

### Product Features

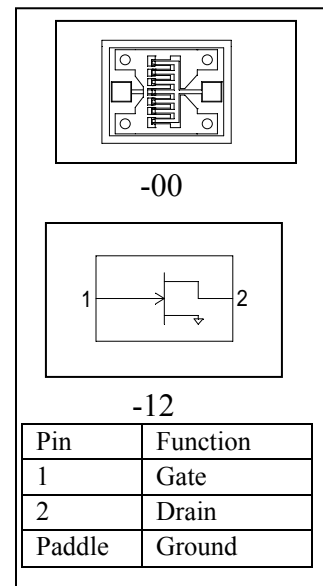
- 0.1 to 12GHz Frequency Range
- +26 dBm P-1dB at 2GHz
- +42 dBm OIP3 at 2GHz
- 21 dB Gain at 2GHz
- 3 dB Noise Figure
- Bare Die (-00) or 0805 DFN (-12) plastic package

### Product Description

The GSH912 is an unmatched General Purpose Medium Power Amplifier that covers the 100MHz to 12GHz frequency range with 21 dB nominal matched gain at 2GHz. It also has superior Third Order Intermodulation Distortion characteristics.

The GSH912 is an amplifier fabricated with high reliability HFET process. It requires external, bandwidth optimized matching for operation. The amplifier is ideal for predriver and wide dynamic range pre-amplifiers 2nd stages in wireless Base Station, WLAN and WiMAX transceivers. It is available in bare die form and the 0805 DFN plastic package.

This amplifier can be used for current and next generation equipment wireless applications to 12GHz



### Applications

- Mobile infrastructure
- ISM
- WLAN
- RFID
- WiMAX/WiBRO

### Specifications (1)

Parameter	Units	Min	Typ	Max
Frequency Range	MHz	500		12000
Test Frequency (2)	MHz		2000	
Gain (2)	dB	19	21	
P <sub>out</sub> @ -1dB GCP	dBm	25	27	
OIP3 (2)	dBm	39	42	
Noise Figure (2)	dB		3	
Operating Current	mA		95	

1. Test conditions unless otherwise specified: 25°C, Supply Voltage = +5.00V
2. Measured at 2000MHz with precision tuners.

### Absolute Maximum Ratings

Parameter	Rating
Case Temperature, Operating	-40 to +85 °C
Storage Temperature	-55 to +150 °C
Device Voltage, V <sub>dd</sub>	+12V
Device Current	300mA
DC Power, Continuous	1.2W
RF Input Power, continuous	+20 dBm
Junction Temperature	175 °C

**Operation of this device above any of these parameters will cause permanent damage.**

## Modeled S-Parameters, Bare Die (-00)

!GRASEN Technology, LLC

!GSH912-00

!Vdd = 8.00Vdc, Idd = 95mA

# GHz S MA R 50

!Freq	MagS11	AngS11	MagS21	AngS21	MagS12	AngS12	MagS22	AngS22
0.5	0.982	-37.10	10.85	157.26	0.030	69.08	0.362	-36.91
1.0	0.945	-68.06	9.37	138.31	0.052	51.96	0.357	-66.98
1.5	0.911	-91.40	7.85	123.83	0.065	39.31	0.352	-88.78
2.0	0.888	-108.55	6.59	112.77	0.073	30.08	0.351	-104.07
2.5	0.872	-121.33	5.61	104.01	0.077	23.15	0.351	-114.90
3.0	0.861	-131.13	4.85	96.78	0.080	17.73	0.353	-122.78
3.5	0.854	-138.86	4.26	90.56	0.082	13.34	0.356	-128.67
4.0	0.849	-145.15	3.79	85.06	0.083	9.66	0.360	-133.20
4.5	0.846	-150.38	3.40	80.07	0.083	6.49	0.365	-136.78
5.0	0.844	-154.84	3.09	75.45	0.084	3.69	0.370	-139.68
5.5	0.842	-158.70	2.82	71.13	0.082	1.19	0.376	-142.10
6.0	0.841	-162.12	2.60	67.03	0.084	-1.09	0.383	-144.15
6.5	0.841	-165.17	2.40	63.11	0.084	-3.19	0.390	-145.95
7.0	0.840	-167.94	2.24	59.34	0.083	-5.15	0.397	-147.55
7.5	0.841	-170.47	2.09	55.69	0.083	-6.98	0.405	-149.02
8.0	0.841	-172.82	1.96	52.15	0.083	-8.71	0.413	-150.37
8.5	0.841	-175.00	1.85	48.70	0.082	-10.35	0.421	-151.65
9.0	0.842	-177.06	1.75	45.32	0.082	-11.92	0.430	-152.88
9.5	0.843	-179.01	1.65	42.02	0.081	-13.41	0.438	-154.07
10.0	0.844	179.14	1.57	38.78	0.080	-14.84	0.447	-155.23
10.5	0.845	177.37	1.49	35.59	0.080	-16.22	0.456	-156.38
11.0	0.846	175.67	1.42	32.46	0.079	-17.54	0.465	-157.51
11.5	0.847	174.02	1.36	29.37	0.078	-18.81	0.474	-158.64
12.0	0.848	172.43	1.30	26.33	0.078	-20.04	0.483	-159.77

### Modeled S-Parameters, -12 package

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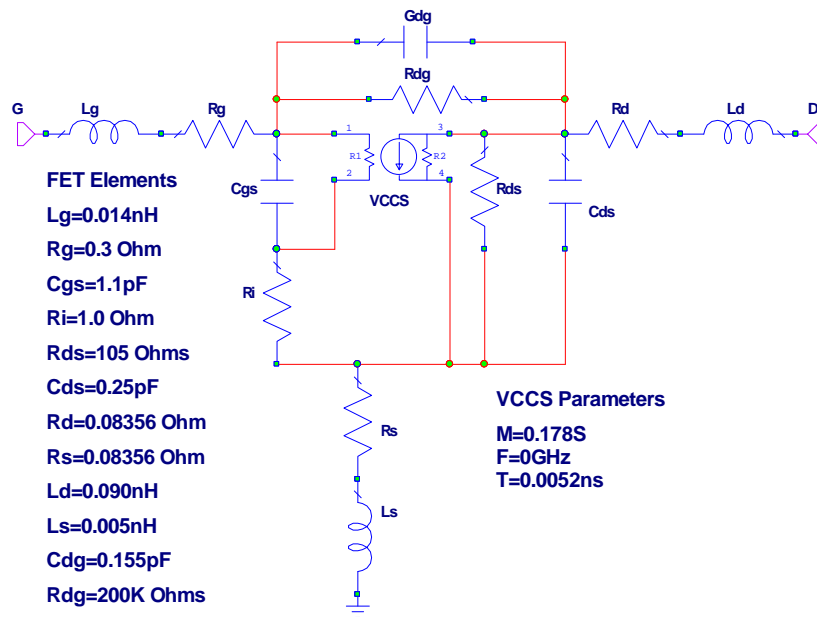
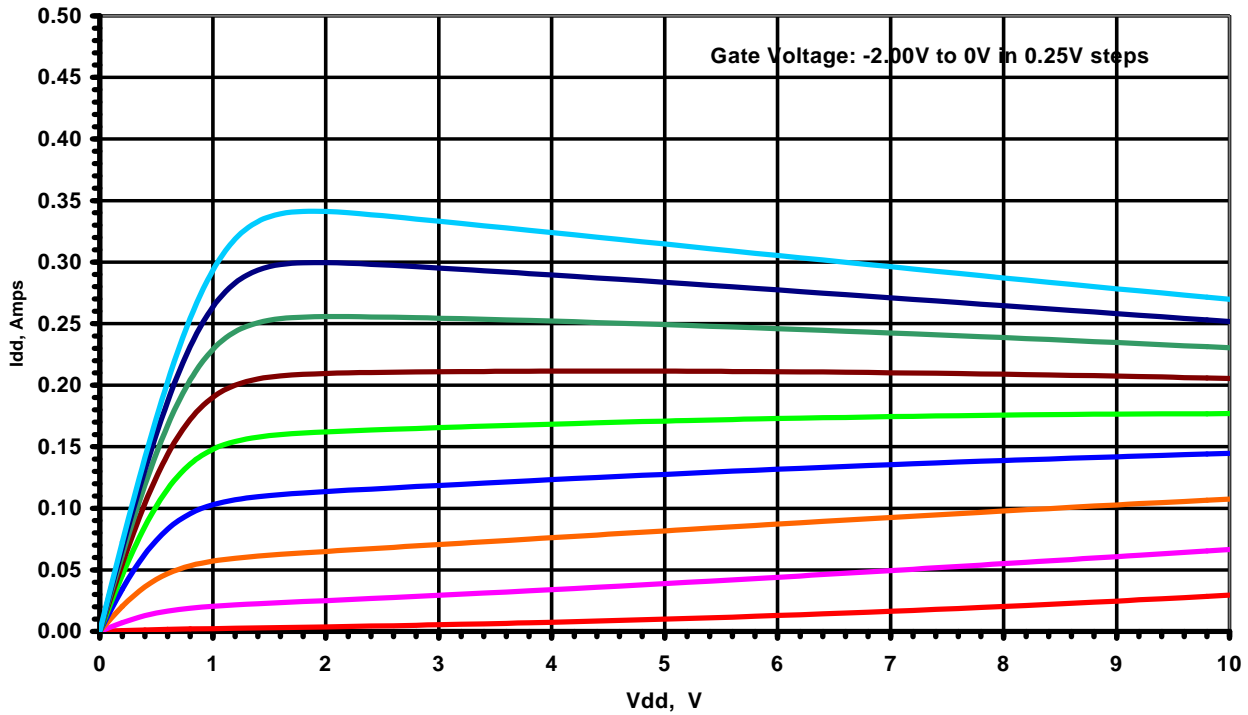
!GSH912-12

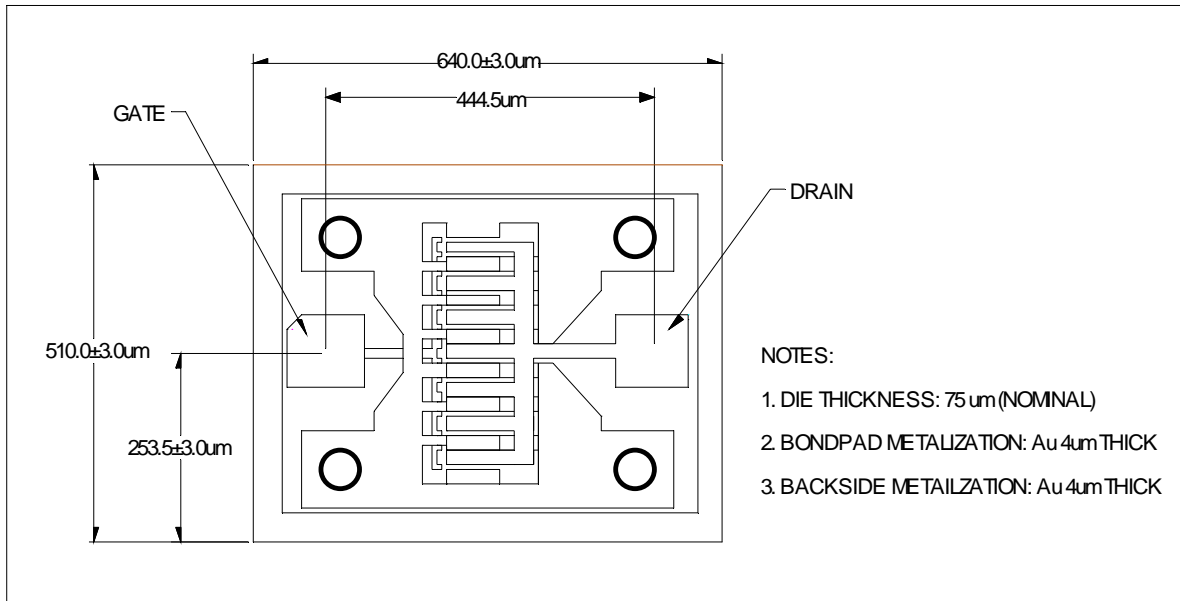
!Vdd=8.00Vdc, Idd=95mA

# GHz S MA R 50

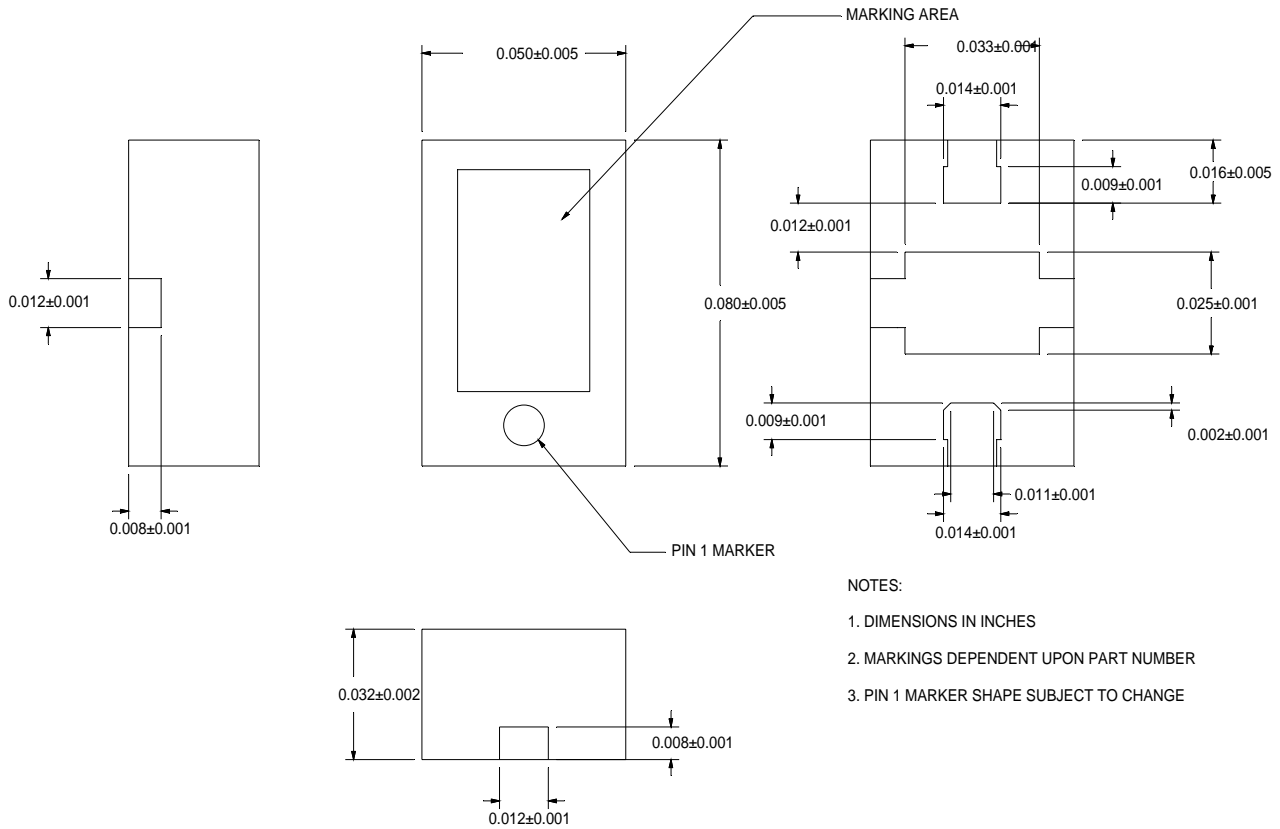
!Freq	MagS11	AngS11	MagS21	AngS21	MagS12	AngS12	MagS22	AngS22
0.5	0.984	-37.52	10.90	156.70	0.030	68.52	0.361	-37.05
1.0	0.949	-69.47	9.49	136.82	0.052	50.47	0.353	-68.21
1.5	0.917	-94.32	8.01	121.10	0.066	36.58	0.346	-91.92
2.0	0.893	-113.25	6.76	108.67	0.075	25.98	0.342	-109.51
2.5	0.878	-127.90	5.77	98.51	0.079	17.64	0.340	-122.76
3.0	0.867	-139.56	5.00	89.86	0.082	10.81	0.341	-133.02
3.5	0.866	-149.15	4.39	82.24	0.084	5.02	0.342	-141.24
4.0	0.855	-157.24	3.90	75.35	0.085	-0.05	0.345	-148.02
4.5	0.852	-164.26	3.50	68.99	0.086	-4.59	0.349	-153.77
5.0	0.850	-170.45	3.17	63.01	0.086	-8.75	0.353	-158.77
5.5	0.849	-176.03	2.89	57.33	0.086	-12.61	0.359	-163.20
6.0	0.848	-178.89	2.65	51.88	0.085	-16.25	0.365	-167.20
6.5	0.848	-174.20	2.45	46.61	0.085	-19.69	0.371	-170.88
7.0	0.848	-169.82	2.27	41.50	0.084	-22.99	0.378	-174.29
7.5	0.849	-165.72	2.11	36.52	0.084	-26.16	0.386	-177.51
8.0	0.849	-161.83	1.98	31.64	0.083	-29.22	0.394	-179.43
8.5	0.851	-158.14	1.85	26.86	0.082	-32.19	0.402	-176.50
9.0	0.852	-154.61	1.74	22.16	0.081	-35.08	0.411	-173.67
9.5	0.853	-151.22	1.64	17.54	0.080	-37.89	0.421	-170.92
10.0	0.855	-147.96	1.55	12.98	0.079	-40.64	0.431	-168.24
10.5	0.857	-144.82	1.47	8.49	0.078	-43.32	0.441	-165.61
11.0	0.858	-141.78	1.39	4.05	0.077	-45.95	0.451	-163.03
11.5	0.860	-138.83	1.32	-0.34	0.076	-48.52	0.462	-160.48
12.0	0.862	-135.97	1.25	-4.67	0.075	-51.04	0.473	-157.96

GSH912-12 DC IV





-00 ( Die )



NOTES:

1. DIMENSIONS IN INCHES
2. MARKINGS DEPENDENT UPON PART NUMBER
3. PIN 1 MARKER SHAPE SUBJECT TO CHANGE

### -12 Package Outline

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