Ordering number : ENN7054B

N-Channel GaAs MESFET

SGF29

For C to Ku-band Local Oscillator and Amplifier

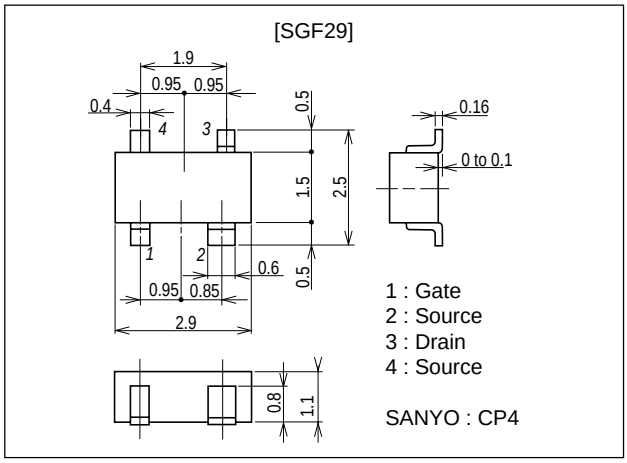
Features

- Lowest phase noise.
- The chip surface is covered with the highly reliable protection film.
- Super miniaturized plastic-mold package (CP4).
- Automatic surface mounting is available.

Package Dimensions

unit : mm

2134A



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		200	mW
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−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
Gate-to-Source Cutoff Voltage	V_{GS}(off)	V_{DS}=3V, I_D=100μA	−0.5	−1.4	−2.5	V
Forward Transfer Admittance	|yfs|	V_{DS}=3V, I_D=10mA		44		mS

SANYO Electric Co.,Ltd. Semiconductor Company

TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

S-Parameter

SGF29

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

FREQUENCY	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
3000.0000	.605	-139.1	3.198	72.5	.103	31.6	.431	-43.5
4000.0000	.546	-167.5	2.686	53.3	.114	28.7	.352	-57.1
5000.0000	.535	167.9	2.338	35.2	.127	24.2	.296	-72.1
6000.0000	.551	145.9	2.060	17.6	.146	18.5	.245	-90.5
7000.0000	.585	126.4	1.834	.4	.169	10.6	.201	-114.8
8000.0000	.630	109.1	1.649	-16..4	.192	1.1	.172	-147.1
9000.0000	.677	93.6	1.491	-32.7	.212	-9.2	.171	174.9
10000.0000	.723	79.4	1.350	-48.5	.230	-19.7	.204	140.1
11000.0000	.765	66.4	1.222	-63.9	.247	-30.3	.260	113.0
12000.0000	.803	54.2	1.106	-78.8	263	-41.4	.328	91.7
13000.0000	.837	42.5	.999	-93.4	.276	-53.0	.401	73.9
14000.0000	.865	30.9	.899	-107.9	.285	-65.0	.474	58.2
15000.0000	.887	19.4	.800	-122.3	.288	-76.8	.545	43.8
16000.0000	.908	8.4	.675	-136.6	.288	-87.6	.633	30.1

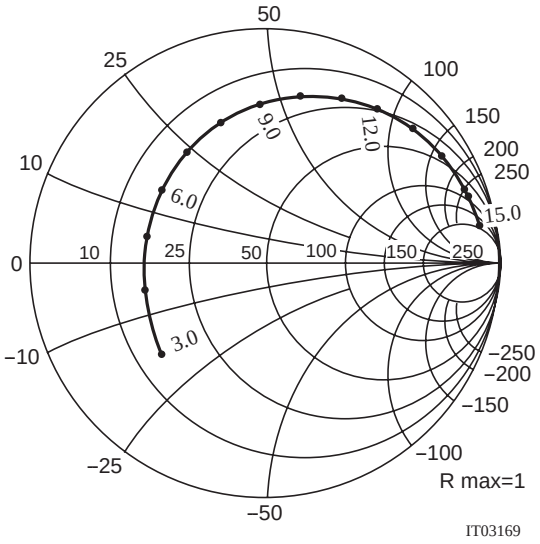
SGF29

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

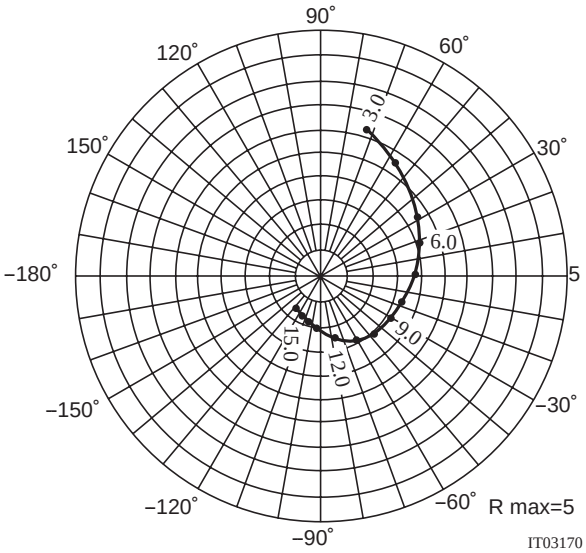
FREQUENCY	GUmax	GAmax	|S21|^2	|S12|^2	K	Delay	Mason's U	G1	G2
MHz	dB	dB	dB	dB		nsec	dB	dB	dB
3000.0000	12.97		10.10	-19.73	.87	.055	21.072	1.98	.89
4000.0000	10.70	12.48	8.58	-18.85	1.04	.052	19.171	1.54	.58
5000.0000	9.24	10.57	7.38	-17.90	1.12	.050	17.886	1.46	.40
6000.0000	8.12	9.47	6.28	-16.70	1.11	.049	17.431	1.57	.27
7000.0000	7.27	8.93	5.27	-15.44	1.05	.048	18.036	1.82	.18
8000.0000	6.67		4.34	-14.35	.98	.046	20.510	2.19	.13
9000.0000	6.26		3.47	-13.47	.91	.045		2.66	.13
10000.0000	6.00		2.61	-12.76	.85	.044		3.21	.18
11000.0000	5.86		1.74	-12.14	.78	.042		3.82	.30
12000.0000	5.87		.87	-11.60	.71	.041		4.50	.49
13000.0000	6.00		-.01	-11.17	.63	.041		5.24	.76
14000.0000	6.18		-.92	-10.91	.56	.040		6.00	1.10
15000.0000	6.31		-1.94	-10.81	.50	.040		6.72	1.53
16000.0000	6.38		-3.41	-10.81	.44	.040		7.56	2.22

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

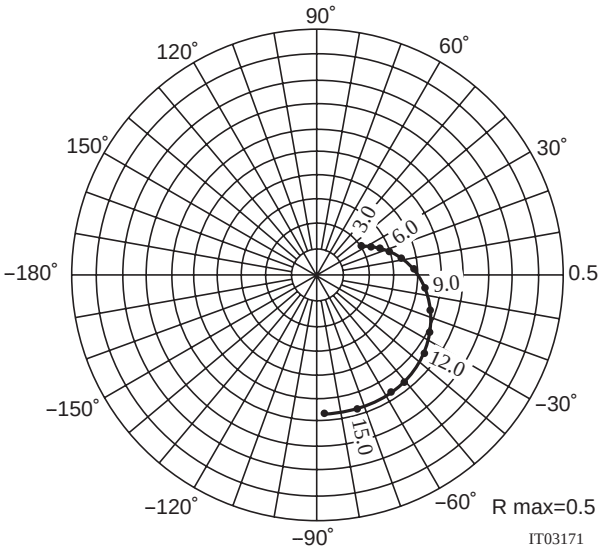
S11



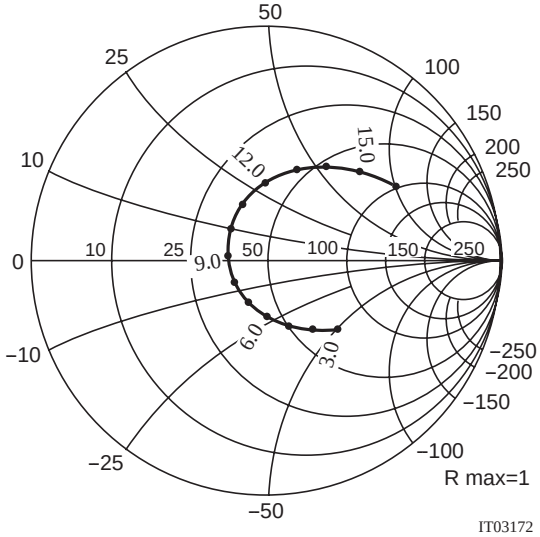
S21



S12

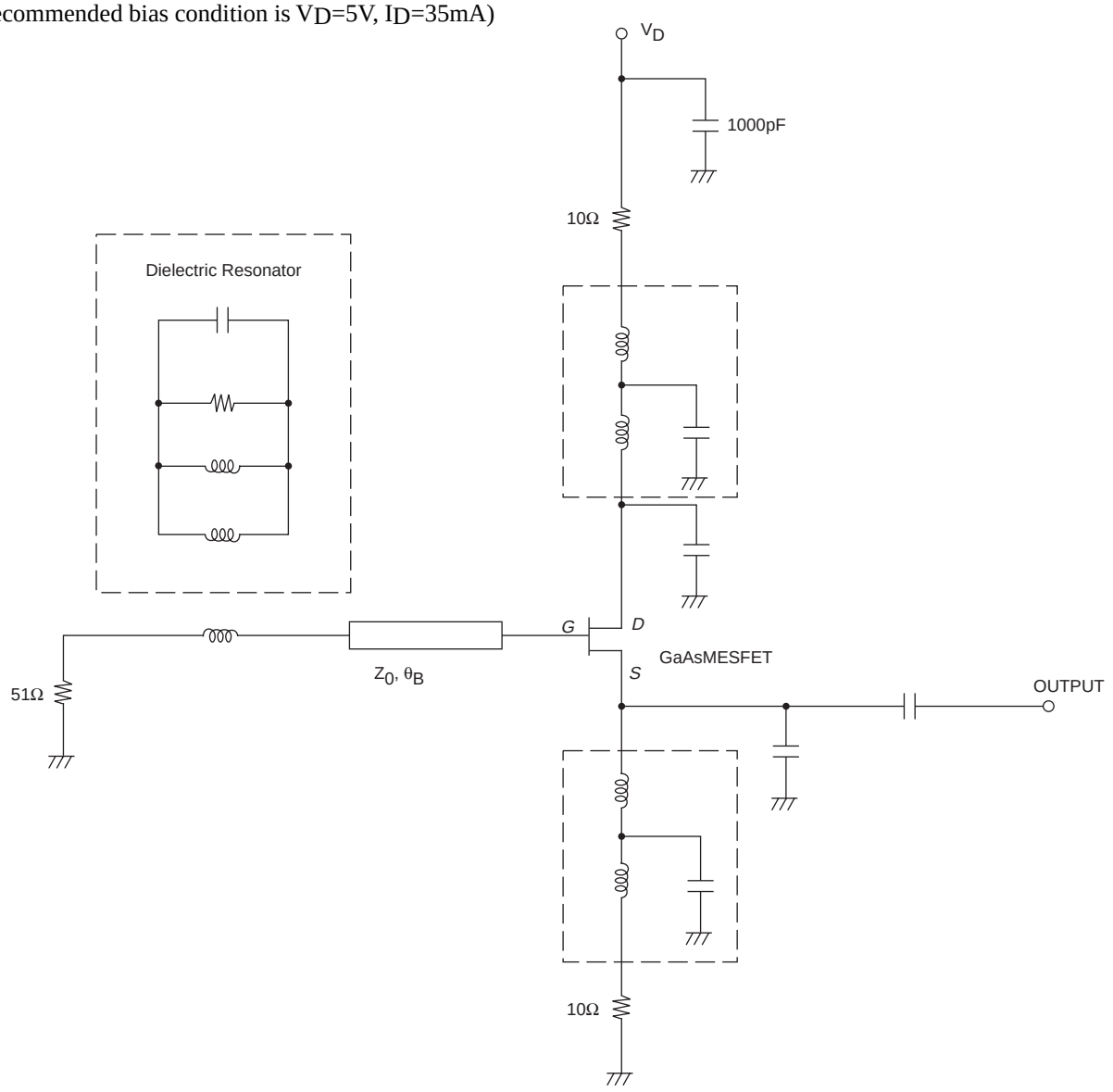


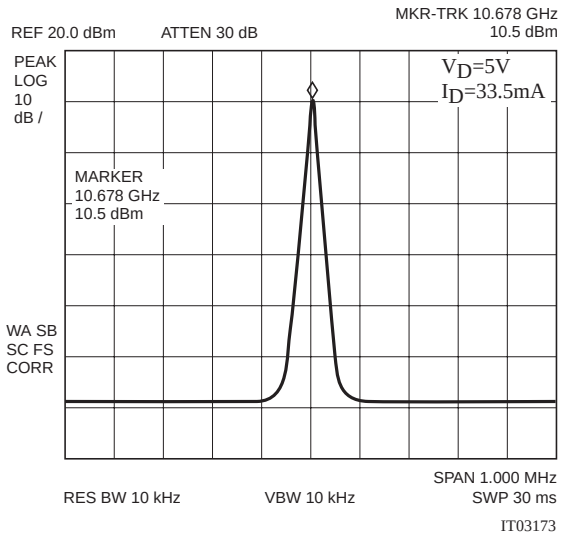
S22

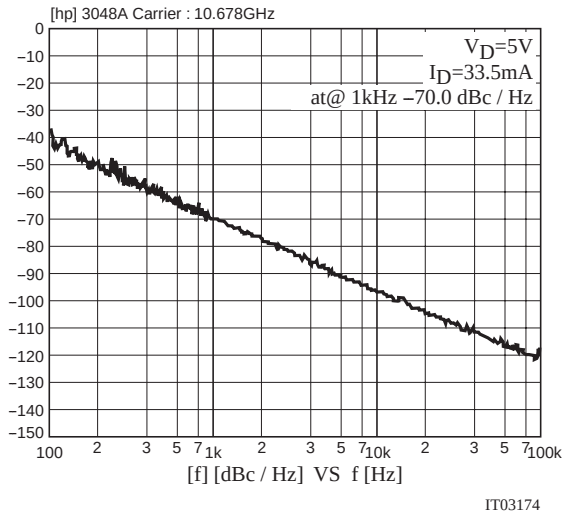


Oscillation Characteristics Measured by the Application JIG for SGF29

Equivalent Circuit of the Application JIG
(Recommended bias condition is V_D=5V, I_D=35mA)







Amplification Characteristics Measured by the DUT