RF Transistor for Low Noise Amplifier

12 V, 100 mA, $f_T = 10$ GHz typ.

This RF transistor is designed for low noise amplifier applications. MCPH package is suitable for use under high temperature environment because it has superior heat radiation characteristics. This RF transistor is AEC-Q101 qualified and PPAP capable for automotive applications.

Features

- Low-noise Use: NF = 1.2 dB typ. (f = 1 GHz)
- High Cut-off Frequency: $f_T = 10$ GHz typ. $(V_{CE} = 5 \text{ V})$
- High Gain: $|S21e|^2 = 17 \text{ dB typ.}$ (f = 1 GHz)
- MCPH4 Package is Pin-compatible with SC-82FL
- AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb–Free, Halogen Free/BFR Free and are RoHS Compliant

Typical Applications

- Low Noise Amplifier for Digital Radio
- Low Noise Amplifier for TV
- Low Noise Amplifier for FM Radio
- RF Amplifier for UHF Application

MAXIMUM RATINGS at $T_A = 25^{\circ}C$

Rating	Symbol	Value	Unit
Collector to Base Voltage	V_{CBO}	20	V
Collector to Emitter Voltage	V_{CEO}	12	V
Emitter to Base Voltage	V _{EBO}	2	V
Collector Current	I _C	100	mA
Collector Dissipation	P _C	450	mW
Operating Junction and Storage Temperature	T _J , T _{stg}	–55 to +150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.



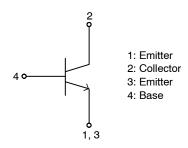
ON Semiconductor®

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SC-82FL MCPH4 CASE 419AR

ELECTRICAL CONNECTION NPN



MARKING DIAGRAM



GQ = Specific Device Code XX = Lot Number

ORDERING INFORMATION

Device	Package	Shipping [†]
NSVF4015SG4T1G	SC-82FL (Pb-Free)	3000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

Table 1. ELECTRICAL CHARACTERISTICS at T_A = 25°C (Note 1)

				Value		
Parameter	Symbol	Conditions	Min	Тур	Max	Unit
Collector Cutoff Current	I _{CBO}	V _{CB} = 5 V, I _E = 0 A			1.0	μΑ
Emitter Cutoff Current	I _{EBO}	V _{EB} = 1 V, I _C = 0 A			1.0	μΑ
DC Current Gain	h _{FE}	V _{CE} = 5 V, I _C = 50 mA	60		150	
Gain-Bandwidth Product	f _T	V _{CE} = 5 V, I _C = 30 mA	8	10		GHz
Forward Transfer Gain	S21e ²	$V_{CE} = 5 \text{ V}, I_{C} = 30 \text{ mA}, f = 1 \text{ GHz}$	14	17		dB
Noise Figure	NF	V _{CE} = 5 V, I _C = 10 mA, f = 1 GHz		1.2	1.8	dB

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

1. Pay attention to handling since it is liable to be affected by static electricity due to the high–frequency process adopted.

TYPICAL CHARACTERISTICS

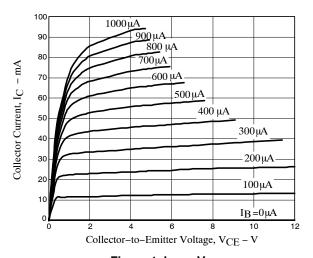


Figure 1. I_{C} vs. V_{CE}

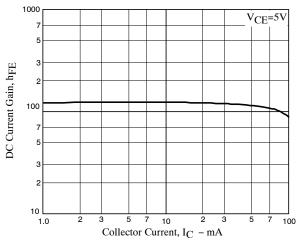


Figure 3. h_{FE} vs. I_C

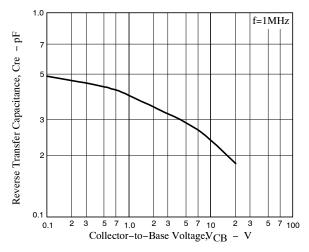


Figure 5. Cre vs. V_{CB}

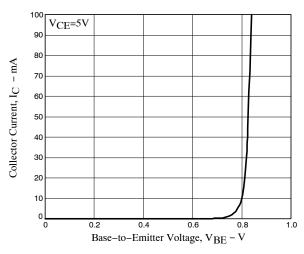


Figure 2. I_{C} vs. V_{BE}

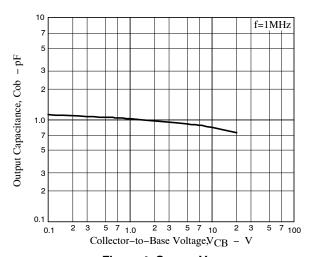


Figure 4. C_{ob} vs. V_{CB}

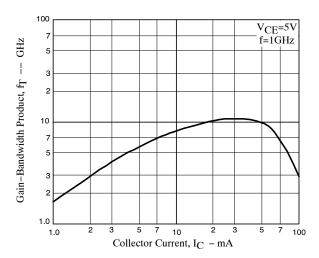


Figure 6. f_T vs. I_C

TYPICAL CHARACTERISTICS

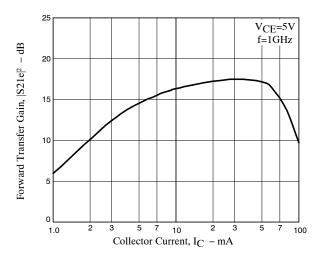


Figure 7. |S21e|2 vs. I_C

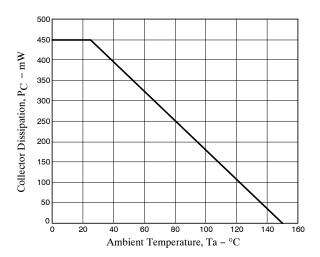


Figure 9. P_C vs. T_A

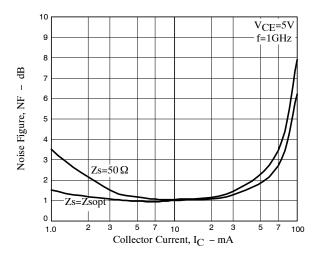


Figure 8. NF vs. I_C

S Parameters	(Common er	nitter)						
/CE=3V, IC=1	0mA							
Freq(MHz)	S11	∠S11	S21	∠S21	S12	∠ S12	S22	∠S22
100	0.763	-38.0	22.980	155.3	0.018	71.5	0.923	-22.7
200	0.733	-71.8	20.122	135.9	0.031	58.6	0.798	-40.2
300	0.702	-98.5	17.019	121.3	0.038	50.6	0.703	-53.5
400	0.690	-116.5	14.110	110.7	0.043	46.3	0.626	-62.9
500	0.701	-127.2	12.307	103.5	0.048	45.0	0.592	-67.4
600	0.679	-137.1	10.431	97.5	0.050	43.7	0.531	-72.0
700	0.663	-145.1	8.949	92.7	0.052	43.6	0.484	-75.2
800	0.651	-152.1	7.848	88.4	0.054	43.9	0.446	-78.7
900	0.646	-157.6	6.993	84.8	0.057	44.0	0.422	-81.6
1000	0.639	-162.3	6.272	81.9	0.059	45.1	0.404	-84.4
1200	0.635	-170.2	5.211	76.5	0.063	47.1	0.375	-88.7
1400	0.634	-176.5	4.462	71.7	0.068	49.1	0.362	-92.4
1600	0.633	177.9	3.907	67.3	0.073	51.2	0.352	-95.9
1800	0.636	173.2	3.463	63.4	0.079	52.7	0.351	-99.0
2000	0.637	169.1	3.122	59.5	0.085	54.3	0.352	-102.3
2200	0.637	164.9	2.838	55.8	0.091	55.5	0.356	-105.2
2400	0.638	161.0	2.604	52.1	0.098	56.5	0.364	-108.1
2600	0.639	157.3	2.413	48.7	0.105	57.2	0.372	-111.1
2800	0.642	153.7	2.244	45.1	0.112	57.9	0.384	-113.5
3000	0.641	150.0	2.095	41.8	0.120	57.8	0.396	-116.2

CE=3V, IC=3								
Freq(MHz)	S11	∠S11	S21	∠S21	S12	∠ S12	S22	∠S22
100	0.542	-76.9	42.437	142.3	0.013	63.9	0.801	-36.2
200	0.588	-118.2	30.735	119.6	0.020	53.9	0.602	-56.8
300	0.614	-138.6	22.677	106.5	0.024	52.3	0.505	-69.3
400	0.626	-150.0	17.506	98.4	0.027	53.8	0.448	-77.9
500	0.635	-155.0	14.522	92.7	0.031	55.6	0.423	-79.8
600	0.630	-161.3	12.035	88.5	0.035	57.8	0.381	-83.6
700	0.627	-166.4	10.249	85.2	0.038	59.8	0.350	-86.9
800	0.626	-170.9	8.902	82.2	0.042	61.3	0.327	-90.4
900	0.627	-174.7	7.888	79.5	0.045	62.3	0.314	-93.2
1000	0.626	-177.8	7.046	77.3	0.049	63.4	0.303	-96.1
1200	0.629	176.7	5.835	73.1	0.057	65.4	0.287	-100.4
1400	0.631	171.9	4.976	69.2	0.065	66.2	0.282	-103.8
1600	0.633	167.7	4.344	65.6	0.073	66.5	0.280	-106.9
1800	0.637	163.9	3.854	62.0	0.082	66.8	0.281	-109.7
2000	0.638	160.5	3.474	58.7	0.090	66.6	0.287	-112.5
2200	0.638	156.8	3.160	55.5	0.099	66.5	0.293	-115.1
2400	0.640	153.5	2.900	52.2	0.108	65.8	0.302	-117.3
2600	0.640	150.2	2.684	49.0	0.117	65.2	0.312	-119.5
2800	0.642	146.9	2.499	45.9	0.125	64.3	0.324	-121.6
3000	0.640	143.6	2.337	42.8	0.134	63.6	0.337	-123.8
CE=3V, IC=5 Freq(MHz)	S11	∠S11	S21	∠S21	S12	∠ S12	S22	∠S22
100	0.514	-110.3	43.067	133.3	0.011	59.0	0.700	-40.9
200	0.607	-141.4	29.221	112.3	0.016	53.1	0.495	-58.9
300	0.642	-154.9	20.818	101.0	0.019	55.3	0.417	
400	0.657	1.00.5			0.019			-68.7
		-162.5	15.865	94.1	0.023	58.5	0.376	-68.7 -75.5
500	0.660	-162.5 -165.8	15.865 13.033	94.1 88.9				
500 600	0.660 0.659				0.023	58.5	0.376	-75.5
		-165.8	13.033	88.9	0.023 0.027	58.5 61.4	0.376 0.360	-75.5 -75.7
600	0.659 0.658	-165.8 -170.3 -174.3	13.033 10.812	88.9 85.3 82.3	0.023 0.027 0.030 0.034	58.5 61.4 64.0 66.1	0.376 0.360 0.330 0.307	-75.5 -75.7 -78.7
600 700	0.659	-165.8 -170.3	13.033 10.812 9.213	88.9 85.3	0.023 0.027 0.030	58.5 61.4 64.0	0.376 0.360 0.330	-75.5 -75.7 -78.7 -81.5
600 700 800	0.659 0.658 0.660	-165.8 -170.3 -174.3 -177.8	13.033 10.812 9.213 7.995	88.9 85.3 82.3 79.5	0.023 0.027 0.030 0.034 0.038	58.5 61.4 64.0 66.1 67.8	0.376 0.360 0.330 0.307 0.291	-75.5 -75.7 -78.7 -81.5 -84.5
600 700 800 900	0.659 0.658 0.660 0.663	-165.8 -170.3 -174.3 -177.8 179.2	13.033 10.812 9.213 7.995 7.097	88.9 85.3 82.3 79.5 77.1	0.023 0.027 0.030 0.034 0.038 0.042	58.5 61.4 64.0 66.1 67.8 68.6	0.376 0.360 0.330 0.307 0.291 0.284	-75.5 -75.7 -78.7 -81.5 -84.5 -87.1
600 700 800 900 1000	0.659 0.658 0.660 0.663 0.662	-165.8 -170.3 -174.3 -177.8 179.2 176.6	13.033 10.812 9.213 7.995 7.097 6.333	88.9 85.3 82.3 79.5 77.1 74.8	0.023 0.027 0.030 0.034 0.038 0.042 0.046	58.5 61.4 64.0 66.1 67.8 68.6 69.6	0.376 0.360 0.330 0.307 0.291 0.284 0.277	-75.5 -75.7 -78.7 -81.5 -84.5 -87.1 -89.7
600 700 800 900 1000 1200	0.659 0.658 0.660 0.663 0.662 0.666	-165.8 -170.3 -174.3 -177.8 179.2 176.6 172.0	13.033 10.812 9.213 7.995 7.097 6.333 5.247	88.9 85.3 82.3 79.5 77.1 74.8 70.8	0.023 0.027 0.030 0.034 0.038 0.042 0.046 0.055	58.5 61.4 64.0 66.1 67.8 68.6 69.6 70.9	0.376 0.360 0.330 0.307 0.291 0.284 0.277 0.268	-75.5 -75.7 -78.7 -81.5 -84.5 -87.1 -89.7 -93.7
600 700 800 900 1000 1200 1400	0.659 0.658 0.660 0.663 0.662 0.666 0.670	-165.8 -170.3 -174.3 -177.8 179.2 176.6 172.0 167.9	13.033 10.812 9.213 7.995 7.097 6.333 5.247 4.475	88.9 85.3 82.3 79.5 77.1 74.8 70.8 67.0	0.023 0.027 0.030 0.034 0.038 0.042 0.046 0.055 0.063	58.5 61.4 64.0 66.1 67.8 68.6 69.6 70.9 71.3	0.376 0.360 0.330 0.307 0.291 0.284 0.277 0.268 0.269	-75.5 -75.7 -78.7 -81.5 -84.5 -87.1 -89.7 -93.7 -97.1
600 700 800 900 1000 1200 1400 1600	0.659 0.658 0.660 0.663 0.662 0.666 0.670 0.673	-165.8 -170.3 -174.3 -177.8 179.2 176.6 172.0 167.9 164.1	13.033 10.812 9.213 7.995 7.097 6.333 5.247 4.475 3.897	88.9 85.3 82.3 79.5 77.1 74.8 70.8 67.0 63.4	0.023 0.027 0.030 0.034 0.038 0.042 0.046 0.055 0.063 0.072	58.5 61.4 64.0 66.1 67.8 68.6 69.6 70.9 71.3 71.5	0.376 0.360 0.330 0.307 0.291 0.284 0.277 0.268 0.269 0.270	-75.5 -75.7 -78.7 -81.5 -84.5 -87.1 -89.7 -93.7 -97.1 -100.2
600 700 800 900 1000 1200 1400 1600 1800	0.659 0.658 0.660 0.663 0.662 0.666 0.670 0.673	-165.8 -170.3 -174.3 -177.8 179.2 176.6 172.0 167.9 164.1 160.6	13.033 10.812 9.213 7.995 7.097 6.333 5.247 4.475 3.897 3.469	88.9 85.3 82.3 79.5 77.1 74.8 70.8 67.0 63.4 59.9	0.023 0.027 0.030 0.034 0.038 0.042 0.046 0.055 0.063 0.072 0.080	58.5 61.4 64.0 66.1 67.8 68.6 69.6 70.9 71.3 71.5 71.4	0.376 0.360 0.330 0.307 0.291 0.284 0.277 0.268 0.269 0.270 0.275	-75.5 -75.7 -78.7 -81.5 -84.5 -87.1 -89.7 -93.7 -97.1 -100.2 -103.3
600 700 800 900 1000 1200 1400 1600 1800 2000	0.659 0.658 0.660 0.663 0.662 0.666 0.670 0.673 0.676	-165.8 -170.3 -174.3 -177.8 179.2 176.6 172.0 167.9 164.1 160.6 157.5	13.033 10.812 9.213 7.995 7.097 6.333 5.247 4.475 3.897 3.469 3.113	88.9 85.3 82.3 79.5 77.1 74.8 70.8 67.0 63.4 59.9 56.5	0.023 0.027 0.030 0.034 0.038 0.042 0.046 0.055 0.063 0.072 0.080 0.089	58.5 61.4 64.0 66.1 67.8 68.6 69.6 70.9 71.3 71.5 71.4 71.0	0.376 0.360 0.330 0.307 0.291 0.284 0.277 0.268 0.269 0.270 0.275 0.284	-75.5 -75.7 -78.7 -81.5 -84.5 -87.1 -89.7 -93.7 -97.1 -100.2 -103.3 -106.5
600 700 800 900 1000 1200 1400 1600 1800 2000 2200	0.659 0.658 0.660 0.663 0.662 0.666 0.670 0.673 0.676 0.678	-165.8 -170.3 -174.3 -177.8 179.2 176.6 172.0 167.9 164.1 160.6 157.5 154.1	13.033 10.812 9.213 7.995 7.097 6.333 5.247 4.475 3.897 3.469 3.113 2.836	88.9 85.3 82.3 79.5 77.1 74.8 70.8 67.0 63.4 59.9 56.5 53.1	0.023 0.027 0.030 0.034 0.038 0.042 0.046 0.055 0.063 0.072 0.080 0.089 0.098	58.5 61.4 64.0 66.1 67.8 68.6 69.6 70.9 71.3 71.5 71.4 71.0	0.376 0.360 0.330 0.307 0.291 0.284 0.277 0.268 0.269 0.270 0.275 0.284 0.293	-75.5 -75.7 -78.7 -81.5 -84.5 -87.1 -89.7 -93.7 -97.1 -100.2 -103.3 -106.5 -109.3
600 700 800 900 1000 1200 1400 1600 1800 2000 2200 2400	0.659 0.658 0.660 0.663 0.662 0.666 0.670 0.673 0.676 0.678	-165.8 -170.3 -174.3 -177.8 179.2 176.6 172.0 167.9 164.1 160.6 157.5 154.1 150.9	13.033 10.812 9.213 7.995 7.097 6.333 5.247 4.475 3.897 3.469 3.113 2.836 2.598	88.9 85.3 82.3 79.5 77.1 74.8 70.8 67.0 63.4 59.9 56.5 53.1 49.8	0.023 0.027 0.030 0.034 0.038 0.042 0.046 0.055 0.063 0.072 0.080 0.089 0.098 0.107	58.5 61.4 64.0 66.1 67.8 68.6 69.6 70.9 71.3 71.5 71.4 71.0 69.8	0.376 0.360 0.330 0.307 0.291 0.284 0.277 0.268 0.269 0.270 0.275 0.284 0.293 0.304	-75.5 -75.7 -78.7 -81.5 -84.5 -87.1 -89.7 -93.7 -97.1 -100.2 -103.3 -106.5 -109.3 -111.9

CE=3V, IC=8		1	I		1		10	1
Freq(MHz)	S11	∠S11	S21	∠S21	S12	∠ S12	S22	∠S22
100	0.662	-146.8	29.622	120.5	0.011	47.5	0.455	-44.8
200	0.751	-164.0	16.762	102.8	0.014	46.9	0.315	-52.9
300	0.774	-171.2	11.369	94.2	0.017	52.5	0.288	-57.1
400	0.783	-175.6	8.549	88.9	0.019	58.6	0.279	-61.3
500	0.778	-178.0	6.977	84.2	0.023	62.0	0.283	-61.0
600	0.778	179.0	5.801	81.0	0.027	66.0	0.272	-62.9
700	0.778	176.3	4.965	78.3	0.030	68.6	0.265	-65.2
800	0.780	173.9	4.316	75.7	0.034	70.2	0.260	-68.0
900	0.782	171.6	3.846	73.3	0.038	71.9	0.263	-70.7
1000	0.782	169.6	3.439	71.0	0.042	73.0	0.263	-73.7
1200	0.787	166.0	2.860	66.6	0.051	74.5	0.268	-78.5
1400	0.789	162.5	2.454	62.4	0.059	75.3	0.278	-83.1
1600	0.792	159.2	2.139	58.4	0.068	75.7	0.288	-87.5
1800	0.796	156.0	1.912	54.5	0.077	75.7	0.300	-91.7
2000	0.797	153.1	1.721	50.8	0.086	75.4	0.314	-96.1
2200	0.797	149.9	1.569	47.1	0.095	75.0	0.328	-100.0
2400	0.799	146.8	1.436	43.4	0.105	74.1	0.343	-103.8
2600	0.800	143.8	1.331	39.9	0.115	73.4	0.359	-107.4
2800	0.801	140.6	1.238	36.5	0.125	72.2	0.377	-110.9
3000	0.799	137.4	1.157	33.3	0.135	71.1	0.394	-114.4
CE=5V, IC=1 Freq(MHz)	S11	∠S11	S21	∠S21	S12	∠ S12	S22	∠S22
100	0.771	-35.8	23.180	156.3	0.016	72.7	0.933	-20.3
200	0.741	-68.2	20.484	137.3	0.028	60.4	0.820	
300	0.706	-94.4	17 502		0.020		0.020	-36.2
		-94.4	17.503	122.8	0.035	53.0	0.820	-36.2 -48.5
400	0.691	-112.7	14.633	122.8 111.9				
400 500	0.691 0.701				0.035	53.0	0.722	-48.5
		-112.7	14.633	111.9	0.035 0.040	53.0 48.5	0.722 0.656	-48.5 -57.3
500	0.701	-112.7 -123.8	14.633 12.817	111.9 104.7	0.035 0.040 0.044	53.0 48.5 47.2	0.722 0.656 0.622	-48.5 -57.3 -61.7
500 600	0.701 0.677 0.659	-112.7 -123.8 -133.9 -142.2	14.633 12.817 10.891 9.349	111.9 104.7 98.4 93.5	0.035 0.040 0.044 0.047 0.049	53.0 48.5 47.2 46.0 45.5	0.722 0.656 0.622 0.560 0.513	-48.5 -57.3 -61.7 -66.0 -68.9
500 600 700	0.701 0.677	-112.7 -123.8 -133.9	14.633 12.817 10.891	111.9 104.7 98.4	0.035 0.040 0.044 0.047	53.0 48.5 47.2 46.0	0.722 0.656 0.622 0.560	-48.5 -57.3 -61.7 -66.0
500 600 700 800	0.701 0.677 0.659 0.646	-112.7 -123.8 -133.9 -142.2 -149.5	14.633 12.817 10.891 9.349 8.209	111.9 104.7 98.4 93.5 89.1	0.035 0.040 0.044 0.047 0.049 0.051	53.0 48.5 47.2 46.0 45.5 45.7	0.722 0.656 0.622 0.560 0.513 0.474	-48.5 -57.3 -61.7 -66.0 -68.9 -72.0
500 600 700 800 900	0.701 0.677 0.659 0.646 0.640	-112.7 -123.8 -133.9 -142.2 -149.5 -155.2	14.633 12.817 10.891 9.349 8.209 7.315	111.9 104.7 98.4 93.5 89.1 85.3	0.035 0.040 0.044 0.047 0.049 0.051 0.053	53.0 48.5 47.2 46.0 45.5 45.7 46.1	0.722 0.656 0.622 0.560 0.513 0.474 0.449	-48.5 -57.3 -61.7 -66.0 -68.9 -72.0 -74.7
500 600 700 800 900 1000	0.701 0.677 0.659 0.646 0.640 0.633	-112.7 -123.8 -133.9 -142.2 -149.5 -155.2 -160.1	14.633 12.817 10.891 9.349 8.209 7.315 6.557	111.9 104.7 98.4 93.5 89.1 85.3 82.3	0.035 0.040 0.044 0.047 0.049 0.051 0.053 0.055	53.0 48.5 47.2 46.0 45.5 45.7 46.1 46.9	0.722 0.656 0.622 0.560 0.513 0.474 0.449 0.428	-48.5 -57.3 -61.7 -66.0 -68.9 -72.0 -74.7 -77.4
500 600 700 800 900 1000 1200	0.701 0.677 0.659 0.646 0.640 0.633 0.628	-112.7 -123.8 -133.9 -142.2 -149.5 -155.2 -160.1 -168.2	14.633 12.817 10.891 9.349 8.209 7.315 6.557 5.459	111.9 104.7 98.4 93.5 89.1 85.3 82.3 76.8	0.035 0.040 0.044 0.047 0.049 0.051 0.053 0.055 0.060	53.0 48.5 47.2 46.0 45.5 45.7 46.1 46.9 49.0	0.722 0.656 0.622 0.560 0.513 0.474 0.449 0.428 0.399	-48.5 -57.3 -61.7 -66.0 -68.9 -72.0 -74.7 -77.4 -81.4
500 600 700 800 900 1000 1200 1400	0.701 0.677 0.659 0.646 0.640 0.633 0.628 0.625	-112.7 -123.8 -133.9 -142.2 -149.5 -155.2 -160.1 -168.2 -174.7	14.633 12.817 10.891 9.349 8.209 7.315 6.557 5.459 4.663	111.9 104.7 98.4 93.5 89.1 85.3 82.3 76.8 71.9	0.035 0.040 0.044 0.047 0.049 0.051 0.053 0.055 0.060 0.064	53.0 48.5 47.2 46.0 45.5 45.7 46.1 46.9 49.0 51.0	0.722 0.656 0.622 0.560 0.513 0.474 0.449 0.428 0.399 0.385	-48.5 -57.3 -61.7 -66.0 -68.9 -72.0 -74.7 -77.4 -81.4 -84.9
500 600 700 800 900 1000 1200 1400 1600	0.701 0.677 0.659 0.646 0.640 0.633 0.628 0.625	-112.7 -123.8 -133.9 -142.2 -149.5 -155.2 -160.1 -168.2 -174.7 179.5	14.633 12.817 10.891 9.349 8.209 7.315 6.557 5.459 4.663 4.086	111.9 104.7 98.4 93.5 89.1 85.3 82.3 76.8 71.9 67.5	0.035 0.040 0.044 0.047 0.049 0.051 0.053 0.055 0.060 0.064	53.0 48.5 47.2 46.0 45.5 45.7 46.1 46.9 49.0 51.0 53.3	0.722 0.656 0.622 0.560 0.513 0.474 0.449 0.428 0.399 0.385 0.373	-48.5 -57.3 -61.7 -66.0 -68.9 -72.0 -74.7 -77.4 -81.4 -84.9 -88.4
500 600 700 800 900 1000 1200 1400 1600 1800	0.701 0.677 0.659 0.646 0.640 0.633 0.628 0.625 0.625	-112.7 -123.8 -133.9 -142.2 -149.5 -155.2 -160.1 -168.2 -174.7 179.5 174.7	14.633 12.817 10.891 9.349 8.209 7.315 6.557 5.459 4.663 4.086 3.616	111.9 104.7 98.4 93.5 89.1 85.3 82.3 76.8 71.9 67.5 63.5	0.035 0.040 0.044 0.047 0.049 0.051 0.053 0.055 0.060 0.064 0.069 0.075	53.0 48.5 47.2 46.0 45.5 45.7 46.1 46.9 49.0 51.0 53.3 54.8	0.722 0.656 0.622 0.560 0.513 0.474 0.449 0.428 0.399 0.385 0.373 0.372	-48.5 -57.3 -61.7 -66.0 -68.9 -72.0 -74.7 -77.4 -81.4 -84.9 -88.4 -91.5
500 600 700 800 900 1000 1200 1400 1600 1800 2000	0.701 0.677 0.659 0.646 0.640 0.633 0.628 0.625 0.625 0.627 0.628	-112.7 -123.8 -133.9 -142.2 -149.5 -155.2 -160.1 -168.2 -174.7 179.5 174.7 170.5	14.633 12.817 10.891 9.349 8.209 7.315 6.557 5.459 4.663 4.086 3.616 3.260	111.9 104.7 98.4 93.5 89.1 85.3 82.3 76.8 71.9 67.5 63.5 59.5	0.035 0.040 0.044 0.047 0.049 0.051 0.053 0.055 0.060 0.064 0.069 0.075 0.080	53.0 48.5 47.2 46.0 45.5 45.7 46.1 46.9 49.0 51.0 53.3 54.8 56.6	0.722 0.656 0.622 0.560 0.513 0.474 0.449 0.428 0.399 0.385 0.373 0.372 0.372	-48.5 -57.3 -61.7 -66.0 -68.9 -72.0 -74.7 -77.4 -81.4 -84.9 -88.4 -91.5 -94.9
500 600 700 800 900 1000 1200 1400 1600 1800 2000 2200	0.701 0.677 0.659 0.646 0.640 0.633 0.628 0.625 0.625 0.627 0.628	-112.7 -123.8 -133.9 -142.2 -149.5 -155.2 -160.1 -168.2 -174.7 179.5 174.7 170.5 166.2	14.633 12.817 10.891 9.349 8.209 7.315 6.557 5.459 4.663 4.086 3.616 3.260 2.960	111.9 104.7 98.4 93.5 89.1 85.3 82.3 76.8 71.9 67.5 63.5 59.5	0.035 0.040 0.044 0.047 0.049 0.051 0.053 0.055 0.060 0.064 0.069 0.075 0.080 0.086	53.0 48.5 47.2 46.0 45.5 45.7 46.1 46.9 49.0 51.0 53.3 54.8 56.6 57.9	0.722 0.656 0.622 0.560 0.513 0.474 0.449 0.428 0.399 0.385 0.373 0.372 0.372	-48.5 -57.3 -61.7 -66.0 -68.9 -72.0 -74.7 -77.4 -81.4 -84.9 -88.4 -91.5 -94.9 -98.0
500 600 700 800 900 1000 1200 1400 1600 1800 2000 2200 2400	0.701 0.677 0.659 0.646 0.640 0.633 0.628 0.625 0.625 0.627 0.628 0.628	-112.7 -123.8 -133.9 -142.2 -149.5 -155.2 -160.1 -168.2 -174.7 179.5 174.7 170.5 166.2 162.2	14.633 12.817 10.891 9.349 8.209 7.315 6.557 5.459 4.663 4.086 3.616 3.260 2.960 2.715	111.9 104.7 98.4 93.5 89.1 85.3 82.3 76.8 71.9 67.5 63.5 59.5 55.7 52.0	0.035 0.040 0.044 0.047 0.049 0.051 0.053 0.055 0.060 0.064 0.069 0.075 0.080 0.086 0.093	53.0 48.5 47.2 46.0 45.5 45.7 46.1 46.9 49.0 51.0 53.3 54.8 56.6 57.9 58.9	0.722 0.656 0.622 0.560 0.513 0.474 0.449 0.428 0.399 0.385 0.373 0.372 0.372 0.376 0.383	-48.5 -57.3 -61.7 -66.0 -68.9 -72.0 -74.7 -77.4 -81.4 -84.9 -88.4 -91.5 -94.9 -98.0 -101.1

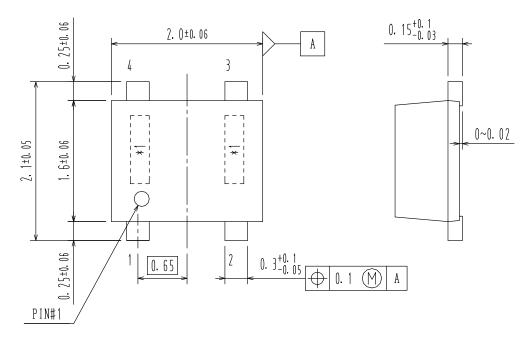
CE=5V, IC=3 Freq(MHz)	S11	∠S11	S21	∠S21	S12	∠ S12	S22	∠S22
100	0.542	-70.6	43.013	144.3	0.012	66.3	0.826	-31.8
200		-70.6		121.4		56.3		
300	0.577	-112.5	32.303	107.8	0.018 0.022	55.0	0.636 0.539	-50.4 -61.6
400		-	24.068			55.5	-	-69.3
	0.611	-146.5 -151.9	18.636	99.4 93.6	0.025		0.478 0.454	-69.3
500 600			15.457		0.029	57.7 59.6		-71.4
700	0.614	-158.6	12.813	89.2 85.6		61.5	0.410	-74.7
	0.611	-164.1	10.898		0.036		0.376	-
800	0.610	-168.7	9.470	82.5	0.039	62.9	0.351	-80.5
900	0.611	-172.7	8.381	79.8	0.043	64.1	0.337	-83.2
1000	0.610	-176.0	7.487	77.5	0.047	65.3	0.324	-85.8
1200	0.612	178.3	6.186	73.2	0.054	66.8	0.306	-89.7
1400	0.615	173.4	5.277	69.2	0.062	67.7	0.299	-93.1
1600	0.617	169.0	4.596	65.6	0.070	68.2	0.296	-96.3
1800	0.620	165.1	4.085	62.0	0.078	68.6	0.297	-99.3
2000	0.622	161.6	3.669	58.7	0.086	68.4	0.301	-102.5
2200	0.622	158.0	3.344	55.5	0.095	68.3	0.307	-105.1
2400	0.625	154.6	3.065	52.1	0.103	67.8	0.316	-107.9
2600	0.625	151.3	2.835	48.8	0.112	67.2	0.326	-110.5
2800 3000	0.628	148.0 144.6	2.638 2.464	45.7 42.6	0.120 0.129	66.5 65.6	0.339 0.352	-113.0 -115.5
CE=5V, IC=5 Freq(MHz)	S11	∠S11	S21	∠S21	S12	∠ S12	S22	∠S22
100	0.479	-97.2	42.927	137.2	0.010	63.4	0.761	-35.0
200	0.566	-132.9	32.978	115.4	0.015	56.7	0.560	-51.6
300	0.603	-148.8	23.718	103.2	0.018	58.0	0.485	-60.6
400	0.620	-157.8	18.120	95.7	0.021	60.4	0.427	-66.9
500	0.625	-161.4	14.893	90.4	0.025	63.7	0.410	-68.0
600	0.624	1667	12.324					
000	0.02.	-166.7	12.527	86.4	0.029	66.0	0.375	-70.7
700	0.624	-171.0	10.482	86.4 83.2	0.029 0.032	68.0	0.375 0.348	
		-171.0					1	-70.7 -73.2
700	0.624		10.482	83.2	0.032	68.0	0.348	-70.7
700 800	0.624 0.626	-171.0 -174.8	10.482 9.088	83.2 80.4	0.032 0.036	68.0 69.2	0.348 0.328	-70.7 -73.2 -75.9 -78.4
700 800 900	0.624 0.626 0.628	-171.0 -174.8 -178.1	9.088 8.053	83.2 80.4 77.9	0.032 0.036 0.040	68.0 69.2 70.4	0.348 0.328 0.317	-70.7 -73.2 -75.9 -78.4
700 800 900 1000	0.624 0.626 0.628 0.628	-171.0 -174.8 -178.1 179.1	10.482 9.088 8.053 7.184	83.2 80.4 77.9 75.6	0.032 0.036 0.040 0.044	68.0 69.2 70.4 70.9	0.348 0.328 0.317 0.308	-70.7 -73.2 -75.9 -78.4 -80.9
700 800 900 1000 1200	0.624 0.626 0.628 0.628 0.633	-171.0 -174.8 -178.1 179.1 174.2	10.482 9.088 8.053 7.184 5.943	83.2 80.4 77.9 75.6 71.5	0.032 0.036 0.040 0.044 0.052	68.0 69.2 70.4 70.9 72.2	0.348 0.328 0.317 0.308 0.295	-70.7 -73.2 -75.9 -78.4 -80.9 -84.6
700 800 900 1000 1200 1400	0.624 0.626 0.628 0.628 0.633 0.636	-171.0 -174.8 -178.1 179.1 174.2 169.8	10.482 9.088 8.053 7.184 5.943 5.061	83.2 80.4 77.9 75.6 71.5 67.7	0.032 0.036 0.040 0.044 0.052 0.060	68.0 69.2 70.4 70.9 72.2 72.7	0.348 0.328 0.317 0.308 0.295 0.292	-70.7 -73.2 -75.9 -78.4 -80.9 -84.6 -88.2
700 800 900 1000 1200 1400 1600	0.624 0.626 0.628 0.628 0.633 0.636 0.640	-171.0 -174.8 -178.1 179.1 174.2 169.8 165.9	10.482 9.088 8.053 7.184 5.943 5.061 4.407	83.2 80.4 77.9 75.6 71.5 67.7 64.1	0.032 0.036 0.040 0.044 0.052 0.060 0.069	68.0 69.2 70.4 70.9 72.2 72.7	0.348 0.328 0.317 0.308 0.295 0.292	-70.7 -73.2 -75.9 -78.4 -80.9 -84.6 -88.2 -91.5
700 800 900 1000 1200 1400 1600 1800	0.624 0.626 0.628 0.628 0.633 0.636 0.640 0.643	-171.0 -174.8 -178.1 179.1 174.2 169.8 165.9 162.3	10.482 9.088 8.053 7.184 5.943 5.061 4.407 3.917	83.2 80.4 77.9 75.6 71.5 67.7 64.1 60.6	0.032 0.036 0.040 0.044 0.052 0.060 0.069	68.0 69.2 70.4 70.9 72.2 72.7 72.7 72.6	0.348 0.328 0.317 0.308 0.295 0.292 0.292 0.295	-70.7 -73.2 -75.9 -78.4 -80.9 -84.6 -88.2 -91.5
700 800 900 1000 1200 1400 1600 1800 2000	0.624 0.626 0.628 0.628 0.633 0.636 0.640 0.643	-171.0 -174.8 -178.1 179.1 174.2 169.8 165.9 162.3 159.1	10.482 9.088 8.053 7.184 5.943 5.061 4.407 3.917 3.518	83.2 80.4 77.9 75.6 71.5 67.7 64.1 60.6 57.2	0.032 0.036 0.040 0.044 0.052 0.060 0.069 0.077 0.086	68.0 69.2 70.4 70.9 72.2 72.7 72.7 72.6 72.3	0.348 0.328 0.317 0.308 0.295 0.292 0.292 0.295 0.301	-70.7 -73.2 -75.9 -78.4 -80.9 -84.6 -88.2 -91.5 -94.7 -98.1
700 800 900 1000 1200 1400 1600 1800 2000 2200	0.624 0.626 0.628 0.628 0.633 0.636 0.640 0.643 0.645	-171.0 -174.8 -178.1 179.1 174.2 169.8 165.9 162.3 159.1 155.6	10.482 9.088 8.053 7.184 5.943 5.061 4.407 3.917 3.518 3.202	83.2 80.4 77.9 75.6 71.5 67.7 64.1 60.6 57.2 54.0	0.032 0.036 0.040 0.044 0.052 0.060 0.069 0.077 0.086 0.094	68.0 69.2 70.4 70.9 72.2 72.7 72.7 72.6 72.3 71.8	0.348 0.328 0.317 0.308 0.295 0.292 0.292 0.295 0.301 0.309	-70.7 -73.2 -75.9 -78.4 -80.9 -84.6 -88.2 -91.5 -94.7 -98.1 -101.1
700 800 900 1000 1200 1400 1600 1800 2000 2200 2400	0.624 0.626 0.628 0.628 0.633 0.636 0.640 0.643 0.645 0.646 0.648	-171.0 -174.8 -178.1 179.1 174.2 169.8 165.9 162.3 159.1 155.6 152.4	10.482 9.088 8.053 7.184 5.943 5.061 4.407 3.917 3.518 3.202 2.931	83.2 80.4 77.9 75.6 71.5 67.7 64.1 60.6 57.2 54.0 50.6	0.032 0.036 0.040 0.044 0.052 0.060 0.069 0.077 0.086 0.094 0.103	68.0 69.2 70.4 70.9 72.2 72.7 72.6 72.3 71.8 71.1	0.348 0.328 0.317 0.308 0.295 0.292 0.292 0.295 0.301 0.309 0.319	-70.7 -73.2 -75.9 -78.4 -80.9 -84.6 -88.2 -91.5 -94.7 -98.1 -101.1 -104.0

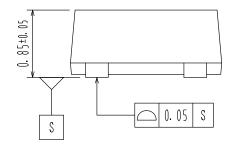
CE=5V, IC=8								
Freq(MHz)	S11	∠S11	S21	∠S21	S12	∠ S12	S22	∠S22
100	0.558	-133.0	39.014	127.8	0.009	54.5	0.618	-33.7
200	0.671	-155.6	23.364	107.6	0.012	52.6	0.457	-41.5
300	0.704	-165.1	16.107	97.6	0.014	57.5	0.415	-45.4
400	0.718	-170.7	12.150	91.5	0.017	62.9	0.395	-49.0
500	0.716	-173.4	9.907	86.7	0.021	66.8	0.385	-50.4
600	0.717	-177.0	8.214	83.3	0.024	69.5	0.378	-52.4
700	0.718	179.9	7.015	80.4	0.028	72.5	0.364	-54.4
800	0.720	177.1	6.091	77.8	0.031	73.9	0.354	-57.0
900	0.723	174.5	5.413	75.3	0.035	75.7	0.351	-59.7
1000	0.723	172.3	4.829	72.9	0.039	76.8	0.346	-62.4
1200	0.728	168.3	4.009	68.8	0.047	78.1	0.343	-67.0
1400	0.731	164.7	3.423	64.7	0.055	78.9	0.347	-71.8
1600	0.735	161.2	2.987	60.8	0.063	78.9	0.352	-76.2
1800	0.738	157.9	2.662	57.1	0.072	79.1	0.359	-80.6
2000	0.740	155.0	2.393	53.5	0.081	78.7	0.369	-85.3
2200	0.741	151.7	2.179	50.0	0.090	78.2	0.379	-89.5
2400	0.743	148.6	1.993	46.4	0.099	77.4	0.391	-93.5
2600	0.744	145.6	1.843	43.0	0.109	76.5	0.404	-97.4
2800	0.746	142.4	1.716	39.6	0.119	75.4	0.418	-101.3
3000	0.744	139.2	1.601	36.3	0.129	74.2	0.433	-105.1
CE=8V, IC=1 Freq(MHz)	S11	∠S11	S21	∠S21	S12	∠ S12	S22	∠S22
100	0.784	-33.9	22.973	157.1	0.014	73.5	0.941	-18.1
200	0.754	-64.8	20.491	138.6	0.025	62.4	0.839	-32.6
300	0.715	-90.5	17.690	124.1	0.032	55.0	0.739	
400	0.697	-109.0	4400-		0.032	33.0	0.757	-44.1
= 0.0		-109.0	14.905	113.1	0.032	50.3	0.685	-44.1 -52.2
500	0.704	-109.0	14.905 13.108	113.1 105.8				
500 600	0.704 0.678				0.037	50.3	0.685	-52.2
		-120.4	13.108	105.8	0.037 0.041	50.3 49.3	0.685 0.652	-52.2 -56.5
600	0.678 0.659	-120.4 -130.9	13.108 11.176	105.8 99.3	0.037 0.041 0.044	50.3 49.3 47.7	0.685 0.652 0.591	-52.2 -56.5 -60.6
600 700	0.678	-120.4 -130.9 -139.5	13.108 11.176 9.599	105.8 99.3 94.2	0.037 0.041 0.044 0.046	50.3 49.3 47.7 47.3	0.685 0.652 0.591 0.544	-52.2 -56.5 -60.6 -63.3
600 700 800	0.678 0.659 0.645	-120.4 -130.9 -139.5 -146.9	13.108 11.176 9.599 8.439	105.8 99.3 94.2 89.7	0.037 0.041 0.044 0.046 0.048	50.3 49.3 47.7 47.3 47.3	0.685 0.652 0.591 0.544 0.504	-52.2 -56.5 -60.6 -63.3 -66.1
600 700 800 900	0.678 0.659 0.645 0.638	-120.4 -130.9 -139.5 -146.9 -152.9	13.108 11.176 9.599 8.439 7.523	105.8 99.3 94.2 89.7 85.8	0.037 0.041 0.044 0.046 0.048 0.050	50.3 49.3 47.7 47.3 47.3 47.5	0.685 0.652 0.591 0.544 0.504 0.478	-52.2 -56.5 -60.6 -63.3 -66.1 -68.7
600 700 800 900 1000	0.678 0.659 0.645 0.638 0.629	-120.4 -130.9 -139.5 -146.9 -152.9 -158.0	13.108 11.176 9.599 8.439 7.523 6.746	105.8 99.3 94.2 89.7 85.8 82.7	0.037 0.041 0.044 0.046 0.048 0.050 0.052	50.3 49.3 47.7 47.3 47.3 47.5 48.6	0.685 0.652 0.591 0.544 0.504 0.478 0.457	-52.2 -56.5 -60.6 -63.3 -66.1 -68.7 -71.2
600 700 800 900 1000 1200	0.678 0.659 0.645 0.638 0.629 0.623	-120.4 -130.9 -139.5 -146.9 -152.9 -158.0 -166.3	13.108 11.176 9.599 8.439 7.523 6.746 5.618	105.8 99.3 94.2 89.7 85.8 82.7 77.1	0.037 0.041 0.044 0.046 0.048 0.050 0.052 0.056	50.3 49.3 47.7 47.3 47.3 47.5 48.6 50.5	0.685 0.652 0.591 0.544 0.504 0.478 0.457 0.427	-52.2 -56.5 -60.6 -63.3 -66.1 -68.7 -71.2 -75.0
600 700 800 900 1000 1200 1400	0.678 0.659 0.645 0.638 0.629 0.623 0.621	-120.4 -130.9 -139.5 -146.9 -152.9 -158.0 -166.3 -173.1	13.108 11.176 9.599 8.439 7.523 6.746 5.618 4.797	105.8 99.3 94.2 89.7 85.8 82.7 77.1 72.1	0.037 0.041 0.044 0.046 0.048 0.050 0.052 0.056 0.060	50.3 49.3 47.7 47.3 47.3 47.5 48.6 50.5 52.6	0.685 0.652 0.591 0.544 0.504 0.478 0.457 0.427 0.411	-52.2 -56.5 -60.6 -63.3 -66.1 -68.7 -71.2 -75.0 -78.5
600 700 800 900 1000 1200 1400 1600	0.678 0.659 0.645 0.638 0.629 0.623 0.621 0.620	-120.4 -130.9 -139.5 -146.9 -152.9 -158.0 -166.3 -173.1 -179.0	13.108 11.176 9.599 8.439 7.523 6.746 5.618 4.797 4.199	105.8 99.3 94.2 89.7 85.8 82.7 77.1 72.1 67.5	0.037 0.041 0.044 0.046 0.048 0.050 0.052 0.056 0.060 0.065	50.3 49.3 47.7 47.3 47.5 48.6 50.5 52.6 55.0	0.685 0.652 0.591 0.544 0.504 0.478 0.457 0.427 0.411 0.399	-52.2 -56.5 -60.6 -63.3 -66.1 -68.7 -71.2 -75.0 -78.5 -81.8
600 700 800 900 1000 1200 1400 1600 1800	0.678 0.659 0.645 0.638 0.629 0.623 0.621 0.620 0.622	-120.4 -130.9 -139.5 -146.9 -152.9 -158.0 -166.3 -173.1 -179.0 176.1	13.108 11.176 9.599 8.439 7.523 6.746 5.618 4.797 4.199 3.717	105.8 99.3 94.2 89.7 85.8 82.7 77.1 72.1 67.5 63.4	0.037 0.041 0.044 0.046 0.048 0.050 0.052 0.056 0.060 0.065 0.071	50.3 49.3 47.7 47.3 47.5 48.6 50.5 52.6 55.0 56.9	0.685 0.652 0.591 0.544 0.504 0.478 0.457 0.427 0.411 0.399 0.398	-52.2 -56.5 -60.6 -63.3 -66.1 -68.7 -71.2 -75.0 -78.5 -81.8 -85.2
600 700 800 900 1000 1200 1400 1600 1800 2000	0.678 0.659 0.645 0.638 0.629 0.623 0.621 0.620 0.622 0.623	-120.4 -130.9 -139.5 -146.9 -152.9 -158.0 -166.3 -173.1 -179.0 176.1 171.8	13.108 11.176 9.599 8.439 7.523 6.746 5.618 4.797 4.199 3.717 3.348	105.8 99.3 94.2 89.7 85.8 82.7 77.1 72.1 67.5 63.4 59.4	0.037 0.041 0.044 0.046 0.048 0.050 0.052 0.056 0.060 0.065 0.071 0.076	50.3 49.3 47.7 47.3 47.3 47.5 48.6 50.5 52.6 55.0 56.9 58.6	0.685 0.652 0.591 0.544 0.504 0.478 0.457 0.427 0.411 0.399 0.398 0.397	-52.2 -56.5 -60.6 -63.3 -66.1 -68.7 -71.2 -75.0 -78.5 -81.8 -85.2 -88.5
600 700 800 900 1000 1200 1400 1600 1800 2000 2200	0.678 0.659 0.645 0.638 0.629 0.623 0.621 0.620 0.622 0.623 0.623	-120.4 -130.9 -139.5 -146.9 -152.9 -158.0 -166.3 -173.1 -179.0 176.1 171.8 167.4	13.108 11.176 9.599 8.439 7.523 6.746 5.618 4.797 4.199 3.717 3.348 3.039	105.8 99.3 94.2 89.7 85.8 82.7 77.1 72.1 67.5 63.4 59.4 55.5	0.037 0.041 0.044 0.046 0.048 0.050 0.052 0.056 0.060 0.065 0.071 0.076 0.082	50.3 49.3 47.7 47.3 47.5 48.6 50.5 52.6 55.0 56.9 58.6 60.1	0.685 0.652 0.591 0.544 0.504 0.478 0.457 0.427 0.411 0.399 0.398 0.397 0.401	-52.2 -56.5 -60.6 -63.3 -66.1 -68.7 -71.2 -75.0 -78.5 -81.8 -85.2 -88.5 -91.7
600 700 800 900 1000 1200 1400 1600 1800 2000 2200 2400	0.678 0.659 0.645 0.638 0.629 0.623 0.621 0.620 0.622 0.623 0.623 0.623	-120.4 -130.9 -139.5 -146.9 -152.9 -158.0 -166.3 -173.1 -179.0 176.1 171.8 167.4 163.5	13.108 11.176 9.599 8.439 7.523 6.746 5.618 4.797 4.199 3.717 3.348 3.039 2.786	105.8 99.3 94.2 89.7 85.8 82.7 77.1 72.1 67.5 63.4 59.4 55.5 51.8	0.037 0.041 0.044 0.046 0.048 0.050 0.052 0.056 0.060 0.065 0.071 0.076 0.082 0.089	50.3 49.3 47.7 47.3 47.5 48.6 50.5 52.6 55.0 56.9 58.6 60.1 61.4	0.685 0.652 0.591 0.544 0.504 0.478 0.457 0.427 0.411 0.399 0.398 0.397 0.401 0.407	-52.2 -56.5 -60.6 -63.3 -66.1 -68.7 -71.2 -75.0 -78.5 -81.8 -85.2 -88.5 -91.7 -95.0

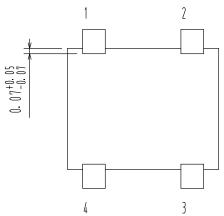
CE=8V, IC=3 Freq(MHz)	S11	∠S11	S21	∠S21	S12	∠ S12	S22	∠S22
100	0.556	-65.2	43.179	145.8	0.011		0.846	-28.0
200	0.578	-106.8		123.0		67.8 57.9	0.669	-44.6
300	0.578	-100.8	32.894 24.775	109.1	0.017 0.021	56.2	0.584	- 44 .6 -54.7
400	0.594	-129.7	19.256	109.1	0.021	57.0	0.512	-54.7
500	0.604	-142.8	15.997	94.4	0.024	59.0	0.312	-63.9
600	0.606		13.266	89.8	0.028	60.8	0.443	-66.9
700	0.603	-155.8 -161.6		86.1	0.031	62.5	0.409	-69.3
			11.285					
800	0.602	-166.5	9.802	82.9	0.037	64.2	0.382	-72.0
900	0.602	-170.7	8.672	80.0	0.041	65.4	0.366	-74.3
1000	0.600	-174.1	7.739	77.6	0.044	66.3	0.352	-76.7
1200	0.603	179.9	6.401	73.3	0.051	68.1	0.333	-80.3
1400	0.605	174.9	5.453	69.2	0.059	69.2	0.325	-83.7
1600	0.607	170.4	4.753	65.4	0.066	69.8	0.321	-87.0
1800	0.611	166.4	4.215	61.8	0.074	70.0	0.321	-90.2
2000	0.613	162.9	3.791	58.4	0.082	69.9	0.325	-93.4
2200	0.614	159.2	3.445	55.1	0.090	70.1	0.330	-96.5
2400	0.616	155.8	3.155	51.7	0.099	69.6	0.339	-99.4
2600	0.617	152.4	2.916	48.4	0.107	69.1	0.349	-102.4
2800	0.619	149.1	2.711	45.2	0.115	68.5	0.361	-105.3
3000	0.619	145.7	2.531	42.0	0.124	67.5	0.375	-108.2
CE=8V, IC=5			land.		Intol		Igaal	
Freq(MHz)	S11	∠S11	S21	∠S21	S12	∠ S12	S22	∠S22
100	0.477	-88.8	42.926	139.6	0.009	65.5	0.793	-30.4
200	0.554	-127.0	34.154	117.2	0.014	59.2	0.603	-45.1
300	0.589	-144.5	24.758	104.4	0.017	59.1	0.529	-53.1
400	0.606	-154.4	18.954	96.6	0.020	61.9	0.478	-58.7
500	0.613	-158.4	15.585	91.2	0.024	64.8	0.453	-60.2
600	0.611	-164.1	12.888	87.0	0.027	67.3	0.416	-62.6
700	0.611	-168.8	10.954	83.7	0.031	69.1	0.388	-64.8
800	0.613	-172.8	9.503	80.7	0.034	70.4	0.366	-67.2
	0.616	-176.3	8.407	78.1	0.038	71.5	0.355	-69.5
900							0.040	
900 1000	0.615	-179.2	7.494	75.7	0.042	72.3	0.343	-71.9
	0.615 0.619	-179.2 175.7	6.192	71.6	0.042 0.049	72.3 73.7	0.329	-75.5
1000	0.619 0.623	175.7 171.2		71.6 67.7		73.7 74.1	0.329 0.324	-75.5 -79.0
1000 1200	0.619	175.7 171.2 167.2	6.192	71.6 67.7 64.0	0.049	73.7	0.329	-75.5
1000 1200 1400	0.619 0.623	175.7 171.2	6.192 5.272	71.6 67.7	0.049 0.057	73.7 74.1	0.329 0.324	-75.5 -79.0
1000 1200 1400 1600	0.619 0.623 0.626	175.7 171.2 167.2	6.192 5.272 4.586	71.6 67.7 64.0	0.049 0.057 0.065	73.7 74.1 74.5	0.329 0.324 0.323	-75.5 -79.0 -82.4
1000 1200 1400 1600 1800	0.619 0.623 0.626 0.631	175.7 171.2 167.2 163.5	6.192 5.272 4.586 4.071	71.6 67.7 64.0 60.4	0.049 0.057 0.065 0.073	73.7 74.1 74.5 74.4	0.329 0.324 0.323 0.325	-75.5 -79.0 -82.4 -85.8
1000 1200 1400 1600 1800 2000	0.619 0.623 0.626 0.631 0.633	175.7 171.2 167.2 163.5 160.2	6.192 5.272 4.586 4.071 3.658	71.6 67.7 64.0 60.4 57.0	0.049 0.057 0.065 0.073 0.081	73.7 74.1 74.5 74.4 74.0	0.329 0.324 0.323 0.325 0.331	-75.5 -79.0 -82.4 -85.8 -89.4
1000 1200 1400 1600 1800 2000 2200	0.619 0.623 0.626 0.631 0.633 0.634	175.7 171.2 167.2 163.5 160.2 156.7	6.192 5.272 4.586 4.071 3.658 3.322	71.6 67.7 64.0 60.4 57.0 53.7	0.049 0.057 0.065 0.073 0.081 0.090	73.7 74.1 74.5 74.4 74.0 73.7	0.329 0.324 0.323 0.325 0.331 0.337	-75.5 -79.0 -82.4 -85.8 -89.4 -92.7
1000 1200 1400 1600 1800 2000 2200 2400	0.619 0.623 0.626 0.631 0.633 0.634 0.637	175.7 171.2 167.2 163.5 160.2 156.7 153.5	6.192 5.272 4.586 4.071 3.658 3.322 3.041	71.6 67.7 64.0 60.4 57.0 53.7 50.3	0.049 0.057 0.065 0.073 0.081 0.090 0.099	73.7 74.1 74.5 74.4 74.0 73.7 73.0	0.329 0.324 0.323 0.325 0.331 0.337 0.347	-75.5 -79.0 -82.4 -85.8 -89.4 -92.7 -95.9

SC-82FL / MCPH4 CASE 419AR ISSUE O

DATE 30 DEC 2011







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