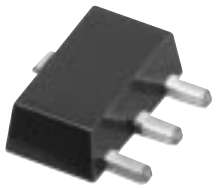
Surface Mount

Monolithic Amplifiers

50Ω, Broadband DC to 8 GHz

NEW! **GAL-SERIES**



CASE STYLE : DF782

Features

- InGaP HBT microwave amplifiers
- miniature SOT-89 package
- frequency range, DC to 8 GHz, usable to 10 GHz
- up to 18.2 dBm typ. output power
- excellent package for heat dissipation, exposed metal bottom
- low thermal resistance for high reliability

Applications

- cellular
- PCS
- communication receivers & transmitters

Electrical Specifications @ 25°C

MODEL NO.	FREQ.* (GHz)	GAIN, dB Typical									MAXIMUM* POWER, dBm		DYNAMIC RANGE*		VSWR (:1) Typ.				MAXIMUM RATING**		DC OPERATING POWER @ Pin 3***				THERMAL RESISTANCE	PRICE $
		over frequency, GHz							Min.	†Flatness, dB	Output (1 dB Comp.)	Input (no	NF	IP3	In		Out				Current	Volt			θjc,	
	f_L - f_U	0.1	1	2	3	4	6	8	@ 2 GHz	DC-2 GHz	$2\text{-}f_U$ GHz	Typ.	Min.	dmg.)	dB Typ.	dBm Typ.	DC-3 GHz	$3\text{-}f_U$ GHz	DC-3 GHz	$3\text{-}f_U$ GHz	I mA	P mW	(mA)	Typ	Min	Max	typ. °C/W	Qty. (25)
Low Power																											
GAL-1	DC-8	12.7	12.5	11.8	11.3	10.5	10.5	11.0	9	±0.5	±0.6	12.2	10.5	15	4.5	27	1.3	1.7	1.4	1.8	55	225	40	3.4	3.0	4.1	108	.99
GAL-21	DC-8	14.3	13.9	13.1	12.4	11.5	11.9	12.4	11.5	±0.6	±0.8	12.6	10.5	15	4.0	27	1.1	1.5	1.3	2.5	55	225	40	3.5	3.0	4.1	128	.99
GAL-2	DC-8	16.2	15.8	14.8	13.7	12.7	13.2	15.1	12	±0.7	±1.2	12.9	11.0	15	4.6	27	1.6	2.5	1.6	2.6	55	225	40	3.5	3.0	4.1	101	.99
GAL-33	DC-4	19.3	18.7	17.5	16.3	15.5	15.8	—	16	±0.9	±1.0	13.4	11.4	13	3.9	28	1.6	2.0	1.2	1.3	55	265	40	4.3	3.8	4.8	110	.99
GAL-3	DC-3	22.4	21.1	19.1	17.3	16.1	15.8	—	17.5	±1.7	±0.9	12.5	10.5	13	3.5	25	1.5	—	1.2	—	55	225	35	3.3	3.0	4.1	127	.99
Medium Power																											
GAL-6	DC-4	12.2	12.2	11.8	11.3	11.4	12.3	—	10	±0.3	±0.2	18.2	16.5	20	4.5	35.5	1.5	1.4	1.8	2.0	85	475	70	5.2	4.6	5.6	93	1.49
GAL-4	DC-4	14.4	14.1	13.5	12.9	12.5	13.1	—	11	±0.5	±0.5	17.5	16.0	20	4.0	34	1.2	1.2	1.4	1.7	85	475	65	4.6	4.2	5.5	93	1.49
GAL-51	DC-4	18.1	17.5	16.1	14.7	13.7	13.4	—	14	±1.0	±1.2	18.0	16.5	13	3.5	35	1.3	1.2	1.5	1.7	85	475	65	4.5	4.2	5.5	78	1.49
GAL-5	DC-4	20.6	19.4	17.5	16.0	14.9	15.1	—	16	±1.6	±1.3	18.0	16.0	13	3.5	35	1.2	1.2	1.4	1.4	85	475	65	4.4	4.0	4.9	103	1.49

* Low frequency cutoff determined by external coupling capacitors.
* Models tested at 2 GHz except GAL-4,5,6,51 at 1 GHz.
** Permanent damage may occur if any of these limits are exceeded. These ratings are not intended for continuous normal operation.
*** Reliability predictions and normal operating conditions are applicable at current specified.
† Measured in test fixture P/N 90-6-20-26

f_U is the upper frequency limit for each model as shown in the table.

designers kits available

K1-GAL Kit includes 1 test board plus 10 of each... $99.95

Maximum Ratings

Operating Temperature	-45°C to 85°C
Storage Temperature	-65°C to 150°C

Pin Configuration

RF IN	1
RF OUT	3
DC	3
GND EXT.	2

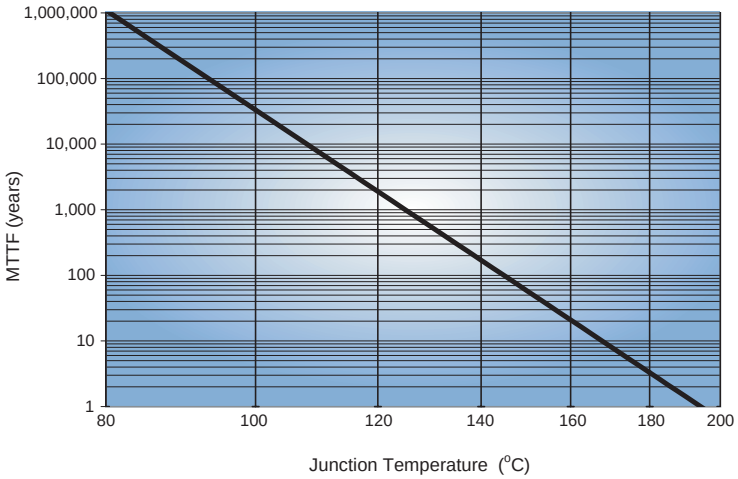
Model Identification

Model	marking (see note below)
GAL-1	01
GAL-2	02
GAL-21	21
GAL-3	03
GAL-33	33
GAL-4	04
GAL-5	05
GAL-51	51
GAL-6	06

Note: Prefix letter (optional) designates assembly location. Suffix letters (optional) are for wafer identification.

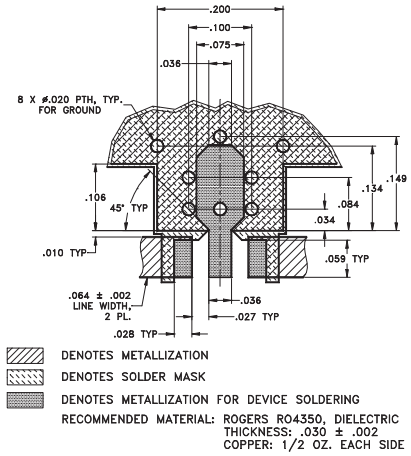
prefix letter
number
suffix letter

MTTF vs. Junction Temp. (GAL)

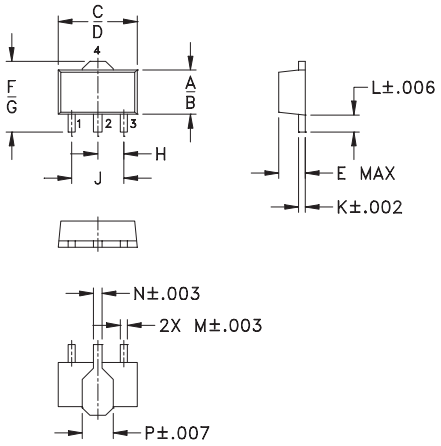


REV. C
M77341
D601029.DOC
EE-7974Q
GAL-SERIES
RS/YB/FL/CP
010621

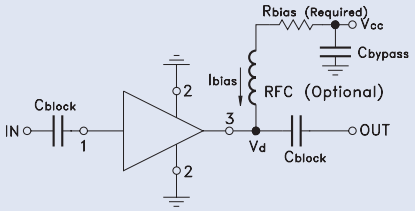
Required PCB Layout (PL-019)



Outline Drawing



Typical Biasing Configuration



Test Board includes case, connectors, and components (in bold) soldered to PCB

Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H
.102	.090	.181	.173	.063	.167	.155	.059
2.59	2.29	4.60	4.39	1.60	4.24	3.94	1.50
J	**K**	**L**	**M**	**N**	**P**		**wt.**
.118	.015	.041	.016	.019	.065		grams
3.00	0.38	1.04	0.41	0.48	1.65		.2

R BIAS
"1% Resistor Values (ohms) for Optimum Biasing of GAL Models

Vcc	GAL-1	GAL-2	GAL-21	GAL-3	GAL-33	GAL-4	GAL-5	GAL-51	GAL-6
7	90.9	88.7	88.7	107	69.8	38.3	40.2	40.2	30.1
8	113	113	113	133	93.1	52.3	53.6	53.6	43.2
9	137	137	137	162	115	66.5	68.1	68.1	56.2
10	162	162	162	191	140	80.6	82.5	82.5	69.8
11	187	187	187	221	165	95.3	97.6	97.6	84.5
12	215	215	210	249	191	110	113	113	97.6
13	237	237	237	280	215	127	127	127	113
14	261	261	261	309	243	143	143	143	127
15	287	287	287	340	267	158	158	158	140
16	309	316	316	365	287	174	174	174	154
17	332	340	340	392	316	187	191	191	169
18	357	365	365	422	340	205	205	205	182
19	383	392	392	453	365	221	221	221	196
20	412	412	412	475	392	237	237	237	210

S-Parameters

GAL-1

I_d= 40mA, V_d= 3.4V

Freq.	S11			S21			S12			S22			K
MHz	dB	Mag	Angle	dB	Mag	Angle	dB	Mag	Angle	dB	Mag	Angle	
100.00	-21.35	0.09	173.89	12.85	4.39	176.80	-17.07	0.14	0.21	-25.48	0.05	-168.78	1.12
200.00	-21.57	0.08	170.88	12.73	4.33	173.04	-16.56	0.15	-1.63	-25.53	0.05	-175.83	1.10
400.00	-21.01	0.09	157.36	12.63	4.28	166.62	-16.47	0.15	-3.30	-24.33	0.06	-175.88	1.10
600.00	-20.69	0.09	149.39	12.60	4.27	160.20	-16.57	0.15	-5.99	-23.31	0.07	-175.58	1.10
800.00	-20.13	0.10	139.42	12.51	4.22	153.80	-16.66	0.15	-7.51	-22.28	0.08	-175.06	1.11
1000.00	-19.63	0.10	131.52	12.42	4.18	147.56	-16.71	0.15	-9.67	-21.28	0.09	-175.71	1.12
1200.00	-19.27	0.11	126.91	12.34	4.14	141.43	-16.72	0.15	-11.36	-20.22	0.10	-177.50	1.12
1400.00	-18.93	0.11	120.14	12.21	4.08	135.29	-16.79	0.14	-12.98	-19.58	0.10	-178.22	1.13
1600.00	-18.47	0.12	113.65	12.09	4.02	129.26	-16.86	0.14	-14.60	-18.45	0.12	-178.97	1.14
1800.00	-18.29	0.12	107.64	11.97	3.97	123.34	-16.93	0.14	-16.99	-17.71	0.13	178.73	1.16
2000.00	-18.00	0.13	102.53	11.83	3.90	117.68	-17.02	0.14	-18.06	-16.93	0.14	176.58	1.17
2200.00	-17.89	0.13	97.35	11.71	3.85	112.00	-17.01	0.14	-19.91	-16.51	0.15	174.48	1.18
2500.00	-18.29	0.12	90.73	11.53	3.77	103.55	-17.22	0.14	-23.17	-16.02	0.16	172.05	1.20
2800.00	-18.37	0.12	81.33	11.35	3.69	95.34	-17.22	0.14	-26.31	-15.45	0.17	168.54	1.22
3000.00	-18.50	0.12	77.88	11.24	3.65	90.11	-17.27	0.14	-28.47	-15.35	0.17	164.85	1.23
3200.00	-18.76	0.12	75.27	11.12	3.60	84.74	-17.41	0.13	-30.65	-15.32	0.17	160.95	1.25
3400.00	-18.93	0.11	71.78	11.02	3.56	79.30	-17.50	0.13	-33.23	-15.13	0.18	157.32	1.27
3600.00	-19.24	0.11	67.55	10.94	3.52	74.16	-17.62	0.13	-35.53	-14.95	0.18	153.02	1.28
3800.00	-19.19	0.11	64.69	10.84	3.48	68.84	-17.80	0.13	-37.60	-14.64	0.19	147.79	1.31
4000.00	-18.90	0.11	62.38	10.76	3.45	63.59	-17.91	0.13	-41.36	-14.29	0.19	142.20	1.32
4200.00	-18.65	0.12	61.76	10.66	3.41	58.52	-17.98	0.13	-43.82	-14.05	0.20	135.91	1.34
4400.00	-18.61	0.12	59.65	10.61	3.39	53.49	-18.12	0.12	-47.19	-13.61	0.21	130.52	1.35
4600.00	-18.44	0.12	56.86	10.54	3.37	48.53	-18.29	0.12	-50.20	-13.11	0.22	125.27	1.38
4800.00	-18.10	0.12	54.96	10.48	3.34	43.21	-18.42	0.12	-53.77	-12.41	0.24	120.09	1.39
5000.00	-17.63	0.13	53.91	10.44	3.33	38.06	-18.54	0.12	-57.18	-12.00	0.25	114.65	1.40
5200.00	-17.09	0.14	51.96	10.39	3.31	32.95	-18.71	0.12	-61.19	-11.54	0.26	109.59	1.42
5400.00	-16.88	0.14	47.70	10.38	3.30	27.98	-18.83	0.11	-64.53	-11.04	0.28	105.82	1.42
5600.00	-16.88	0.14	42.51	10.44	3.33	22.92	-19.05	0.11	-68.51	-10.65	0.29	102.35	1.43
5800.00	-16.62	0.15	36.92	10.54	3.37	17.82	-19.06	0.11	-73.41	-10.18	0.31	98.77	1.41
6000.00	-16.29	0.15	34.75	10.61	3.39	12.13	-19.17	0.11	-77.23	-9.75	0.33	94.79	1.40
6200.00	-15.54	0.17	28.79	10.76	3.45	7.01	-19.26	0.11	-84.32	-9.55	0.33	92.40	1.39
6400.00	-15.75	0.16	20.35	11.03	3.56	0.45	-19.46	0.11	-89.66	-8.89	0.36	89.68	1.36
6600.00	-16.06	0.16	16.33	11.16	3.61	-6.84	-19.53	0.11	-94.96	-8.23	0.39	84.72	1.33
6800.00	-15.40	0.17	11.66	11.26	3.66	-14.28	-19.60	0.10	-100.70	-7.65	0.41	78.61	1.31
7000.00	-14.70	0.18	8.06	11.31	3.68	-21.99	-19.54	0.11	-107.73	-7.25	0.43	71.41	1.27
7500.00	-12.86	0.23	1.52	11.46	3.74	-42.43	-19.49	0.11	-127.26	-6.02	0.50	52.45	1.18
8000.00	-9.86	0.32	-10.25	11.19	3.63	-66.93	-19.71	0.10	-147.14	-4.76	0.58	26.30	1.10

GAL-21

I_d= 40mA, V_d= 3.5V

Freq.	S11			S21			S12			S22			K
MHz	dB	Mag	Angle	dB	Mag	Angle	dB	Mag	Angle	dB	Mag	Angle	
100.00	-27.71	0.04	5.02	14.34	5.21	176.30	-18.03	0.13	-2.20	-24.45	0.06	-12.08	1.09
200.00	-29.64	0.03	3.23	14.28	5.18	172.61	-17.76	0.13	-2.80	-24.69	0.06	-20.19	1.08
400.00	-29.04	0.04	11.17	14.23	5.15	165.77	-17.50	0.13	-3.52	-24.28	0.06	-38.44	1.07
600.00	-28.79	0.04	23.79	14.12	5.08	158.79	-17.56	0.13	-5.67	-23.94	0.06	-56.22	1.08
800.00	-28.71	0.04	28.44	14.02	5.02	151.99	-17.70	0.13	-7.37	-23.24	0.07	-76.19	1.09
1000.00	-28.29	0.04	36.93	13.91	4.96	145.23	-17.67	0.13	-9.54	-21.98	0.08	-92.02	1.09
1200.00	-28.03	0.04	40.13	13.79	4.89	138.49	-17.77	0.13	-11.02	-20.88	0.09	-105.94	1.10
1400.00	-27.59	0.04	42.90	13.66	4.82	132.02	-17.83	0.13	-12.77	-19.71	0.10	-117.70	1.11
1600.00	-27.14	0.04	44.62	13.54	4.75	125.76	-17.83	0.13	-15.20	-18.46	0.12	-128.36	1.12
1800.00	-26.42	0.05	45.25	13.38	4.67	119.26	-17.88	0.13	-16.65	-17.45	0.13	-136.67	1.13
2000.00	-26.32	0.05	42.36	13.25	4.60	113.30	-18.02	0.13	-18.99	-16.63	0.15	-143.79	1.14
2200.00	-25.81	0.05	40.37	13.09	4.51	107.05	-17.95	0.13	-20.44	-15.73	0.16	-150.18	1.14
2500.00	-26.28	0.05	31.57	12.85	4.39	98.39	-18.12	0.12	-23.72	-14.91	0.18	-156.67	1.17
2800.00	-25.84	0.05	23.68	12.64	4.29	89.72	-18.25	0.12	-27.24	-14.24	0.19	-164.05	1.19
3000.00	-26.67	0.05	17.04	12.51	4.22	83.95	-18.33	0.12	-29.30	-13.94	0.20	-169.05	1.20
3200.00	-27.51	0.04	13.80	12.40	4.17	78.30	-18.36	0.12	-31.23	-13.70	0.21	-173.86	1.21
3400.00	-28.10	0.04	10.54	12.27	4.11	72.86	-18.45	0.12	-33.79	-13.58	0.21	-179.45	1.23
3600.00	-28.69	0.04	8.97	12.18	4.06	67.49	-18.51	0.12	-36.69	-13.43	0.21	175.35	1.24
3800.00	-29.50	0.03	9.58	12.09	4.02	61.98	-18.60	0.12	-38.63	-13.14	0.22	169.12	1.25
4000.00	-30.10	0.03	15.60	11.99	3.98	56.49	-18.65	0.12	-41.96	-12.86	0.23	162.52	1.26
4200.00	-31.10	0.03	20.54	11.90	3.94	51.12	-18.75	0.12	-44.81	-12.69	0.23	155.36	1.27
4400.00	-30.64	0.03	30.71	11.85	3.91	45.70	-18.91	0.11	-48.68	-12.27	0.24	148.52	1.29
4600.00	-30.66	0.03	40.54	11.81	3.89	40.30	-19.06	0.11	-51.97	-11.85	0.26	141.95	1.30
4800.00	-29.81	0.03	54.26	11.77	3.88	34.75	-19.16	0.11	-55.41	-11.41	0.27	135.05	1.31
5000.00	-27.69	0.04	59.15	11.73	3.86	29.12	-19.18	0.11	-59.06	-10.98	0.28	128.86	1.30
5200.00	-26.05	0.05	60.45	11.67	3.83	23.64	-19.28	0.11	-63.27	-10.65	0.29	123.18	1.31
5400.00	-25.02	0.06	53.12	11.64	3.82	18.60	-19.53	0.11	-67.02	-10.18	0.31	117.79	1.33
5600.00	-24.70	0.06	48.17	11.73	3.86	13.41	-19.61	0.10	-71.77	-9.78	0.32	112.80	1.32
5800.00	-24.83	0.06	42.66	11.88	3.93	7.96	-19.67	0.10	-77.07	-9.36	0.34	107.39	1.30
6000.00	-23.48	0.07	49.46	11.99	3.98	1.59	-19.66	0.10	-81.21	-8.89	0.36	103.09	1.27
6200.00	-22.44	0.08	34.24	12.20	4.07	-4.37	-19.72	0.10	-87.84	-8.44	0.38	99.90	1.24
6400.00	-23.14	0.07	26.61	12.47	4.20	-11.54	-19.94	0.10	-93.91	-7.55	0.42	95.39	1.20
6600.00	-23.24	0.07	30.31	12.66	4.30	-19.50	-20.01	0.10	-99.12	-6.91	0.45	88.39	1.15
6800.00	-21.47	0.08	30.17	12.79	4.36	-28.00	-19.91	0.10	-105.19	-6.40	0.48	80.93	1.11
7000.00	-19.89	0.10	28.21	12.81	4.37	-36.63	-19.73	0.10	-113.63	-6.08	0.50	72.95	1.07
7500.00	-15.04	0.18	18.19	12.93	4.43	-59.63	-19.43	0.11	-133.32	-5.02	0.56	48.71	0.96
8000.00	-10.38	0.30	0.44	12.42	4.18	-86.72	-19.43	0.11	-156.04	-4.30	0.61	18.47	0.89

S-Parameters

GAL-2

I_d= 40mA, V_d= 3.5V

Freq. MHz	S11 dB	S11 Mag	S11 Angle	S21 dB	S21 Mag	S21 Angle	S12 dB	S12 Mag	S12 Angle	S22 dB	S22 Mag	S22 Angle	K
100.00	-12.33	0.24	-0.40	16.20	6.46	176.48	-20.05	0.10	-0.80	-11.47	0.27	-5.09	1.07
200.00	-12.22	0.24	-1.44	16.07	6.36	172.74	-19.64	0.10	-1.07	-11.55	0.26	-8.06	1.06
400.00	-12.31	0.24	-1.45	15.98	6.30	165.63	-19.51	0.11	-3.57	-11.73	0.26	-16.53	1.05
600.00	-12.32	0.24	-2.91	15.93	6.26	158.80	-19.49	0.11	-5.45	-12.00	0.25	-24.31	1.06
800.00	-12.38	0.24	-3.86	15.80	6.17	151.85	-19.61	0.10	-6.33	-12.27	0.24	-32.85	1.07
1000.00	-12.32	0.24	-5.12	15.66	6.07	145.18	-19.56	0.11	-8.23	-12.55	0.24	-42.07	1.07
1200.00	-12.33	0.24	-6.85	15.51	5.96	138.73	-19.67	0.10	-9.78	-12.76	0.23	-50.95	1.08
1400.00	-12.29	0.24	-8.36	15.34	5.85	132.14	-19.72	0.10	-10.96	-12.95	0.23	-59.93	1.10
1600.00	-12.19	0.25	-9.49	15.15	5.72	125.98	-19.92	0.10	-12.40	-13.06	0.22	-70.15	1.12
1800.00	-12.06	0.25	-11.56	14.95	5.59	119.81	-20.02	0.10	-14.42	-13.13	0.22	-79.29	1.13
2000.00	-11.98	0.25	-14.07	14.75	5.46	114.04	-20.20	0.10	-15.65	-13.12	0.22	-88.89	1.15
2200.00	-11.82	0.26	-16.62	14.54	5.33	107.98	-20.34	0.10	-16.61	-13.03	0.22	-96.36	1.17
2500.00	-11.52	0.27	-21.86	14.21	5.13	99.68	-20.61	0.09	-20.05	-12.88	0.23	-107.16	1.21
2800.00	-11.24	0.27	-26.46	13.93	4.97	91.68	-20.85	0.09	-22.68	-12.76	0.23	-116.73	1.25
3000.00	-11.10	0.28	-30.41	13.74	4.86	86.50	-21.00	0.09	-23.56	-12.68	0.23	-122.47	1.28
3200.00	-11.02	0.28	-34.24	13.55	4.76	81.34	-21.29	0.09	-26.10	-12.67	0.23	-128.05	1.32
3400.00	-10.90	0.29	-37.61	13.39	4.67	76.19	-21.59	0.08	-27.63	-12.67	0.23	-133.86	1.36
3600.00	-10.78	0.29	-40.97	13.24	4.59	71.27	-21.69	0.08	-28.51	-12.73	0.23	-139.32	1.39
3800.00	-10.69	0.29	-44.00	13.09	4.51	66.38	-22.01	0.08	-29.47	-12.77	0.23	-145.92	1.43
4000.00	-10.64	0.29	-47.43	12.96	4.45	61.46	-22.36	0.08	-33.09	-12.86	0.23	-152.89	1.49
4200.00	-10.57	0.30	-50.51	12.84	4.39	56.87	-22.73	0.07	-34.52	-12.89	0.23	-158.19	1.55
4400.00	-10.40	0.30	-53.03	12.78	4.36	52.12	-22.97	0.07	-36.42	-12.86	0.23	-166.17	1.59
4600.00	-10.40	0.30	-56.52	12.70	4.32	47.14	-23.16	0.07	-38.88	-12.70	0.23	-174.34	1.62
4800.00	-10.39	0.30	-59.39	12.60	4.27	42.34	-23.65	0.07	-40.64	-12.53	0.24	177.06	1.70
5000.00	-10.42	0.30	-63.24	12.52	4.23	37.33	-24.09	0.06	-43.58	-12.35	0.24	169.87	1.78
5200.00	-10.30	0.31	-65.16	12.45	4.19	32.66	-24.25	0.06	-47.87	-12.14	0.25	161.86	1.81
5400.00	-10.03	0.32	-67.67	12.40	4.17	27.91	-24.78	0.06	-50.46	-11.85	0.26	155.80	1.90
5600.00	-9.62	0.33	-71.01	12.42	4.18	23.67	-25.44	0.05	-51.79	-11.50	0.27	150.70	1.99
5800.00	-9.16	0.35	-74.91	12.56	4.25	19.04	-25.83	0.05	-56.10	-11.07	0.28	146.02	2.01
6000.00	-9.02	0.35	-79.61	12.62	4.28	13.96	-26.47	0.05	-58.84	-10.57	0.30	140.66	2.10
6200.00	-8.32	0.38	-80.88	12.84	4.39	9.61	-27.72	0.04	-69.79	-9.84	0.32	139.39	2.27
6400.00	-7.49	0.42	-86.84	13.13	4.53	3.26	-29.51	0.03	-69.85	-9.04	0.35	134.45	2.51
6600.00	-7.18	0.44	-94.09	13.29	4.62	-3.47	-29.35	0.03	-67.82	-8.25	0.39	127.55	2.31
6800.00	-7.01	0.45	-99.80	13.46	4.71	-10.29	-30.17	0.03	-70.19	-7.73	0.41	120.60	2.39
7000.00	-6.76	0.46	-105.51	13.61	4.79	-17.28	-30.45	0.03	-79.04	-7.03	0.45	113.80	2.32
7500.00	-6.37	0.48	-120.75	14.17	5.11	-36.19	-31.73	0.03	-90.15	-6.05	0.50	93.82	2.29
8000.00	-7.11	0.44	-138.78	14.65	5.40	-61.00	-30.03	0.03	-108.71	-5.04	0.56	64.61	1.73

GAL-33

I_d= 40mA, V_d= 4.3V

Freq. MHz	S11 dB	S11 Mag	S11 Angle	S21 dB	S21 Mag	S21 Angle	S12 dB	S12 Mag	S12 Angle	S22 dB	S22 Mag	S22 Angle	K
100.00	-24.23	0.06	4.64	19.23	9.15	175.70	-21.75	0.08	0.02	-19.84	0.10	-4.83	1.04
200.00	-23.11	0.07	20.25	19.22	9.14	171.74	-21.97	0.08	-2.56	-19.67	0.10	-7.45	1.05
400.00	-21.86	0.08	32.56	19.10	9.02	163.64	-21.72	0.08	-3.99	-19.93	0.10	-15.87	1.04
600.00	-19.78	0.10	38.90	19.00	8.91	155.86	-21.54	0.08	-5.09	-20.56	0.09	-26.67	1.04
800.00	-18.11	0.12	39.50	18.84	8.75	148.46	-21.78	0.08	-7.11	-21.19	0.09	-37.59	1.05
1000.00	-16.75	0.15	37.36	18.63	8.54	140.88	-21.90	0.08	-7.71	-21.56	0.08	-48.46	1.06
1200.00	-15.69	0.16	34.50	18.46	8.38	133.66	-22.01	0.08	-9.57	-22.11	0.08	-59.78	1.07
1400.00	-14.68	0.18	30.89	18.21	8.14	126.68	-22.12	0.08	-10.54	-21.99	0.08	-73.22	1.09
1600.00	-13.93	0.20	25.90	17.97	7.92	119.76	-22.32	0.08	-13.46	-21.89	0.08	-86.66	1.11
1800.00	-13.20	0.22	21.18	17.75	7.72	113.41	-22.46	0.08	-13.25	-21.47	0.08	-99.04	1.12
2000.00	-12.68	0.23	15.62	17.51	7.51	106.95	-22.55	0.07	-15.27	-20.99	0.09	-109.66	1.14
2200.00	-12.25	0.24	9.84	17.26	7.29	100.79	-22.78	0.07	-16.25	-20.51	0.09	-115.84	1.17
2500.00	-11.60	0.26	0.97	16.93	7.02	91.63	-23.05	0.07	-18.49	-19.52	0.11	-124.80	1.20
2800.00	-11.07	0.28	-7.42	16.58	6.75	83.07	-23.48	0.07	-20.69	-18.81	0.11	-131.66	1.26
3000.00	-10.80	0.29	-13.47	16.41	6.61	77.39	-23.74	0.07	-22.21	-18.54	0.12	-135.62	1.30
3200.00	-10.51	0.30	-19.39	16.21	6.46	71.91	-24.00	0.06	-22.72	-18.30	0.12	-139.80	1.34
3400.00	-10.23	0.31	-24.85	16.03	6.33	66.41	-24.44	0.06	-23.62	-17.99	0.13	-144.75	1.40
3600.00	-9.95	0.32	-30.03	15.90	6.24	61.02	-24.66	0.06	-25.43	-17.78	0.13	-148.09	1.43
3800.00	-9.69	0.33	-35.24	15.78	6.15	55.79	-25.12	0.06	-25.31	-17.81	0.13	-153.59	1.49
4000.00	-9.55	0.33	-39.79	15.63	6.05	50.37	-25.56	0.05	-27.66	-17.65	0.13	-159.85	1.56
4200.00	-9.32	0.34	-44.51	15.51	5.96	45.26	-26.04	0.05	-28.30	-17.68	0.13	-166.81	1.64
4400.00	-9.05	0.35	-48.88	15.45	5.92	40.29	-26.52	0.05	-29.62	-17.36	0.14	-173.31	1.71
4600.00	-8.83	0.36	-53.97	15.44	5.92	34.93	-27.07	0.04	-29.00	-16.88	0.14	178.82	1.78
4800.00	-8.61	0.37	-58.85	15.40	5.89	29.62	-27.56	0.04	-29.31	-16.18	0.16	170.51	1.85
5000.00	-8.46	0.38	-63.80	15.39	5.88	24.02	-28.22	0.04	-30.48	-15.63	0.17	161.94	1.96
5200.00	-8.21	0.39	-67.76	15.37	5.87	18.61	-28.96	0.04	-31.24	-15.04	0.18	155.70	2.08
5400.00	-7.76	0.41	-72.05	15.40	5.89	13.46	-29.45	0.03	-33.06	-14.34	0.19	150.59	2.13
5600.00	-7.25	0.43	-77.14	15.54	5.98	8.42	-30.97	0.03	-31.11	-13.53	0.21	147.20	2.38
5800.00	-6.55	0.47	-83.27	15.78	6.15	2.68	-32.13	0.02	-30.41	-12.71	0.23	144.43	2.49
6000.00	-6.44	0.48	-89.96	15.93	6.26	-3.61	-32.72	0.02	-28.80	-11.98	0.25	140.78	2.56
6200.00	-5.51	0.53	-93.44	16.32	6.55	-9.25	-36.52	0.01	-19.99	-10.93	0.28	141.67	3.40
6400.00	-4.54	0.59	-103.21	16.72	6.85	-17.96	-36.01	0.02	3.67	-9.20	0.35	134.73	2.54
6600.00	-4.22	0.62	-112.99	16.94	7.03	-26.93	-33.14	0.02	9.15	-8.34	0.38	126.37	1.59
6800.00	-3.89	0.64	-122.00	17.09	7.15	-35.92	-33.62	0.02	10.66	-7.56	0.42	117.20	1.46
7000.00	-3.63	0.66	-131.39	17.26	7.29	-45.09	-32.79	0.02	10.79	-6.94	0.45	110.46	1.15
7500.00	-3.35	0.68	-158.13	17.64	7.62	-71.46	-31.07	0.03	-0.34	-5.09	0.56	86.42	0.60
8000.00	-4.67	0.58	166.79	17.24	7.28	-104.65	-32.07	0.02	-46.70	-4.06	0.63	51.93	0.83

S-Parameters

GAL-3

I_d= 35mA, V_d= 3.3V

Freq.	S11			S21			S12			S22			K
MHz	dB	Mag	Angle	dB	Mag	Angle	dB	Mag	Angle	dB	Mag	Angle	
100.00	-28.31	0.04	129.62	22.25	12.96	174.88	-24.76	0.06	-0.20	-33.17	0.02	-176.27	1.04
200.00	-25.44	0.05	121.54	22.16	12.82	169.66	-24.06	0.06	0.66	-30.94	0.03	-176.36	1.02
400.00	-21.55	0.08	96.27	21.99	12.57	160.63	-23.92	0.06	0.35	-30.65	0.03	-176.06	1.02
600.00	-18.42	0.12	81.49	21.70	12.16	150.82	-24.06	0.06	-0.48	-29.50	0.03	-175.92	1.03
800.00	-16.58	0.15	71.48	21.37	11.71	142.05	-24.09	0.06	-1.42	-27.35	0.04	-177.16	1.04
1000.00	-15.19	0.17	62.50	20.99	11.21	133.66	-24.04	0.06	-2.32	-26.07	0.05	-178.72	1.04
1200.00	-14.25	0.19	54.52	20.58	10.69	125.57	-24.03	0.06	-1.87	-25.01	0.06	-179.91	1.05
1400.00	-13.55	0.21	47.17	20.16	10.19	118.23	-24.06	0.06	-1.96	-24.14	0.06	178.19	1.07
1600.00	-12.97	0.22	39.78	19.78	9.75	111.51	-24.10	0.06	-2.57	-22.92	0.07	176.26	1.09
1800.00	-12.48	0.24	32.86	19.37	9.30	104.51	-24.10	0.06	-2.00	-22.10	0.08	174.61	1.10
2000.00	-12.13	0.25	26.09	18.99	8.90	98.16	-24.37	0.06	-3.28	-21.60	0.08	173.49	1.14
2200.00	-11.81	0.26	20.10	18.59	8.50	92.03	-24.28	0.06	-3.17	-20.93	0.09	172.38	1.16
2500.00	-11.49	0.27	10.09	18.01	7.95	83.38	-24.35	0.06	-3.19	-20.73	0.09	171.12	1.20
2800.00	-10.95	0.28	1.30	17.51	7.51	75.24	-24.58	0.06	-4.02	-20.35	0.10	169.73	1.25
3000.00	-10.82	0.29	-4.71	17.22	7.26	69.85	-24.69	0.06	-5.16	-20.22	0.10	167.80	1.29
3200.00	-10.73	0.29	-9.76	16.93	7.02	64.60	-24.69	0.06	-4.69	-20.30	0.10	164.83	1.32
3400.00	-10.61	0.29	-14.58	16.66	6.81	59.60	-24.80	0.06	-5.15	-20.42	0.10	160.89	1.35
3600.00	-10.49	0.30	-18.99	16.42	6.62	54.58	-24.92	0.06	-7.04	-20.31	0.10	157.09	1.39
3800.00	-10.34	0.30	-22.87	16.18	6.44	49.89	-24.99	0.06	-7.20	-20.46	0.09	151.84	1.42
4000.00	-10.20	0.31	-26.82	16.03	6.33	45.15	-25.33	0.05	-8.37	-20.07	0.10	146.03	1.47
4200.00	-10.17	0.31	-31.67	15.86	6.21	40.08	-25.32	0.05	-8.76	-19.91	0.10	140.14	1.49
4400.00	-10.06	0.31	-35.89	15.73	6.12	35.32	-25.71	0.05	-9.95	-19.21	0.11	134.56	1.55
4600.00	-10.00	0.32	-40.82	15.63	6.05	30.41	-25.80	0.05	-10.38	-18.57	0.12	128.27	1.57
4800.00	-10.02	0.32	-45.09	15.53	5.98	25.40	-26.05	0.05	-9.92	-17.61	0.13	122.87	1.61
5000.00	-10.00	0.32	-50.00	15.45	5.92	20.33	-26.15	0.05	-12.76	-16.92	0.14	118.07	1.63
5200.00	-9.95	0.32	-53.87	15.37	5.87	15.57	-26.45	0.05	-13.73	-16.55	0.15	113.73	1.69
5400.00	-9.58	0.33	-57.94	15.33	5.84	11.12	-26.85	0.05	-15.07	-16.49	0.15	109.57	1.74
5600.00	-9.08	0.35	-63.27	15.45	5.92	6.64	-27.50	0.04	-15.68	-16.62	0.15	105.92	1.81
5800.00	-8.44	0.38	-70.03	15.65	6.06	1.87	-28.14	0.04	-17.01	-16.29	0.15	103.89	1.84
6000.00	-8.54	0.37	-76.17	15.82	6.18	-4.08	-27.99	0.04	-20.88	-15.70	0.16	102.27	1.78
6200.00	-7.55	0.42	-79.31	16.16	6.43	-10.04	-29.48	0.03	-24.03	-15.16	0.17	99.97	1.92
6400.00	-6.60	0.47	-88.45	16.47	6.66	-18.01	-30.29	0.03	-15.93	-13.24	0.22	97.48	1.85
6600.00	-6.44	0.48	-98.36	16.61	6.77	-26.00	-30.22	0.03	-16.00	-11.98	0.25	94.69	1.74
6800.00	-6.28	0.49	-106.54	16.72	6.85	-34.53	-30.50	0.03	-21.50	-11.31	0.27	86.84	1.73
7000.00	-6.21	0.49	-114.44	16.79	6.91	-42.76	-31.35	0.03	-25.13	-10.86	0.29	72.50	1.83
7500.00	-6.44	0.48	-137.28	17.17	7.22	-66.02	-32.94	0.02	-32.84	-9.01	0.35	53.87	2.00
8000.00	-8.92	0.36	-171.92	16.97	7.06	-96.13	-33.69	0.02	-70.63	-7.50	0.42	32.01	2.39

GAL-6

I_d= 70mA, V_d= 5.2V

Freq.	S11			S21			S12			S22			K
MHz	dB	Mag	Angle	dB	Mag	Angle	dB	Mag	Angle	dB	Mag	Angle	
100.00	-13.11	0.22	-1.78	12.27	4.11	176.37	-17.52	0.13	0.09	-10.83	0.29	-4.48	1.14
200.00	-13.17	0.22	-4.07	12.27	4.11	173.30	-17.36	0.14	-2.04	-10.64	0.29	-8.24	1.12
400.00	-13.40	0.21	-7.61	12.20	4.07	166.51	-17.24	0.14	-2.87	-10.79	0.29	-16.30	1.12
600.00	-13.46	0.21	-10.92	12.20	4.07	159.80	-17.09	0.14	-4.96	-10.91	0.28	-25.30	1.11
800.00	-13.65	0.21	-14.78	12.16	4.06	153.49	-17.19	0.14	-7.13	-10.99	0.28	-34.35	1.12
1000.00	-13.86	0.20	-18.70	12.11	4.03	146.91	-17.26	0.14	-8.10	-11.07	0.28	-43.57	1.13
1200.00	-14.10	0.20	-23.11	12.10	4.03	140.29	-17.29	0.14	-10.06	-11.19	0.28	-52.63	1.13
1400.00	-14.31	0.19	-27.60	12.00	3.98	134.03	-17.38	0.14	-12.02	-11.13	0.28	-61.94	1.14
1600.00	-14.37	0.19	-31.90	11.96	3.96	127.59	-17.36	0.14	-14.06	-11.05	0.28	-71.77	1.14
1800.00	-14.60	0.19	-35.68	11.91	3.94	121.35	-17.35	0.14	-15.67	-10.93	0.28	-81.40	1.14
2000.00	-14.68	0.18	-39.78	11.85	3.91	115.14	-17.44	0.13	-17.71	-10.75	0.29	-90.13	1.14
2200.00	-14.79	0.18	-45.82	11.77	3.88	109.00	-17.52	0.13	-19.20	-10.53	0.30	-98.23	1.14
2500.00	-14.69	0.18	-54.24	11.68	3.84	99.71	-17.62	0.13	-22.21	-10.06	0.31	-109.17	1.14
2800.00	-14.59	0.19	-61.79	11.59	3.80	90.81	-17.73	0.13	-25.60	-9.71	0.33	-119.42	1.14
3000.00	-14.51	0.19	-68.62	11.57	3.79	84.95	-17.75	0.13	-26.94	-9.53	0.33	-125.84	1.14
3200.00	-14.46	0.19	-75.84	11.52	3.77	79.05	-17.82	0.13	-28.48	-9.33	0.34	-131.94	1.13
3400.00	-14.31	0.19	-81.85	11.48	3.75	73.12	-17.91	0.13	-30.68	-9.13	0.35	-138.37	1.13
3600.00	-14.17	0.20	-87.49	11.50	3.76	67.36	-17.94	0.13	-33.01	-8.98	0.36	-145.13	1.12
3800.00	-14.19	0.20	-94.16	11.51	3.76	61.50	-17.96	0.13	-35.04	-8.83	0.36	-152.00	1.11
4000.00	-14.32	0.19	-101.64	11.54	3.78	55.40	-17.97	0.13	-37.60	-8.68	0.37	-158.99	1.10
4200.00	-14.36	0.19	-108.34	11.54	3.78	49.59	-17.98	0.13	-40.17	-8.54	0.37	-166.23	1.09
4400.00	-14.21	0.19	-115.66	11.62	3.81	43.53	-18.01	0.13	-42.83	-8.35	0.38	-173.83	1.07
4600.00	-14.21	0.19	-123.75	11.69	3.84	37.32	-18.02	0.13	-45.46	-8.06	0.40	178.02	1.05
4800.00	-14.33	0.19	-132.43	11.74	3.86	30.99	-18.08	0.12	-49.02	-7.62	0.42	169.32	1.02
5000.00	-14.29	0.19	-141.59	11.79	3.89	24.52	-17.95	0.13	-52.14	-7.24	0.43	161.22	0.98
5200.00	-14.28	0.19	-148.95	11.84	3.91	18.11	-18.04	0.13	-56.05	-6.81	0.46	153.59	0.96
5400.00	-14.02	0.20	-155.52	11.97	3.97	12.16	-17.94	0.13	-59.48	-6.29	0.48	147.45	0.91
5600.00	-13.61	0.21	-163.06	12.23	4.09	5.62	-17.97	0.13	-63.39	-5.62	0.52	141.04	0.84
5800.00	-13.41	0.21	-171.66	12.48	4.21	-1.89	-17.77	0.13	-67.75	-4.96	0.56	133.75	0.77
6000.00	-13.09	0.22	178.67	12.58	4.26	-9.76	-17.72	0.13	-73.10	-4.57	0.59	125.51	0.72
6200.00	-12.53	0.24	173.56	12.90	4.42	-17.01	-17.74	0.13	-78.12	-3.96	0.63	119.11	0.65
6400.00	-11.77	0.26	162.98	13.21	4.58	-26.65	-17.49	0.13	-83.48	-3.15	0.70	109.52	0.53
6600.00	-11.19	0.28	149.14	13.36	4.66	-36.92	-17.11	0.14	-88.91	-2.58	0.74	99.08	0.44
6800.00	-10.85	0.29	134.68	13.42	4.69	-47.34	-16.81	0.14	-96.76	-2.08	0.79	88.48	0.37
7000.00	-10.43	0.30	120.13	13.41	4.68	-58.60	-16.41	0.15	-104.52	-1.69	0.82	77.97	0.31
7500.00	-9.24	0.35	77.01	12.97	4.45	-88.04	-15.78	0.16	-129.58	-1.11	0.88	47.05	0.21
8000.00	-8.05	0.40	31.31	11.30	3.67	-119.58	-16.02	0.16	-156.59	-1.59	0.83	13.82	0.26

S-Parameters

GAL-4

I_d= 65mA, V_d= 4.6V

Freq.	S11			S21			S12			S22		K
MHz	dB	Mag	Angle	dB	Mag	Angle	dB	Mag	Angle	dB	Angle	
100.00	-29.62	0.03	166.71	14.42	5.26	175.82	-17.88	0.13	-0.70	-29.62	-25.76	1.08
200.00	-28.55	0.04	156.69	14.41	5.25	172.21	-18.10	0.12	-2.70	-30.03	-29.73	1.09
400.00	-26.43	0.05	140.55	14.33	5.21	164.43	-18.01	0.13	-4.26	-29.17	-61.45	1.09
600.00	-25.29	0.05	122.00	14.28	5.18	156.97	-17.97	0.13	-6.55	-26.15	-87.46	1.09
800.00	-24.18	0.06	111.79	14.19	5.12	149.81	-18.16	0.12	-8.76	-23.77	-104.28	1.10
1000.00	-23.24	0.07	101.25	14.08	5.06	142.36	-18.25	0.12	-10.37	-21.69	-115.89	1.11
1200.00	-22.62	0.07	92.56	14.01	5.02	135.16	-18.37	0.12	-13.21	-20.17	-125.89	1.12
1400.00	-21.99	0.08	83.52	13.87	4.94	128.09	-18.50	0.12	-14.43	-18.64	-133.77	1.14
1600.00	-21.61	0.08	74.94	13.75	4.87	121.05	-18.55	0.12	-16.86	-17.18	-141.27	1.15
1800.00	-21.20	0.09	66.14	13.64	4.81	114.32	-18.63	0.12	-18.49	-16.07	-147.20	1.15
2000.00	-21.10	0.09	56.92	13.50	4.73	107.53	-18.82	0.11	-20.35	-15.11	-152.66	1.17
2200.00	-21.23	0.09	48.04	13.38	4.67	100.91	-18.94	0.11	-22.13	-14.34	-157.45	1.19
2500.00	-21.44	0.08	32.53	13.21	4.58	90.96	-19.21	0.11	-25.36	-13.34	-163.58	1.21
2800.00	-21.62	0.08	15.80	13.03	4.48	81.34	-19.41	0.11	-28.65	-12.58	-169.59	1.24
3000.00	-21.93	0.08	4.86	12.96	4.45	75.05	-19.59	0.10	-30.12	-12.14	-173.99	1.25
3200.00	-22.22	0.08	-7.21	12.87	4.40	68.68	-19.71	0.10	-31.74	-11.75	-178.63	1.26
3400.00	-22.39	0.08	-18.28	12.79	4.36	62.33	-19.90	0.10	-33.85	-11.40	176.46	1.28
3600.00	-22.41	0.08	-29.76	12.73	4.33	55.99	-20.03	0.10	-35.77	-11.05	170.73	1.29
3800.00	-22.37	0.08	-41.38	12.73	4.33	49.83	-20.27	0.10	-37.47	-10.70	166.13	1.30
4000.00	-22.96	0.07	-51.06	12.67	4.30	43.23	-20.40	0.10	-40.12	-10.25	159.70	1.31
4200.00	-23.16	0.07	-59.66	12.64	4.29	36.89	-20.52	0.09	-42.38	-9.84	153.21	1.31
4400.00	-23.41	0.07	-70.51	12.64	4.29	30.52	-20.66	0.09	-44.30	-9.36	147.02	1.31
4600.00	-24.13	0.06	-84.05	12.65	4.29	23.57	-20.90	0.09	-46.92	-8.83	140.41	1.31
4800.00	-24.70	0.06	-97.50	12.64	4.29	16.96	-21.03	0.09	-49.62	-8.22	134.15	1.29
5000.00	-25.01	0.06	-111.36	12.62	4.28	10.17	-21.13	0.09	-53.08	-7.64	127.83	1.27
5200.00	-25.46	0.05	-124.20	12.65	4.29	3.17	-21.28	0.09	-56.28	-7.05	121.82	1.25
5400.00	-24.85	0.06	-139.73	12.73	4.33	-3.57	-21.34	0.09	-59.46	-6.48	116.70	1.21
5600.00	-23.95	0.06	-153.41	12.87	4.40	-10.96	-21.59	0.08	-63.23	-5.86	111.17	1.16
5800.00	-22.98	0.07	-166.36	13.02	4.48	-18.93	-21.46	0.08	-66.99	-5.26	105.35	1.08
6000.00	-22.19	0.08	174.18	13.07	4.50	-27.12	-21.49	0.08	-71.79	-4.77	99.04	1.02
6200.00	-21.64	0.08	164.52	13.31	4.63	-35.65	-21.55	0.08	-78.11	-4.10	93.41	0.93
6400.00	-19.70	0.10	149.32	13.45	4.70	-46.50	-21.51	0.08	-83.07	-3.41	85.01	0.81
6600.00	-18.08	0.12	127.82	13.36	4.66	-57.35	-21.34	0.09	-89.24	-2.98	75.69	0.72
6800.00	-17.13	0.14	108.08	13.17	4.56	-68.14	-21.16	0.09	-98.52	-2.64	66.54	0.66
7000.00	-15.88	0.16	89.35	12.88	4.41	-79.20	-20.78	0.09	-106.57	-2.40	57.29	0.61
7500.00	-12.45	0.24	44.61	11.88	3.93	-107.41	-20.35	0.10	-132.88	-2.20	31.18	0.55
8000.00	-9.74	0.33	8.25	9.87	3.12	-135.63	-20.69	0.09	-160.41	-2.71	4.58	0.72

GAL-51

I_d= 65mA, V_d= 4.5V

Freq.	S11			S21			S12			S22			K
MHz	dB	Mag	Angle	dB	Mag	Angle	dB	Mag	Angle	dB	Mag	Angle	
100.00	-24.65	0.06	-0.53	18.19	8.12	175.21	-20.96	0.09	0.08	-19.58	0.10	-10.86	1.05
200.00	-24.92	0.06	0.24	18.16	8.09	171.17	-20.93	0.09	-1.13	-19.13	0.11	-17.82	1.05
400.00	-25.35	0.05	0.46	18.06	8.00	162.73	-20.93	0.09	-1.23	-19.21	0.11	-34.15	1.05
600.00	-25.19	0.06	4.64	17.93	7.88	154.38	-20.69	0.09	-2.41	-19.06	0.11	-52.95	1.05
800.00	-25.17	0.06	2.92	17.76	7.73	146.49	-20.84	0.09	-2.73	-18.62	0.12	-70.55	1.06
1000.00	-25.27	0.05	3.08	17.55	7.54	138.52	-20.85	0.09	-3.65	-17.99	0.13	-86.59	1.06
1200.00	-25.51	0.05	-0.07	17.37	7.39	130.84	-20.87	0.09	-4.34	-17.31	0.14	-100.54	1.07
1400.00	-25.39	0.05	-2.63	17.10	7.16	123.43	-20.87	0.09	-4.25	-16.40	0.15	-113.01	1.08
1600.00	-25.22	0.05	-7.83	16.84	6.95	116.21	-20.86	0.09	-5.69	-15.42	0.17	-124.09	1.09
1800.00	-25.09	0.06	-11.02	16.59	6.75	109.29	-20.89	0.09	-6.01	-14.62	0.19	-133.70	1.10
2000.00	-24.98	0.06	-17.23	16.31	6.54	102.51	-20.93	0.09	-7.05	-13.92	0.20	-141.77	1.11
2200.00	-24.96	0.06	-27.49	16.06	6.35	95.98	-20.96	0.09	-7.45	-13.36	0.21	-148.59	1.12
2500.00	-24.16	0.06	-43.03	15.67	6.07	86.39	-20.93	0.09	-8.58	-12.55	0.24	-156.67	1.13
2800.00	-23.22	0.07	-54.13	15.31	5.83	77.27	-20.94	0.09	-10.39	-11.91	0.25	-164.71	1.15
3000.00	-22.96	0.07	-66.09	15.12	5.70	71.33	-20.91	0.09	-11.46	-11.66	0.26	-170.40	1.15
3200.00	-22.43	0.08	-77.33	14.91	5.57	65.38	-21.02	0.09	-11.72	-11.42	0.27	-175.52	1.17
3400.00	-21.69	0.08	-86.33	14.70	5.43	59.56	-21.01	0.09	-13.38	-11.16	0.28	179.06	1.17
3600.00	-20.97	0.09	-93.36	14.55	5.34	53.77	-20.97	0.09	-14.30	-10.94	0.28	173.32	1.17
3800.00	-20.68	0.09	-101.59	14.39	5.24	47.99	-21.03	0.09	-15.46	-10.68	0.29	166.88	1.18
4000.00	-20.51	0.09	-109.88	14.27	5.17	42.46	-20.97	0.09	-17.39	-10.57	0.30	161.93	1.18
4200.00	-20.13	0.10	-119.91	14.15	5.10	36.50	-20.95	0.09	-19.13	-10.08	0.31	155.62	1.18
4400.00	-19.70	0.10	-128.93	14.04	5.04	30.71	-20.93	0.09	-20.79	-9.72	0.33	148.88	1.17
4600.00	-19.30	0.11	-137.95	13.95	4.98	24.84	-20.98	0.09	-23.13	-9.27	0.34	141.95	1.16
4800.00	-19.06	0.11	-148.38	13.86	4.93	18.95	-21.05	0.09	-25.32	-8.72	0.37	135.25	1.16
5000.00	-18.69	0.12	-157.78	13.75	4.87	13.03	-21.10	0.09	-28.25	-8.23	0.39	128.98	1.15
5200.00	-18.42	0.12	-165.37	13.73	4.86	7.11	-21.14	0.09	-31.00	-7.78	0.41	123.49	1.13
5400.00	-17.89	0.13	-169.80	13.71	4.85	1.37	-21.09	0.09	-33.83	-7.27	0.43	118.80	1.10
5600.00	-17.32	0.14	-174.20	13.81	4.90	-4.84	-21.22	0.09	-36.20	-6.71	0.46	114.54	1.06
5800.00	-16.65	0.15	179.60	13.89	4.95	-11.72	-21.12	0.09	-40.89	-6.23	0.49	109.21	1.01
6000.00	-16.14	0.16	169.47	13.90	4.95	-18.49	-21.22	0.09	-45.13	-5.92	0.51	103.62	0.99
6200.00	-15.47	0.17	167.56	14.13	5.09	-25.69	-21.44	0.08	-49.40	-5.44	0.53	99.68	0.93
6400.00	-14.44	0.19	161.45	14.25	5.16	-35.08	-21.39	0.09	-54.67	-4.68	0.58	92.34	0.84
6600.00	-13.63	0.21	149.25	14.19	5.12	-44.17	-21.32	0.09	-58.68	-4.23	0.61	84.00	0.78
6800.00	-13.33	0.22	137.17	14.07	5.05	-53.33	-21.44	0.08	-66.42	-3.87	0.64	76.09	0.75
7000.00	-12.85	0.23	125.16	13.90	4.95	-62.81	-21.31	0.09	-74.28	-3.52	0.67	68.29	0.70
7500.00	-11.54	0.26	90.27	13.38	4.67	-87.82	-21.49	0.08	-98.41	-2.89	0.72	45.14	0.62
8000.00	-10.17	0.31	48.07	11.97	3.97	-115.43	-22.28	0.08	-126.82	-2.85	0.72	18.01	0.73

S-Parameters

GAL-5

I_d= 65mA, V_d= 4.4V

Freq.	S11			S21			S12			S22			K
MHz	dB	Mag	Angle	dB	Mag	Angle	dB	Mag	Angle	dB	Mag	Angle	
100.00	-21.32	0.09	171.87	20.64	10.76	174.23	-23.64	0.07	0.13	-25.06	0.06	-179.09	1.06
200.00	-20.58	0.09	159.94	20.58	10.69	169.55	-22.84	0.07	-0.17	-25.33	0.05	-175.23	1.03
400.00	-19.69	0.10	141.45	20.37	10.44	159.64	-22.77	0.07	-0.61	-24.21	0.06	-171.29	1.04
600.00	-19.16	0.11	124.37	20.13	10.15	150.05	-22.45	0.08	-0.86	-22.47	0.08	-168.97	1.03
800.00	-18.58	0.12	109.97	19.83	9.81	141.15	-22.82	0.07	-1.04	-21.03	0.09	-170.08	1.05
1000.00	-18.13	0.12	98.31	19.46	9.40	132.37	-22.72	0.07	-1.39	-19.68	0.10	-172.77	1.06
1200.00	-17.94	0.13	87.95	19.11	9.03	124.19	-22.69	0.07	-1.83	-18.68	0.12	-176.59	1.08
1400.00	-17.77	0.13	78.08	18.71	8.62	116.45	-22.58	0.07	-2.08	-17.76	0.13	-179.62	1.09
1600.00	-17.77	0.13	68.66	18.31	8.23	108.86	-22.46	0.08	-2.65	-16.80	0.14	177.63	1.10
1800.00	-17.52	0.13	60.19	17.92	7.87	101.96	-22.39	0.08	-2.97	-16.05	0.16	174.21	1.12
2000.00	-17.54	0.13	51.37	17.54	7.53	95.20	-22.41	0.08	-3.62	-15.45	0.17	170.88	1.14
2200.00	-17.82	0.13	43.28	17.17	7.22	88.76	-22.29	0.08	-4.38	-15.09	0.18	167.15	1.15
2500.00	-18.09	0.12	28.86	16.67	6.82	79.38	-22.21	0.08	-5.61	-14.73	0.18	163.77	1.18
2800.00	-18.25	0.12	16.46	16.18	6.44	70.59	-22.11	0.08	-6.82	-14.35	0.19	159.05	1.20
3000.00	-18.55	0.12	8.06	15.94	6.27	64.86	-22.11	0.08	-8.32	-14.29	0.19	155.26	1.22
3200.00	-18.85	0.11	-2.12	15.67	6.07	59.25	-21.97	0.08	-9.95	-14.16	0.20	151.04	1.23
3400.00	-18.80	0.11	-11.61	15.42	5.90	53.58	-22.01	0.08	-11.41	-14.01	0.20	147.27	1.25
3600.00	-18.60	0.12	-20.24	15.23	5.77	48.26	-21.93	0.08	-13.07	-13.78	0.20	142.63	1.25
3800.00	-18.72	0.12	-28.26	15.07	5.67	42.88	-21.96	0.08	-14.87	-13.56	0.21	137.14	1.26
4000.00	-19.01	0.11	-35.39	14.89	5.55	37.24	-21.98	0.08	-16.84	-13.34	0.22	131.48	1.28
4200.00	-19.10	0.11	-43.18	14.73	5.45	32.03	-21.97	0.08	-18.91	-13.24	0.22	127.02	1.29
4400.00	-18.83	0.11	-50.14	14.64	5.40	26.77	-22.04	0.08	-21.20	-12.64	0.23	123.17	1.30
4600.00	-18.99	0.11	-58.15	14.55	5.34	21.21	-22.15	0.08	-23.64	-12.06	0.25	116.93	1.31
4800.00	-19.12	0.11	-66.30	14.48	5.30	15.68	-22.25	0.08	-26.38	-11.51	0.27	112.16	1.31
5000.00	-19.14	0.11	-74.38	14.41	5.25	10.07	-22.35	0.08	-29.25	-10.96	0.28	106.78	1.31
5200.00	-18.53	0.12	-81.24	14.40	5.25	4.64	-22.56	0.07	-32.10	-10.48	0.30	102.96	1.32
5400.00	-17.71	0.13	-87.45	14.48	5.30	-0.75	-22.70	0.07	-35.76	-9.99	0.32	99.68	1.31
5600.00	-16.75	0.15	-97.51	14.63	5.39	-6.66	-23.05	0.07	-39.16	-9.51	0.33	96.68	1.30
5800.00	-15.72	0.16	-106.88	14.76	5.47	-13.12	-23.21	0.07	-42.98	-9.27	0.34	93.53	1.28
6000.00	-15.26	0.17	-115.60	14.87	5.54	-19.58	-23.45	0.07	-46.72	-9.00	0.35	90.61	1.28
6200.00	-13.49	0.21	-121.80	15.25	5.79	-26.23	-24.07	0.06	-50.44	-8.69	0.37	90.61	1.27
6400.00	-12.03	0.25	-134.55	15.51	5.96	-35.58	-24.45	0.06	-54.21	-7.81	0.41	86.17	1.20
6600.00	-11.35	0.27	-149.69	15.63	6.05	-44.95	-24.33	0.06	-58.88	-7.26	0.43	79.36	1.11
6800.00	-10.75	0.29	-161.98	15.67	6.07	-54.20	-24.85	0.06	-66.66	-6.76	0.46	73.42	1.10
7000.00	-10.04	0.31	-175.70	15.72	6.11	-63.96	-24.75	0.06	-79.62	-6.30	0.48	67.55	1.03
7500.00	-8.76	0.36	144.40	15.71	6.10	-91.64	-25.06	0.06	-97.18	-5.00	0.56	47.77	0.85
8000.00	-8.19	0.39	93.91	14.54	5.33	-124.44	-26.18	0.05	-117.74	-4.45	0.60	21.30	0.94