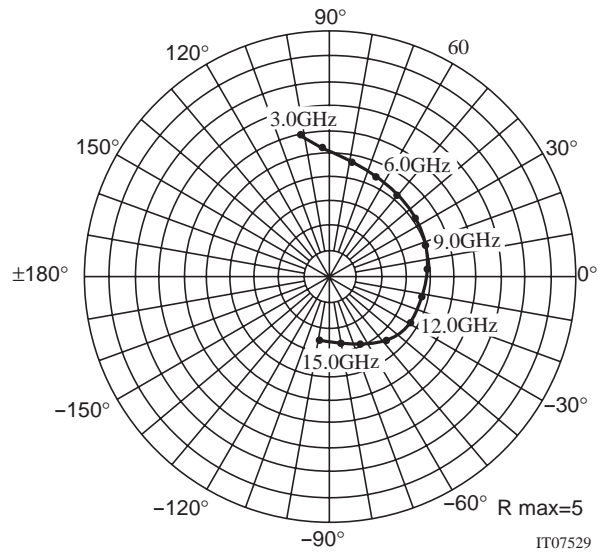
S-Parameter $V_{DS}=3V$ $I_{DS}=30mA$, START 3GHz STOP 16GHz

S11



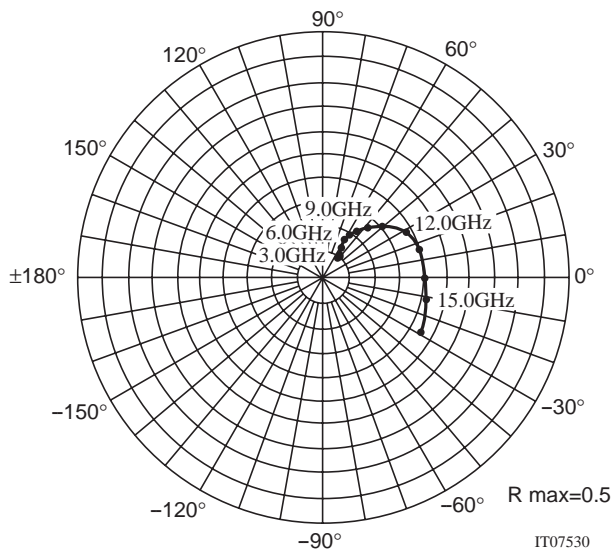
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S21



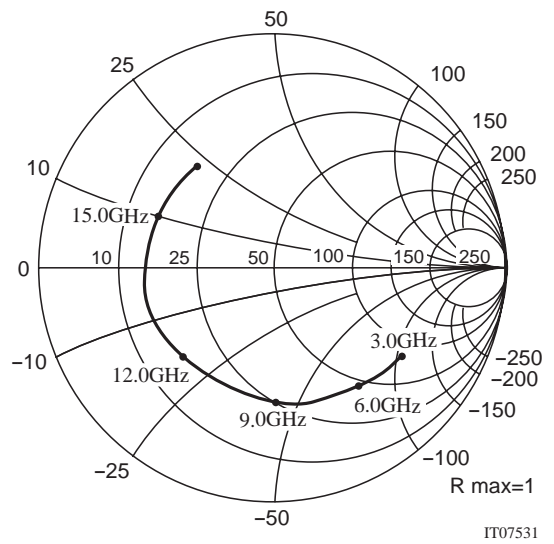
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S12



IT07530

S22



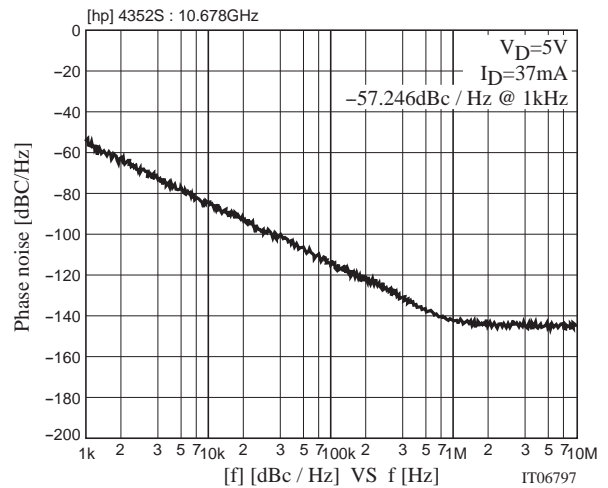
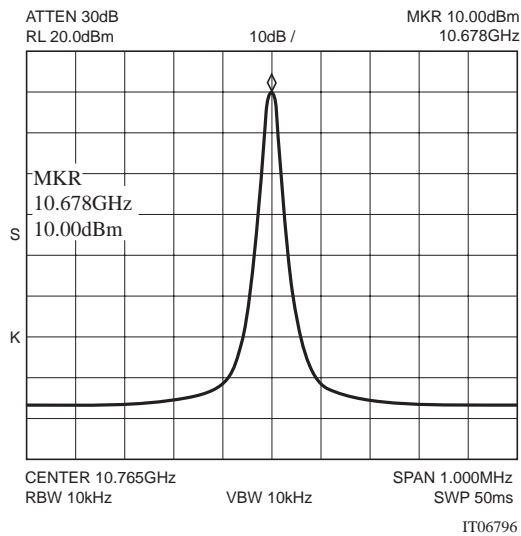
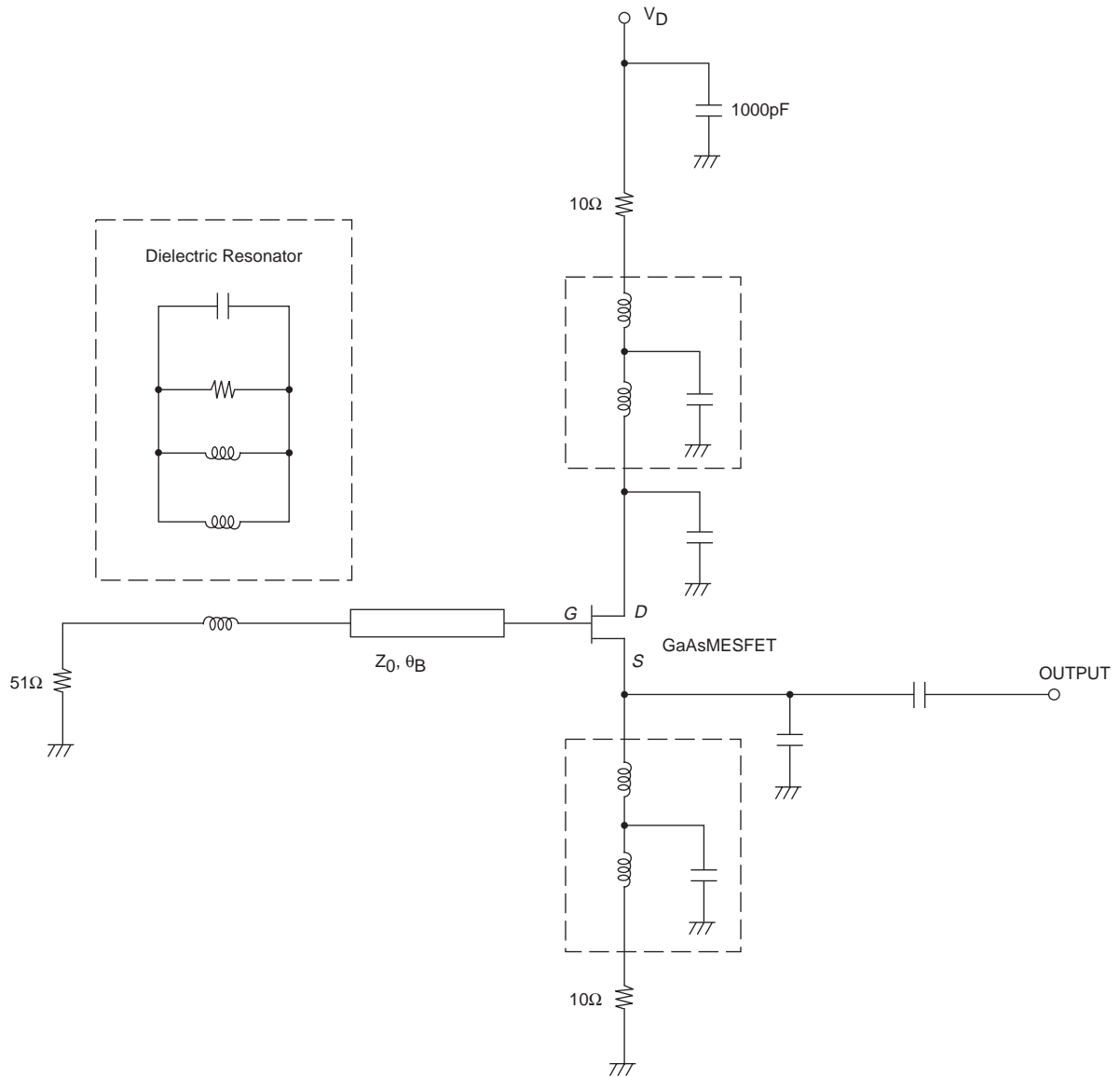
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Oscillation Characteristics Measured by the Application JIG for SGF35

Equivalent Circuit of the Application JIG

(Recommended bias condition is $V_D=5V$, $I_D=31mA$)



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