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.



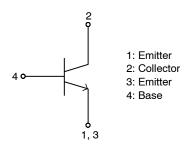
ON Semiconductor®

www.onsemi.com



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 V, I_{C} = 30 mA, f = 1 GHz	14	17		dB
Noise Figure	NF	$V_{CE} = 5 \text{ V}, I_{C} = 10 \text{ mA}, f = 1 \text{ GHz}$		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

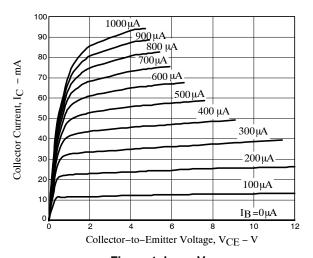


Figure 1. I_{C} vs. V_{CE}

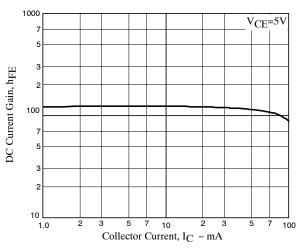


Figure 3. h_{FE} vs. I_C

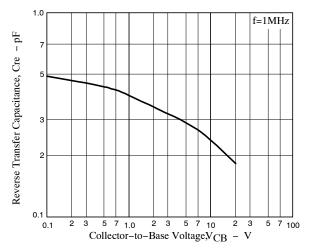


Figure 5. Cre vs. V_{CB}

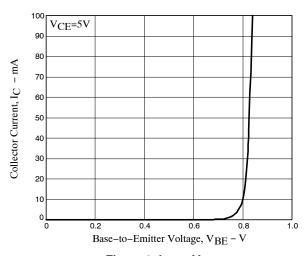


Figure 2. $I_{\mbox{\scriptsize C}}$ vs. $V_{\mbox{\scriptsize BE}}$

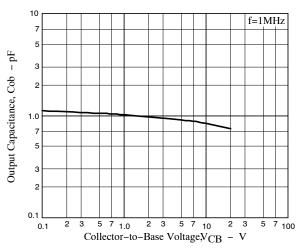


Figure 4. Cob vs. VCB

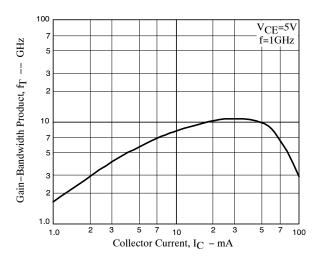


Figure 6. f_T vs. I_C

TYPICAL CHARACTERISTICS

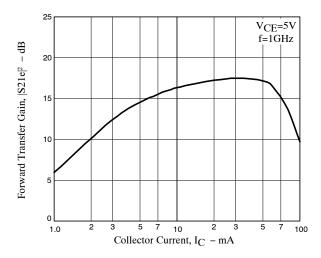


Figure 7. |S21e|2 vs. I_C

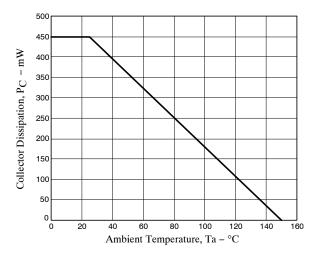


Figure 9. P_C vs. T_A

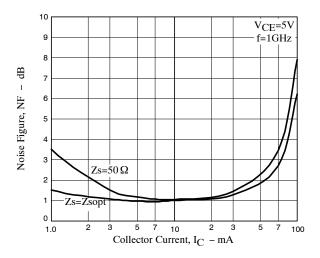


Figure 8. NF vs. I_C

S Parameters	(Common er	mitter)						
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

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	0.542	-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	0.303	-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
	0.0.2							
3000	0.640	143.6	2.337	42.8	0.134	63.6	0.337	-123.8
3000 CE=3V, IC=50	0.640				0.134 S12	63.6 ∠ S12	0.337 S22	-123.8 ∠\$22
	0.640 0mA	143.6	2.337	42.8				
3000 CE=3V, IC=50 Freq(MHz)	0.640 0mA S11	143.6 ∠S11	2.337 S21	42.8 ∠S21	S12	∠ S12	S22	∠\$22
3000 CE=3V, IC=50 Freq(MHz)	0.640 0mA S11 0.514	143.6 ∠S11 -110.3	2.337 S21 43.067	42.8 ∠S21 133.3	S12 0.011	∠ S12 59.0	S22 0.700	∠S22 -40.9
3000 CE=3V, IC=50 Freq(MHz) 100 200	0.640 0mA S11 0.514 0.607	143.6 ∠S11 -110.3 -141.4	2.337 S21 43.067 29.221	42.8 ∠S21 133.3 112.3	S12 0.011 0.016	∠ S12 59.0 53.1	S22 0.700 0.495	∠\$22 -40.9 -58.9
3000 CE=3V, IC=50 Freq(MHz) 100 200 300	0.640 0mA S11 0.514 0.607 0.642	143.6 ∠S11 -110.3 -141.4 -154.9	2.337 S21 43.067 29.221 20.818	42.8 ∠S21 133.3 112.3 101.0 94.1 88.9	S12 0.011 0.016 0.019	∠ S12 59.0 53.1 55.3 58.5 61.4	S22 0.700 0.495 0.417	∠S22 -40.9 -58.9 -68.7
3000 CE=3V, IC=50 Freq(MHz) 100 200 300 400 500 600	0.640 0mA S11 0.514 0.607 0.642 0.657 0.660 0.659	∠S11 -110.3 -141.4 -154.9 -162.5 -165.8 -170.3	2.337 S21 43.067 29.221 20.818 15.865 13.033 10.812	42.8 ∠S21 133.3 112.3 101.0 94.1 88.9 85.3	S12 0.011 0.016 0.019 0.023 0.027 0.030	∠S12 59.0 53.1 55.3 58.5 61.4 64.0	S22 0.700 0.495 0.417 0.376	∠S22 -40.9 -58.9 -68.7 -75.5 -75.7
3000 CE=3V, IC=50 Freq(MHz) 100 200 300 400 500 600 700	0.640 0mA S11 0.514 0.607 0.642 0.657 0.660 0.659 0.658	143.6 ∠S11 -110.3 -141.4 -154.9 -162.5 -165.8 -170.3 -174.3	2.337 S21 43.067 29.221 20.818 15.865 13.033 10.812 9.213	42.8 ∠S21 133.3 112.3 101.0 94.1 88.9 85.3 82.3	S12 0.011 0.016 0.019 0.023 0.027 0.030 0.034	∠S12 59.0 53.1 55.3 58.5 61.4 64.0 66.1	S22 0.700 0.495 0.417 0.376 0.360 0.330 0.307	∠S22 -40.9 -58.9 -68.7 -75.5 -75.7 -78.7 -81.5
3000 CE=3V, IC=50 Freq(MHz) 100 200 300 400 500 600 700 800	0.640 0mA S11 0.514 0.607 0.642 0.657 0.660 0.659 0.658 0.660	∠S11 -110.3 -141.4 -154.9 -162.5 -165.8 -170.3 -174.3 -177.8	2.337 S21 43.067 29.221 20.818 15.865 13.033 10.812 9.213 7.995	42.8 ∠S21 133.3 112.3 101.0 94.1 88.9 85.3 82.3 79.5	S12 0.011 0.016 0.019 0.023 0.027 0.030 0.034 0.038	∠ S12 59.0 53.1 55.3 58.5 61.4 64.0 66.1 67.8	S22 0.700 0.495 0.417 0.376 0.360 0.330 0.307 0.291	∠S22 -40.9 -58.9 -68.7 -75.5 -75.7 -78.7 -81.5 -84.5
3000 CE=3V, IC=50 Freq(MHz) 100 200 300 400 500 600 700 800 900	0.640 0mA S11 0.514 0.607 0.642 0.657 0.660 0.659 0.658 0.660 0.663	143.6 ∠S11 -110.3 -141.4 -154.9 -162.5 -165.8 -170.3 -174.3 -177.8 179.2	2.337 S21 43.067 29.221 20.818 15.865 13.033 10.812 9.213 7.995 7.097	42.8 ∠S21 133.3 112.3 101.0 94.1 88.9 85.3 82.3 79.5 77.1	S12 0.011 0.016 0.019 0.023 0.027 0.030 0.034 0.038 0.042	∠ S12 59.0 53.1 55.3 58.5 61.4 64.0 66.1 67.8 68.6	S22 0.700 0.495 0.417 0.376 0.360 0.330 0.307 0.291 0.284	∠S22 -40.9 -58.9 -68.7 -75.5 -75.7 -78.7 -81.5 -84.5 -87.1
3000 CE=3V, IC=50 Freq(MHz) 100 200 300 400 500 600 700 800 900 1000	0.640 0mA S11 0.514 0.607 0.642 0.657 0.660 0.659 0.658 0.660 0.663 0.662	143.6 ∠S11 -110.3 -141.4 -154.9 -162.5 -165.8 -170.3 -174.3 -177.8 179.2 176.6	2.337 S21 43.067 29.221 20.818 15.865 13.033 10.812 9.213 7.995 7.097 6.333	42.8 ∠S21 133.3 112.3 101.0 94.1 88.9 85.3 82.3 79.5 77.1 74.8	S12 0.011 0.016 0.019 0.023 0.027 0.030 0.034 0.038 0.042 0.046	∠S12 59.0 53.1 55.3 58.5 61.4 64.0 66.1 67.8 68.6 69.6	S22 0.700 0.495 0.417 0.376 0.360 0.330 0.307 0.291 0.284 0.277	∠S22 -40.9 -58.9 -68.7 -75.5 -75.7 -78.7 -81.5 -84.5 -87.1 -89.7
3000 CE=3V, IC=50 Freq(MHz) 100 200 300 400 500 600 700 800 900 1000 1200	0.640 0mA S11 0.514 0.607 0.642 0.657 0.660 0.659 0.658 0.660 0.663 0.662 0.666		2.337 S21 43.067 29.221 20.818 15.865 13.033 10.812 9.213 7.995 7.097 6.333 5.247	42.8 ∠S21 133.3 112.3 101.0 94.1 88.9 85.3 82.3 79.5 77.1 74.8 70.8	S12 0.011 0.016 0.019 0.023 0.027 0.030 0.034 0.038 0.042 0.046 0.055	∠ S12 59.0 53.1 55.3 58.5 61.4 64.0 66.1 67.8 68.6 69.6 70.9	S22 0.700 0.495 0.417 0.376 0.360 0.330 0.307 0.291 0.284 0.277 0.268	∠S22 -40.9 -58.9 -68.7 -75.5 -75.7 -78.7 -81.5 -84.5 -87.1 -89.7 -93.7
3000 CE=3V, IC=50 Freq(MHz) 100 200 300 400 500 600 700 800 900 1000 1200 1400	0.640 0mA S11 0.514 0.607 0.642 0.657 0.660 0.659 0.658 0.660 0.663 0.662 0.666 0.670	143.6 ∠S11 -110.3 -141.4 -154.9 -162.5 -165.8 -170.3 -174.3 -177.8 179.2 176.6 172.0 167.9	2.337 S21 43.067 29.221 20.818 15.865 13.033 10.812 9.213 7.995 7.097 6.333 5.247 4.475	42.8 ∠S21 133.3 112.3 101.0 94.1 88.9 85.3 82.3 79.5 77.1 74.8 70.8 67.0	S12 0.011 0.016 0.019 0.023 0.027 0.030 0.034 0.038 0.042 0.046 0.055 0.063	∠S12 59.0 53.1 55.3 58.5 61.4 64.0 66.1 67.8 68.6 69.6 70.9 71.3	S22 0.700 0.495 0.417 0.376 0.360 0.330 0.307 0.291 0.284 0.277 0.268 0.269	∠S22 -40.9 -58.9 -68.7 -75.5 -75.7 -78.7 -81.5 -84.5 -87.1 -89.7 -93.7 -97.1
3000 CE=3V, IC=50 Freq(MHz) 100 200 300 400 500 600 700 800 900 1000 1200 1400 1600	0.640 0mA S11 0.514 0.607 0.642 0.657 0.660 0.659 0.658 0.660 0.663 0.662 0.666 0.670 0.673	143.6 ∠S11 -110.3 -141.4 -154.9 -162.5 -165.8 -170.3 -174.3 -177.8 179.2 176.6 172.0 167.9 164.1	2.337 S21 43.067 29.221 20.818 15.865 13.033 10.812 9.213 7.995 7.097 6.333 5.247 4.475 3.897	42.8 ∠S21 133.3 112.3 101.0 94.1 88.9 85.3 82.3 79.5 77.1 74.8 70.8 67.0 63.4	S12 0.011 0.016 0.019 0.023 0.027 0.030 0.034 0.038 0.042 0.046 0.055 0.063 0.072	∠S12 59.0 53.1 55.3 58.5 61.4 64.0 66.1 67.8 68.6 69.6 70.9 71.3 71.5	S22 0.700 0.495 0.417 0.376 0.360 0.330 0.307 0.291 0.284 0.277 0.268 0.269 0.270	∠S22 -40.9 -58.9 -68.7 -75.5 -75.7 -78.7 -81.5 -84.5 -87.1 -89.7 -93.7 -97.1 -100.2
3000 CE=3V, IC=50 Freq(MHz) 100 200 300 400 500 600 700 800 900 1000 1200 1400 1600 1800	0.640 0mA S11 0.514 0.607 0.642 0.657 0.660 0.659 0.658 0.660 0.663 0.662 0.666 0.670 0.673 0.676	143.6 ∠S11 -110.3 -141.4 -154.9 -162.5 -165.8 -170.3 -174.3 -177.8 179.2 176.6 172.0 167.9 164.1 160.6	2.337 S21 43.067 29.221 20.818 15.865 13.033 10.812 9.213 7.995 7.097 6.333 5.247 4.475 3.897 3.469	42.8 ∠S21 133.3 112.3 101.0 94.1 88.9 85.3 82.3 79.5 77.1 74.8 70.8 67.0 63.4 59.9	S12 0.011 0.016 0.019 0.023 0.027 0.030 0.034 0.038 0.042 0.046 0.055 0.063 0.072 0.080	∠S12 59.0 53.1 55.3 58.5 61.4 64.0 66.1 67.8 68.6 69.6 70.9 71.3 71.5 71.4	S22 0.700 0.495 0.417 0.376 0.360 0.330 0.307 0.291 0.284 0.277 0.268 0.269 0.270 0.275	∠S22 -40.9 -58.9 -68.7 -75.5 -75.7 -78.7 -81.5 -84.5 -87.1 -89.7 -93.7 -97.1 -100.2 -103.3
3000 CE=3V, IC=50 Freq(MHz) 100 200 300 400 500 600 700 800 900 1000 1200 1400 1600 1800 2000	0.640 0mA S11 0.514 0.607 0.642 0.657 0.660 0.659 0.658 0.660 0.663 0.662 0.666 0.670 0.673 0.676 0.678	143.6 ∠S11 -110.3 -141.4 -154.9 -162.5 -165.8 -170.3 -174.3 -177.8 179.2 176.6 172.0 167.9 164.1 160.6 157.5	2.337 S21 43.067 29.221 20.818 15.865 13.033 10.812 9.213 7.995 7.097 6.333 5.247 4.475 3.897 3.469 3.113	42.8 ∠S21 133.3 112.3 101.0 94.1 88.9 85.3 82.3 79.5 77.1 74.8 70.8 67.0 63.4 59.9 56.5	S12 0.011 0.016 0.019 0.023 0.027 0.030 0.034 0.038 0.042 0.046 0.055 0.063 0.072 0.080 0.089	∠S12 59.0 53.1 55.3 58.5 61.4 64.0 66.1 67.8 68.6 69.6 70.9 71.3 71.5 71.4 71.0	S22 0.700 0.495 0.417 0.376 0.360 0.330 0.307 0.291 0.284 0.277 0.268 0.269 0.270 0.275 0.284	∠S22 -40.9 -58.9 -68.7 -75.5 -75.7 -81.5 -84.5 -87.1 -89.7 -93.7 -97.1 -100.2 -103.3 -106.5
3000 CE=3V, IC=50 Freq(MHz) 100 200 300 400 500 600 700 800 900 1000 1200 1400 1600 1800 2000 2200	0.640 0mA S11 0.514 0.607 0.642 0.657 0.660 0.659 0.658 0.660 0.663 0.662 0.666 0.670 0.673 0.678 0.678	143.6 ∠S11 -110.3 -141.4 -154.9 -162.5 -165.8 -170.3 -174.3 -177.8 179.2 176.6 172.0 167.9 164.1 160.6 157.5 154.1	2.337 S21 43.067 29.221 20.818 15.865 13.033 10.812 9.213 7.995 7.097 6.333 5.247 4.475 3.897 3.469 3.113 2.836	42.8 ∠S21 133.3 112.3 101.0 94.1 88.9 85.3 82.3 79.5 77.1 74.8 70.8 67.0 63.4 59.9 56.5 53.1	S12 0.011 0.016 0.019 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	∠S12 59.0 53.1 55.3 58.5 61.4 64.0 66.1 67.8 68.6 69.6 70.9 71.3 71.5 71.4 71.0 70.4	S22 0.700 0.495 0.417 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	∠S22 -40.9 -58.9 -68.7 -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
3000 CE=3V, IC=50 Freq(MHz) 100 200 300 400 500 600 700 800 900 1000 1200 1400 1600 1800 2000 2200 2400	0.640 0mA S11 0.514 0.607 0.642 0.657 0.660 0.659 0.658 0.660 0.663 0.662 0.666 0.670 0.673 0.676 0.678 0.679 0.681	143.6 ∠S11 -110.3 -141.4 -154.9 -162.5 -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	2.337 S21 43.067 29.221 20.818 15.865 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	42.8 ∠S21 133.3 112.3 101.0 94.1 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	S12 0.011 0.016 0.019 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	∠S12 59.0 53.1 55.3 58.5 61.4 64.0 66.1 67.8 68.6 69.6 70.9 71.3 71.5 71.4 71.0 70.4 69.8	S22 0.700 0.495 0.417 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	∠S22 -40.9 -58.9 -68.7 -75.5 -75.7 -78.7 -81.5 -84.5 -87.1 -89.7 -93.7 -91.00.2 -103.3 -106.5 -109.3
3000 CE=3V, IC=50 Freq(MHz) 100 200 300 400 500 600 700 800 900 1000 1200 1400 1600 1800 2000 2200	0.640 0mA S11 0.514 0.607 0.642 0.657 0.660 0.659 0.658 0.660 0.663 0.662 0.666 0.670 0.673 0.678 0.678	143.6 ∠S11 -110.3 -141.4 -154.9 -162.5 -165.8 -170.3 -174.3 -177.8 179.2 176.6 172.0 167.9 164.1 160.6 157.5 154.1	2.337 S21 43.067 29.221 20.818 15.865 13.033 10.812 9.213 7.995 7.097 6.333 5.247 4.475 3.897 3.469 3.113 2.836	42.8 ∠S21 133.3 112.3 101.0 94.1 88.9 85.3 82.3 79.5 77.1 74.8 70.8 67.0 63.4 59.9 56.5 53.1	S12 0.011 0.016 0.019 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	∠S12 59.0 53.1 55.3 58.5 61.4 64.0 66.1 67.8 68.6 69.6 70.9 71.3 71.5 71.4 71.0 70.4	S22 0.700 0.495 0.417 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	∠S22 -40.9 -58.9 -68.7 -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

CE=3V, IC=8								
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	0.000	
300	0.706		15 500		0.020	00.4	0.820	-36.2
		-94.4	17.503	122.8	0.035	53.0	0.820	-36.2 -48.5
400	0.691	-94.4 -112.7	17.503	122.8 111.9				
400 500					0.035	53.0	0.722	-48.5
	0.691	-112.7	14.633	111.9	0.035 0.040	53.0 48.5	0.722 0.656	-48.5 -57.3
500	0.691 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	0.691 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	0.691 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	0.691 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	0.691 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	0.691 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	0.691 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	0.691 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 -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	0.691 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 0.069	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	0.691 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	0.691 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 -174.7 179.5 174.7 170.5	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	0.691 0.701 0.677 0.659 0.646 0.640 0.633 0.628 0.625 0.625 0.627	-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	0.691 0.701 0.677 0.659 0.646 0.640 0.633 0.628 0.625 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

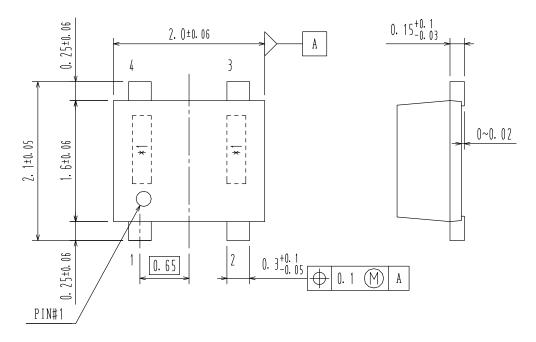
CE=5V, IC=3								
Freq(MHz)	S11	∠S11	S21	∠S21	S12	∠ S12	S22	∠S22
100	0.542	-70.6	43.013	144.3	0.012	66.3	0.826	-31.8
200	0.577	-112.5	32.303	121.4	0.018	56.3	0.636	-50.4
300	0.599	-134.2	24.068	107.8	0.022	55.0	0.539	-61.6
400	0.611	-146.5	18.636	99.4	0.025	55.5	0.478	-69.3
500	0.620	-151.9	15.457	93.6	0.029	57.7	0.454	-71.4
600	0.614	-158.6	12.813	89.2	0.033	59.6	0.410	-74.7
700	0.611	-164.1	10.898	85.6	0.036	61.5	0.376	-77.5
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	0.628	148.0	2.638	45.7	0.120	66.5	0.339	-113.0
3000	0.626	144.6	2.464	42.6	0.129	65.6	0.352	-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					-00.0
500				95.7	0.021	60.4	0.427	-66.9
500	0.625	-161.4	14.893	95.7 90.4	0.021 0.025	60.4 63.7	0.427 0.410	
600	0.625 0.624							-66.9
		-161.4	14.893	90.4	0.025	63.7	0.410	-66.9 -68.0
600	0.624	-161.4 -166.7	14.893 12.324	90.4 86.4	0.025 0.029	63.7 66.0	0.410 0.375	-66.9 -68.0 -70.7
600 700	0.624 0.624	-161.4 -166.7 -171.0	14.893 12.324 10.482	90.4 86.4 83.2	0.025 0.029 0.032	63.7 66.0 68.0	0.410 0.375 0.348	-66.9 -68.0 -70.7 -73.2
600 700 800	0.624 0.624 0.626	-161.4 -166.7 -171.0 -174.8	14.893 12.324 10.482 9.088	90.4 86.4 83.2 80.4	0.025 0.029 0.032 0.036	63.7 66.0 68.0 69.2	0.410 0.375 0.348 0.328	-66.9 -68.0 -70.7 -73.2 -75.9
600 700 800 900	0.624 0.624 0.626 0.628	-161.4 -166.7 -171.0 -174.8 -178.1	14.893 12.324 10.482 9.088 8.053	90.4 86.4 83.2 80.4 77.9	0.025 0.029 0.032 0.036 0.040	63.7 66.0 68.0 69.2 70.4	0.410 0.375 0.348 0.328 0.317	-66.9 -68.0 -70.7 -73.2 -75.9 -78.4
600 700 800 900 1000	0.624 0.624 0.626 0.628 0.628	-161.4 -166.7 -171.0 -174.8 -178.1 179.1	14.893 12.324 10.482 9.088 8.053 7.184	90.4 86.4 83.2 80.4 77.9 75.6	0.025 0.029 0.032 0.036 0.040 0.044	63.7 66.0 68.0 69.2 70.4 70.9	0.410 0.375 0.348 0.328 0.317 0.308	-66.9 -68.0 -70.7 -73.2 -75.9 -78.4 -80.9
600 700 800 900 1000 1200	0.624 0.624 0.626 0.628 0.628 0.633	-161.4 -166.7 -171.0 -174.8 -178.1 179.1 174.2	14.893 12.324 10.482 9.088 8.053 7.184 5.943	90.4 86.4 83.2 80.4 77.9 75.6 71.5	0.025 0.029 0.032 0.036 0.040 0.044 0.052	63.7 66.0 68.0 69.2 70.4 70.9 72.2	0.410 0.375 0.348 0.328 0.317 0.308 0.295	-66.9 -68.0 -70.7 -73.2 -75.9 -78.4 -80.9 -84.6
600 700 800 900 1000 1200 1400	0.624 0.624 0.626 0.628 0.628 0.633 0.636	-161.4 -166.7 -171.0 -174.8 -178.1 179.1 174.2 169.8	14.893 12.324 10.482 9.088 8.053 7.184 5.943 5.061	90.4 86.4 83.2 80.4 77.9 75.6 71.5 67.7	0.025 0.029 0.032 0.036 0.040 0.044 0.052 0.060	63.7 66.0 68.0 69.2 70.4 70.9 72.2 72.7	0.410 0.375 0.348 0.328 0.317 0.308 0.295	-66.9 -68.0 -70.7 -73.2 -75.9 -78.4 -80.9 -84.6 -88.2
600 700 800 900 1000 1200 1400 1600	0.624 0.624 0.626 0.628 0.628 0.633 0.636 0.640	-161.4 -166.7 -171.0 -174.8 -178.1 179.1 174.2 169.8 165.9	14.893 12.324 10.482 9.088 8.053 7.184 5.943 5.061 4.407	90.4 86.4 83.2 80.4 77.9 75.6 71.5 67.7 64.1	0.025 0.029 0.032 0.036 0.040 0.044 0.052 0.060	63.7 66.0 68.0 69.2 70.4 70.9 72.2 72.7 72.7	0.410 0.375 0.348 0.328 0.317 0.308 0.295 0.292	-66.9 -68.0 -70.7 -73.2 -75.9 -78.4 -80.9 -84.6 -88.2 -91.5
600 700 800 900 1000 1200 1400 1600 1800	0.624 0.624 0.626 0.628 0.628 0.633 0.636 0.640	-161.4 -166.7 -171.0 -174.8 -178.1 179.1 174.2 169.8 165.9 162.3	14.893 12.324 10.482 9.088 8.053 7.184 5.943 5.061 4.407 3.917	90.4 86.4 83.2 80.4 77.9 75.6 71.5 67.7 64.1 60.6	0.025 0.029 0.032 0.036 0.040 0.044 0.052 0.060 0.069	63.7 66.0 68.0 69.2 70.4 70.9 72.2 72.7 72.7 72.6	0.410 0.375 0.348 0.328 0.317 0.308 0.295 0.292 0.292 0.295	-66.9 -68.0 -70.7 -73.2 -75.9 -78.4 -80.9 -84.6 -88.2 -91.5 -94.7 -98.1
600 700 800 900 1000 1200 1400 1600 1800 2000	0.624 0.624 0.626 0.628 0.628 0.633 0.636 0.640 0.643	-161.4 -166.7 -171.0 -174.8 -178.1 179.1 174.2 169.8 165.9 162.3 159.1	14.893 12.324 10.482 9.088 8.053 7.184 5.943 5.061 4.407 3.917 3.518	90.4 86.4 83.2 80.4 77.9 75.6 71.5 67.7 64.1 60.6 57.2	0.025 0.029 0.032 0.036 0.040 0.044 0.052 0.060 0.069 0.077 0.086	63.7 66.0 68.0 69.2 70.4 70.9 72.2 72.7 72.7 72.6 72.3	0.410 0.375 0.348 0.328 0.317 0.308 0.295 0.292 0.292 0.295 0.301	-66.9 -68.0 -70.7 -73.2 -75.9 -78.4 -80.9 -84.6 -88.2 -91.5 -94.7 -98.1 -101.1
600 700 800 900 1000 1200 1400 1600 1800 2000 2200	0.624 0.624 0.626 0.628 0.628 0.633 0.636 0.640 0.643 0.645 0.646	-161.4 -166.7 -171.0 -174.8 -178.1 179.1 174.2 169.8 165.9 162.3 159.1 155.6	14.893 12.324 10.482 9.088 8.053 7.184 5.943 5.061 4.407 3.917 3.518 3.202	90.4 86.4 83.2 80.4 77.9 75.6 71.5 67.7 64.1 60.6 57.2 54.0	0.025 0.029 0.032 0.036 0.040 0.044 0.052 0.060 0.069 0.077 0.086 0.094	63.7 66.0 68.0 69.2 70.4 70.9 72.2 72.7 72.7 72.6 72.3 71.8	0.410 0.375 0.348 0.328 0.317 0.308 0.295 0.292 0.292 0.292 0.301 0.309	-66.9 -68.0 -70.7 -73.2 -75.9 -78.4 -80.9 -84.6 -88.2 -91.5
600 700 800 900 1000 1200 1400 1600 1800 2000 2200 2400	0.624 0.624 0.626 0.628 0.628 0.633 0.636 0.640 0.643 0.645 0.646 0.648	-161.4 -166.7 -171.0 -174.8 -178.1 179.1 174.2 169.8 165.9 162.3 159.1 155.6 152.4	14.893 12.324 10.482 9.088 8.053 7.184 5.943 5.061 4.407 3.917 3.518 3.202 2.931	90.4 86.4 83.2 80.4 77.9 75.6 71.5 67.7 64.1 60.6 57.2 54.0 50.6	0.025 0.029 0.032 0.036 0.040 0.044 0.052 0.060 0.069 0.077 0.086 0.094 0.103	63.7 66.0 68.0 69.2 70.4 70.9 72.2 72.7 72.7 72.6 72.3 71.8 71.1	0.410 0.375 0.348 0.328 0.317 0.308 0.295 0.292 0.292 0.292 0.295 0.301 0.309 0.319	-66.9 -68.0 -70.7 -73.2 -75.9 -78.4 -80.9 -84.6 -88.2 -91.5 -94.7 -98.1 -101.1 -104.0

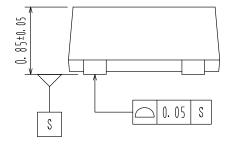
CE=5V, IC=8								
Freq(MHz)	S11	∠\$11	S21	∠S21	S12	∠ S12	S22	∠S22
100	0.558	-133.0	39.014	127.8	0.009	54.5	0.618	-33.7
200	0.671	-155.6	23.364	107.6	0.012	52.6	0.457	-41.5
300	0.704	-165.1	16.107	97.6	0.014	57.5	0.415	-45.4
400	0.718	-170.7	12.150	91.5	0.017	62.9	0.395	-49.0
500	0.716	-173.4	9.907	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				
400	0.697			127.1	0.032	55.0	0.739	-44.1
		-109.0	14.905	113.1	0.032 0.037	55.0 50.3	0.739 0.685	
500	0.704	-109.0 -120.4	14.905 13.108					-44.1
500 600	0.704 0.678			113.1	0.037	50.3	0.685	-44.1 -52.2
		-120.4	13.108	113.1 105.8	0.037 0.041	50.3 49.3	0.685 0.652	-44.1 -52.2 -56.5
600	0.678 0.659	-120.4 -130.9	13.108 11.176	113.1 105.8 99.3	0.037 0.041 0.044	50.3 49.3 47.7	0.685 0.652 0.591	-44.1 -52.2 -56.5 -60.6
600 700	0.678	-120.4 -130.9 -139.5	13.108 11.176 9.599	113.1 105.8 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	-44.1 -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	113.1 105.8 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	-44.1 -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	113.1 105.8 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	-44.1 -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	113.1 105.8 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	-44.1 -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	113.1 105.8 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	-44.1 -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	113.1 105.8 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	-44.1 -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	113.1 105.8 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	-44.1 -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	113.1 105.8 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	-44.1 -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 0.622	-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	113.1 105.8 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	-44.1 -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	113.1 105.8 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	-44.1 -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	113.1 105.8 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	-44.1 -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

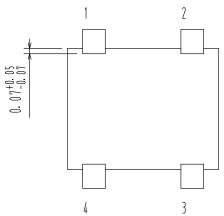
Freq(MHz)	0mA S11	∠S11	S21	∠S21	S12	∠ S12	S22	∠S22
100	0.556	-65.2	43.179	145.8	0.011	67.8	0.846	-28.0
200	0.578	-106.8	32.894	123.0	0.017	57.9	0.669	-44.6
300	0.578	-100.8	24.775	109.1	0.017	56.2	0.584	-54.7
400	0.594	-142.8	19.256	100.3	0.021	57.0	0.512	-61.6
500	0.614	-142.6	15.997	94.4	0.024	59.0	0.312	-63.9
600	0.606	-146.7	13.266	89.8	0.028	60.8	0.443	-66.9
700	0.603	-161.6	11.285	86.1	0.031	62.5	0.443	-69.3
800	0.602	-166.5	9.802	82.9	0.034	64.2	0.409	-72.0
900	0.602	-170.7	8.672	80.0	0.037	65.4	0.366	-74.3
1000	0.602	-170.7	7.739	77.6	0.041	66.3	0.352	-74.3
1200	0.603	179.9	6.401	73.3	0.044	68.1	0.332	-80.3
1400	0.605	179.9	5.453	69.2	0.051	69.2	0.333	-80.3
1600	0.603	174.9		65.4	0.059	69.2	0.323	-83.7
			4.753			70.0		-90.2
1800	0.611	166.4 162.9	4.215	61.8 58.4	0.074	69.9	0.321	
2000			3.791 3.445		0.082		0.325 0.330	-93.4 -96.5
2200 2400	0.614	159.2		55.1		70.1	<u> </u>	-96.3 -99.4
2600	0.616	155.8 152.4	3.155 2.916	51.7 48.4	0.099 0.107	69.6 69.1	0.339 0.349	-102.4
	0.617						0.349	-
2800 3000	0.619 0.619	149.1 145.7	2.711 2.531	45.2 42.0	0.115 0.124	68.5 67.5	0.361	-105.3 -108.2
CE=8V, IC=5 Freq(MHz)	0mA S11	∠S11	S21	∠S21	S12	∠ S12	S22	∠S22
100	0.477							
100		_ XX X	42 926	139 6	0.009	65.5	<u> </u>	
200		-88.8 -127.0	42.926 34.154	139.6	0.009	65.5 59.2	0.793	-30.4
200	0.554	-127.0	34.154	117.2	0.014	59.2	0.793 0.603	-30.4 -45.1
300	0.554 0.589	-127.0 -144.5	34.154 24.758	117.2 104.4	0.014 0.017	59.2 59.1	0.793 0.603 0.529	-30.4 -45.1 -53.1
300 400	0.554 0.589 0.606	-127.0 -144.5 -154.4	34.154 24.758 18.954	117.2 104.4 96.6	0.014 0.017 0.020	59.2 59.1 61.9	0.793 0.603 0.529 0.478	-30.4 -45.1 -53.1 -58.7
300 400 500	0.554 0.589 0.606 0.613	-127.0 -144.5 -154.4 -158.4	34.154 24.758 18.954 15.585	117.2 104.4 96.6 91.2	0.014 0.017 0.020 0.024	59.2 59.1 61.9 64.8	0.793 0.603 0.529 0.478 0.453	-30.4 -45.1 -53.1 -58.7 -60.2
300 400 500 600	0.554 0.589 0.606 0.613 0.611	-127.0 -144.5 -154.4 -158.4 -164.1	34.154 24.758 18.954 15.585 12.888	117.2 104.4 96.6 91.2 87.0	0.014 0.017 0.020 0.024 0.027	59.2 59.1 61.9 64.8 67.3	0.793 0.603 0.529 0.478 0.453 0.416	-30.4 -45.1 -53.1 -58.7 -60.2 -62.6
300 400 500 600 700	0.554 0.589 0.606 0.613 0.611	-127.0 -144.5 -154.4 -158.4 -164.1 -168.8	34.154 24.758 18.954 15.585 12.888 10.954	117.2 104.4 96.6 91.2 87.0 83.7	0.014 0.017 0.020 0.024 0.027 0.031	59.2 59.1 61.9 64.8 67.3 69.1	0.793 0.603 0.529 0.478 0.453 0.416 0.388	-30.4 -45.1 -53.1 -58.7 -60.2 -62.6 -64.8
300 400 500 600 700 800	0.554 0.589 0.606 0.613 0.611 0.611	-127.0 -144.5 -154.4 -158.4 -164.1 -168.8 -172.8	34.154 24.758 18.954 15.585 12.888 10.954 9.503	117.2 104.4 96.6 91.2 87.0 83.7 80.7	0.014 0.017 0.020 0.024 0.027 0.031 0.034	59.2 59.1 61.9 64.8 67.3 69.1 70.4	0.793 0.603 0.529 0.478 0.453 0.416 0.388 0.366	-30.4 -45.1 -53.1 -58.7 -60.2 -62.6 -64.8 -67.2
300 400 500 600 700 800 900	0.554 0.589 0.606 0.613 0.611 0.611 0.613 0.616	-127.0 -144.5 -154.4 -158.4 -164.1 -168.8 -172.8 -176.3	34.154 24.758 18.954 15.585 12.888 10.954 9.503 8.407	117.2 104.4 96.6 91.2 87.0 83.7 80.7 78.1	0.014 0.017 0.020 0.024 0.027 0.031 0.034 0.038	59.2 59.1 61.9 64.8 67.3 69.1 70.4 71.5	0.793 0.603 0.529 0.478 0.453 0.416 0.388 0.366 0.355	-30.4 -45.1 -53.1 -58.7 -60.2 -62.6 -64.8 -67.2 -69.5
300 400 500 600 700 800 900 1000	0.554 0.589 0.606 0.613 0.611 0.613 0.616 0.615	-127.0 -144.5 -154.4 -158.4 -164.1 -168.8 -172.8 -176.3 -179.2	34.154 24.758 18.954 15.585 12.888 10.954 9.503 8.407 7.494	117.2 104.4 96.6 91.2 87.0 83.7 80.7 78.1 75.7	0.014 0.017 0.020 0.024 0.027 0.031 0.034	59.2 59.1 61.9 64.8 67.3 69.1 70.4 71.5 72.3	0.793 0.603 0.529 0.478 0.453 0.416 0.388 0.366 0.355 0.343	-30.4 -45.1 -53.1 -58.7 -60.2 -62.6 -64.8 -67.2 -69.5 -71.9
300 400 500 600 700 800 900 1000 1200	0.554 0.589 0.606 0.613 0.611 0.613 0.616 0.615 0.619	-127.0 -144.5 -154.4 -158.4 -164.1 -168.8 -172.8 -176.3 -179.2 175.7	34.154 24.758 18.954 15.585 12.888 10.954 9.503 8.407 7.494 6.192	117.2 104.4 96.6 91.2 87.0 83.7 80.7 78.1 75.7 71.6	0.014 0.017 0.020 0.024 0.027 0.031 0.034 0.038 0.042 0.049	59.2 59.1 61.9 64.8 67.3 69.1 70.4 71.5 72.3 73.7	0.793 0.603 0.529 0.478 0.453 0.416 0.388 0.366 0.355 0.343 0.329	-30.4 -45.1 -53.1 -58.7 -60.2 -62.6 -64.8 -67.2 -69.5 -71.9 -75.5
300 400 500 600 700 800 900 1000 1200 1400	0.554 0.589 0.606 0.613 0.611 0.613 0.616 0.615 0.619 0.623	-127.0 -144.5 -154.4 -158.4 -164.1 -168.8 -172.8 -176.3 -179.2 175.7 171.2	34.154 24.758 18.954 15.585 12.888 10.954 9.503 8.407 7.494 6.192 5.272	117.2 104.4 96.6 91.2 87.0 83.7 80.7 78.1 75.7 71.6 67.7	0.014 0.017 0.020 0.024 0.027 0.031 0.034 0.038 0.042 0.049 0.057	59.2 59.1 61.9 64.8 67.3 69.1 70.4 71.5 72.3 73.7 74.1	0.793 0.603 0.529 0.478 0.453 0.416 0.388 0.366 0.355 0.343 0.329 0.324	-30.4 -45.1 -53.1 -58.7 -60.2 -62.6 -64.8 -67.2 -69.5 -71.9 -75.5 -79.0
300 400 500 600 700 800 900 1000 1200 1400 1600	0.554 0.589 0.606 0.613 0.611 0.613 0.616 0.615 0.619 0.623 0.626	-127.0 -144.5 -154.4 -158.4 -164.1 -168.8 -172.8 -176.3 -179.2 175.7 171.2 167.2	34.154 24.758 18.954 15.585 12.888 10.954 9.503 8.407 7.494 6.192 5.272 4.586	117.2 104.4 96.6 91.2 87.0 83.7 80.7 78.1 75.7 71.6 67.7 64.0	0.014 0.017 0.020 0.024 0.027 0.031 0.034 0.038 0.042 0.049 0.057 0.065	59.2 59.1 61.9 64.8 67.3 69.1 70.4 71.5 72.3 73.7	0.793 0.603 0.529 0.478 0.453 0.416 0.388 0.366 0.355 0.343 0.329 0.324 0.323	-30.4 -45.1 -53.1 -58.7 -60.2 -62.6 -64.8 -67.2 -69.5 -71.9 -75.5 -79.0 -82.4
300 400 500 600 700 800 900 1000 1200 1400	0.554 0.589 0.606 0.613 0.611 0.613 0.616 0.615 0.619 0.623 0.626 0.631	-127.0 -144.5 -154.4 -158.4 -164.1 -168.8 -172.8 -176.3 -179.2 175.7 171.2 167.2 163.5	34.154 24.758 18.954 15.585 12.888 10.954 9.503 8.407 7.494 6.192 5.272	117.2 104.4 96.6 91.2 87.0 83.7 80.7 78.1 75.7 71.6 67.7 64.0 60.4	0.014 0.017 0.020 0.024 0.027 0.031 0.034 0.038 0.042 0.049 0.057	59.2 59.1 61.9 64.8 67.3 69.1 70.4 71.5 72.3 73.7 74.1 74.5	0.793 0.603 0.529 0.478 0.453 0.416 0.388 0.366 0.355 0.343 0.329 0.324 0.323	-30.4 -45.1 -53.1 -58.7 -60.2 -62.6 -64.8 -67.2 -69.5 -71.9 -75.5 -79.0
300 400 500 600 700 800 900 1000 1200 1400 1600 1800 2000	0.554 0.589 0.606 0.613 0.611 0.613 0.616 0.615 0.619 0.623 0.626 0.631 0.633	-127.0 -144.5 -154.4 -158.4 -164.1 -168.8 -172.8 -176.3 -179.2 175.7 171.2 167.2 163.5 160.2	34.154 24.758 18.954 15.585 12.888 10.954 9.503 8.407 7.494 6.192 5.272 4.586 4.071 3.658	117.2 104.4 96.6 91.2 87.0 83.7 80.7 78.1 75.7 71.6 67.7 64.0 60.4 57.0	0.014 0.017 0.020 0.024 0.027 0.031 0.034 0.038 0.042 0.049 0.057 0.065 0.073	59.2 59.1 61.9 64.8 67.3 69.1 70.4 71.5 72.3 73.7 74.1 74.5 74.4	0.793 0.603 0.529 0.478 0.453 0.416 0.388 0.366 0.355 0.343 0.329 0.324 0.323 0.325 0.331	-30.4 -45.1 -53.1 -58.7 -60.2 -62.6 -64.8 -67.2 -69.5 -71.9 -75.5 -79.0 -82.4 -85.8 -89.4
300 400 500 600 700 800 900 1000 1200 1400 1600 1800 2000 2200	0.554 0.589 0.606 0.613 0.611 0.613 0.616 0.615 0.619 0.623 0.626 0.631 0.633 0.634	-127.0 -144.5 -154.4 -158.4 -164.1 -168.8 -172.8 -176.3 -179.2 175.7 171.2 167.2 163.5 160.2 156.7	34.154 24.758 18.954 15.585 12.888 10.954 9.503 8.407 7.494 6.192 5.272 4.586 4.071 3.658 3.322	117.2 104.4 96.6 91.2 87.0 83.7 80.7 78.1 75.7 71.6 67.7 64.0 60.4 57.0 53.7	0.014 0.017 0.020 0.024 0.027 0.031 0.034 0.038 0.042 0.049 0.057 0.065 0.073 0.081 0.090	59.2 59.1 61.9 64.8 67.3 69.1 70.4 71.5 72.3 73.7 74.1 74.5 74.4 74.0 73.7	0.793 0.603 0.529 0.478 0.453 0.416 0.388 0.366 0.355 0.343 0.329 0.324 0.323 0.323 0.325 0.331	-30.4 -45.1 -53.1 -58.7 -60.2 -62.6 -64.8 -67.2 -69.5 -71.9 -75.5 -79.0 -82.4 -85.8 -89.4 -92.7
300 400 500 600 700 800 900 1000 1200 1400 1600 1800 2000	0.554 0.589 0.606 0.613 0.611 0.613 0.616 0.615 0.619 0.623 0.626 0.631 0.633	-127.0 -144.5 -154.4 -158.4 -164.1 -168.8 -172.8 -176.3 -179.2 175.7 171.2 167.2 163.5 160.2 156.7 153.5	34.154 24.758 18.954 15.585 12.888 10.954 9.503 8.407 7.494 6.192 5.272 4.586 4.071 3.658	117.2 104.4 96.6 91.2 87.0 83.7 80.7 78.1 75.7 71.6 67.7 64.0 60.4 57.0	0.014 0.017 0.020 0.024 0.027 0.031 0.034 0.038 0.042 0.049 0.057 0.065 0.073 0.081 0.090 0.099	59.2 59.1 61.9 64.8 67.3 69.1 70.4 71.5 72.3 73.7 74.1 74.5 74.4 74.0	0.793 0.603 0.529 0.478 0.453 0.416 0.388 0.366 0.355 0.343 0.329 0.324 0.323 0.325 0.331	-30.4 -45.1 -53.1 -58.7 -60.2 -62.6 -64.8 -67.2 -69.5 -71.9 -75.5 -79.0 -82.4 -85.8 -89.4
300 400 500 600 700 800 900 1000 1200 1400 1600 1800 2000 2200 2400	0.554 0.589 0.606 0.613 0.611 0.613 0.616 0.615 0.619 0.623 0.626 0.631 0.633 0.634	-127.0 -144.5 -154.4 -158.4 -164.1 -168.8 -172.8 -176.3 -179.2 175.7 171.2 167.2 163.5 160.2 156.7	34.154 24.758 18.954 15.585 12.888 10.954 9.503 8.407 7.494 6.192 5.272 4.586 4.071 3.658 3.322 3.041	117.2 104.4 96.6 91.2 87.0 83.7 80.7 78.1 75.7 71.6 67.7 64.0 60.4 57.0 53.7 50.3	0.014 0.017 0.020 0.024 0.027 0.031 0.034 0.038 0.042 0.049 0.057 0.065 0.073 0.081 0.090	59.2 59.1 61.9 64.8 67.3 69.1 70.4 71.5 72.3 73.7 74.1 74.5 74.4 74.0 73.7 73.0	0.793 0.603 0.529 0.478 0.453 0.416 0.388 0.366 0.355 0.343 0.329 0.324 0.323 0.325 0.331 0.337	-30.4 -45.1 -53.1 -58.7 -60.2 -62.6 -64.8 -67.2 -69.5 -71.9 -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







DOCUMENT NUMBER:	98AON65645E	Electronic versions are uncontrolled except when accessed directly from the Document Repos Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.			
DESCRIPTION:	SC-82FL / MCPH4		PAGE 1 OF 1		

ON Semiconductor and III are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. ON Semiconductor does not convey any license under its patent rights nor the rights of others.

onsemi, Onsemi, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "onsemi" or its affiliates and/or subsidiaries in the United States and/or other countries. onsemi owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of onsemi's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. Onsemi reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and onsemi makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does onsemi assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using onsemi products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by onsemi. "Typical" parameters which may be provided in onsemi data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. onsemi does not convey any license under any of its intellectual property rights nor the rights of others. onsemi products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA class 3 medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:

 $\textbf{Technical Library:} \ \underline{www.onsemi.com/design/resources/technical-documentation}$

onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support

For additional information, please contact your local Sales Representative at www.onsemi.com/support/sales