



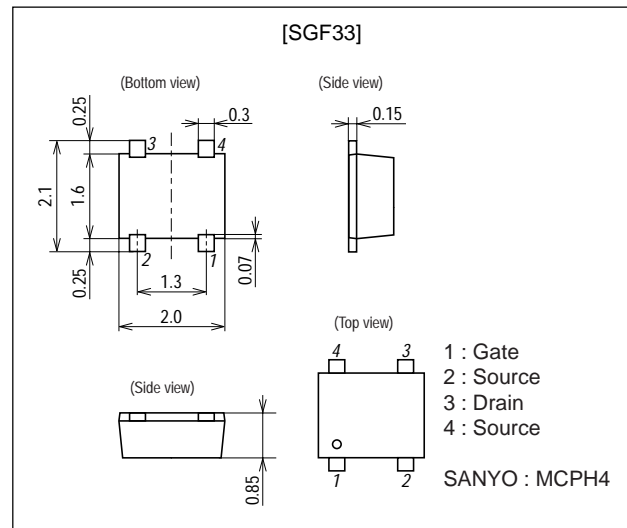
## For C to Ku-Band Local Oscillator and Amplifier

### Features

- Low phase noise.
- Highly reliable protection film.
- Automatic surface mounting supported.
- MCPH4 package.

### Package Dimensions

unit : mm  
1316



### Specifications

Absolute Maximum Ratings at  $T_a=25^\circ\text{C}$

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 : $0.96\text{mm}^2$ ) Glass epoxy board ( $145\times 80\times 1.6\text{mm}$ )	400	mW
Junction Temperature	$T_J$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

Electrical Characteristics at  $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gate-to-Source Leakage Current	$I_{GSO}$	$V_{GS}=-5\text{V}$			-10	$\mu\text{A}$
Saturated Drain Current	$I_{DSS}$	$V_{DS}=3\text{V}, V_{GS}=0$	30	50	70	mA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=3\text{V}, I_D=100\mu\text{A}$	-0.5	-1.6	-2.7	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=3\text{V}, I_D=10\text{mA}$		34		mS

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# SGF33

## S-Parameter

SGF33

V<sub>DS</sub>=3V I<sub>DS</sub>=30mA

FREQUENCY MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
3000.0000	.725	-100.5	2.808	96.2	.075	42.7	.614	-33.7
4000.0000	.622	-127.5	2.469	78.0	.080	43.8	.578	-42.6
5000.0000	.571	-151.7	2.225	61.0	.085	42.0	.561	-52.2
6000.0000	.534	-174.8	2.010	44.7	.092	40.4	.555	-61.0
7000.0000	.504	162.4	1.822	29.0	.102	38.9	.553	-68.7
8000.0000	.491	139.4	1.669	14.1	.117	36.6	.547	-75.8
9000.0000	.503	117.2	1.550	-3	.137	32.4	.530	-83.6
10000.0000	.542	97.3	1.458	-14.7	.160	25.9	.494	-93.5
11000.0000	.593	80.4	1.381	-29.4	.186	17.3	.444	-106.7
12000.0000	.640	65.4	1.310	-44.5	.212	7.1	.389	-124.1
13000.0000	.677	51.0	1.238	-60.1	.236	-4.6	.340	-145.5
14000.0000	.707	36.2	1.165	-76.3	.257	-17.3	.300	-170.5
15000.0000	.739	20.7	1.088	-93.5	.274	-31.0	.269	159.6
16000.0000	.796	4.1	.993	-113.3	.293	-45.8	.268	117.3

SGF33

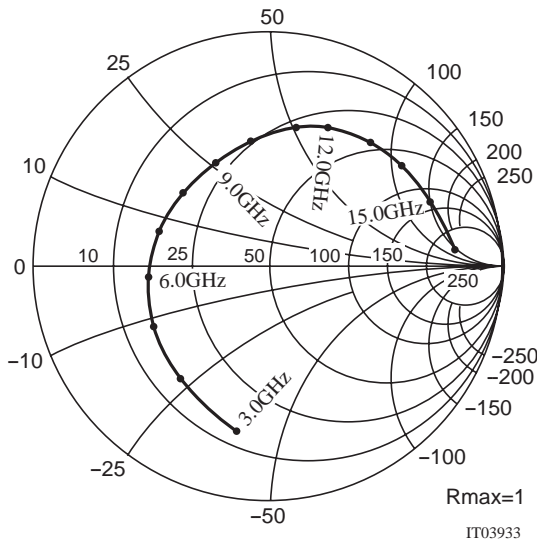
V<sub>DS</sub>=3V I<sub>DS</sub>=30mA

FREQUENCY MHz	G <sub>Umax</sub> dB	G <sub>Amax</sub> dB	S <sub>21</sub>   <sup>2</sup> dB	S <sub>12</sub>   <sup>2</sup> dB	K	Delay ns	Mason's U dB	G <sub>1</sub> dB	G <sub>2</sub> dB
3000.0000	14.26		8.97	-22.45	.78	.052	19.888	3.24	2.05
4000.0000	11.74		7.85	-21.95	1.00	.049	19.292	2.13	1.77
5000.0000	10.30	12.06	6.95	-21.39	1.12	.047	18.408	1.71	1.64
6000.0000	9.12	10.69	6.06	-20.70	1.20	.045	16.931	1.46	1.60
7000.0000	8.07	9.61	5.21	-19.79	1.23	.043	15.119	1.28	1.58
8000.0000	7.19	8.86	4.45	-18.63	1.20	.041	13.609	1.20	1.55
9000.0000	6.51	8.56	3.81	-17.29	1.11	.040	12.646	1.27	1.43
10000.0000	6.00		3.27	-15.90	.99	.040	12.159	1.51	1.22
11000.0000	5.64		2.80	-14.61	.89	.041	11.873	1.88	.95
12000.0000	5.35		2.34	-13.48	.81	.042	11.357	2.29	.71
13000.0000	5.05		1.85	-12.54	.77	.044	10.335	2.67	.53
14000.0000	4.74		1.33	-11.81	.75	.046	8.994	3.01	.41
15000.0000	4.50		.74	-11.23	.74	.049	7.729	3.44	.33
16000.0000	4.63		-.06	-10.67	.69	.059	6.753	4.37	.32

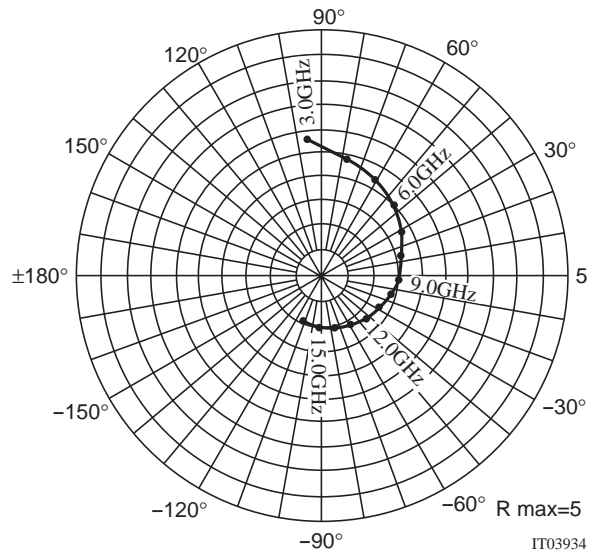
# SGF33

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

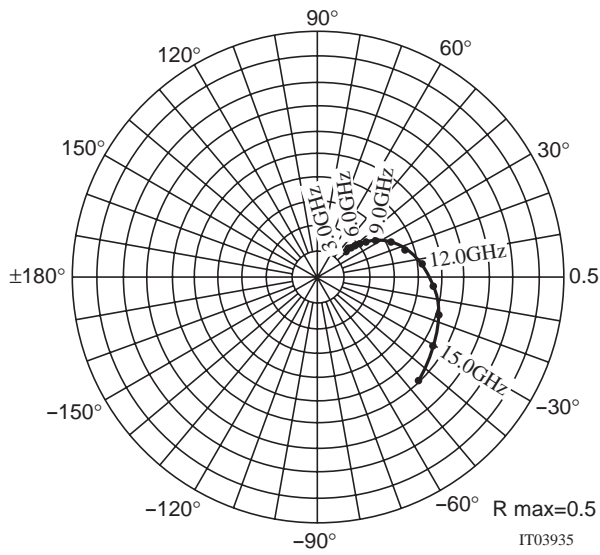
S11



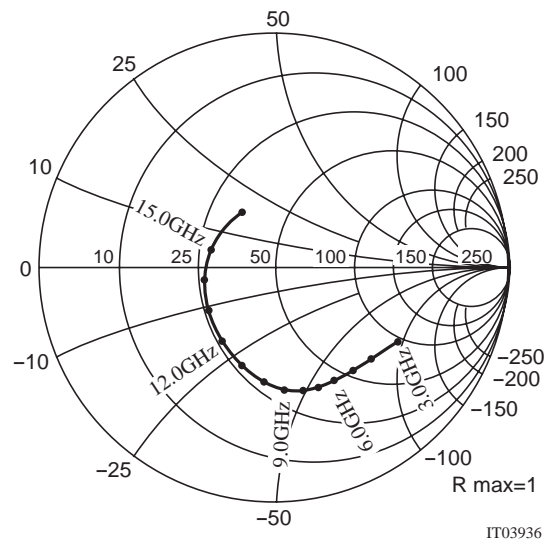
S21



S12



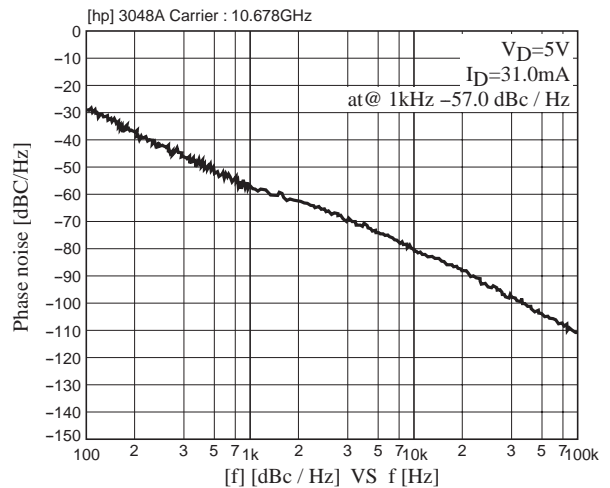
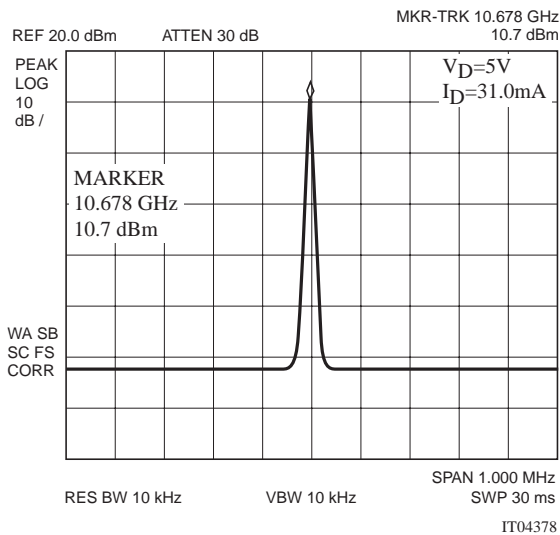
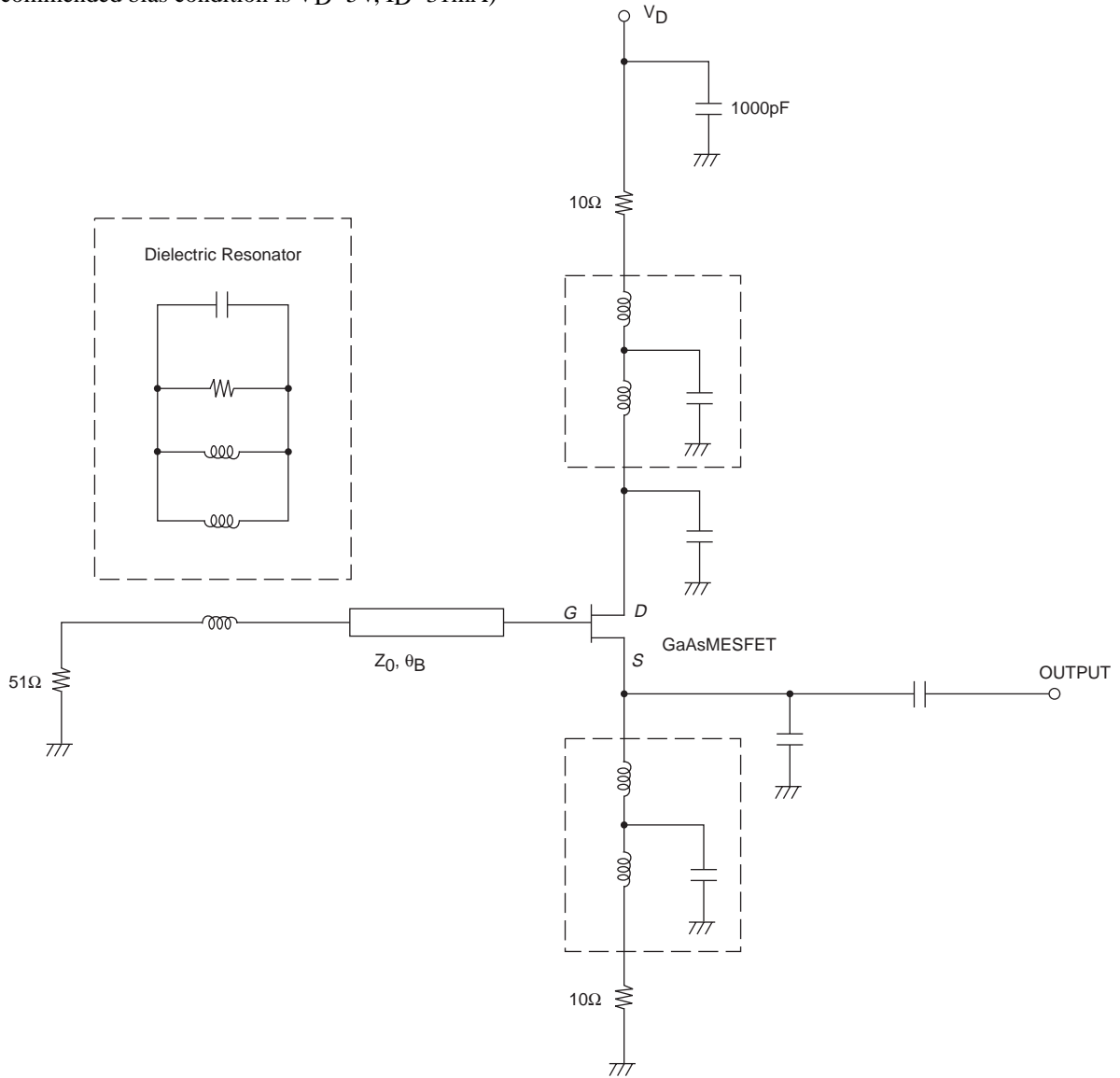
S22



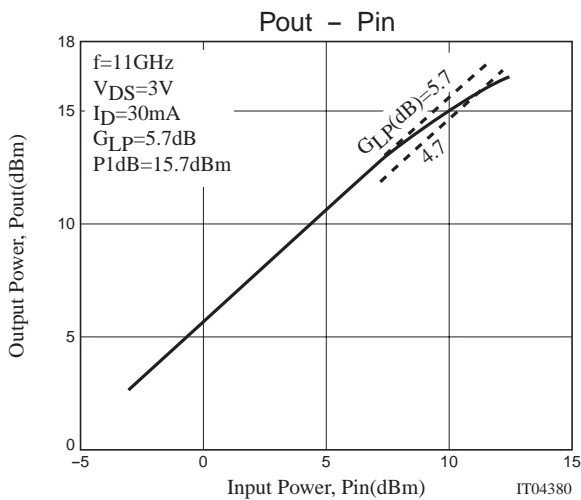
# SGF33

## Oscillation Characteristics Measured by the Application JIG for SGF33

Equivalent Circuit of the Application JIG  
 (Recommended bias condition is  $V_D=5V$ ,  $I_D=31mA$ )



## Amplification Characteristics Measured by the DUT



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