To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

Renesas Electronics website: http://www.renesas.com

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (http://www.renesas.com)

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2SC5975

Silicon NPN Epitaxial
High Frequency Low Noise Amplifier / Oscillator

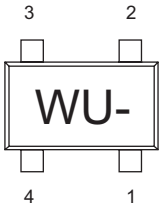
REJ03G0381-0100Z
Rev.1.00
Jul.06.2004

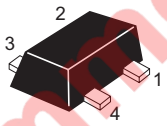
Features

- High gain bandwidth product
  f_T = 20 GHz typ.
- High power gain and low noise figure;
  PG = 17.5 dB typ. , NF = 1.15 dB typ. at f = 1.8 GHz

Outline

MFPAK-4





1. Emitter
2. Collector
3. Emitter
4. Base

Note: Marking is “WU-”.

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	12	V
Collector to emitter voltage	V_{CEO}	4	V
Emitter to base voltage	V_{EBO}	1.5	V
Collector current	I_C	35	mA
Collector power dissipation	Pc[*1]	200	mW
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

Note: 1. Value on PCB (FR-4 : 40 x 40 x 1.6mm Double side)

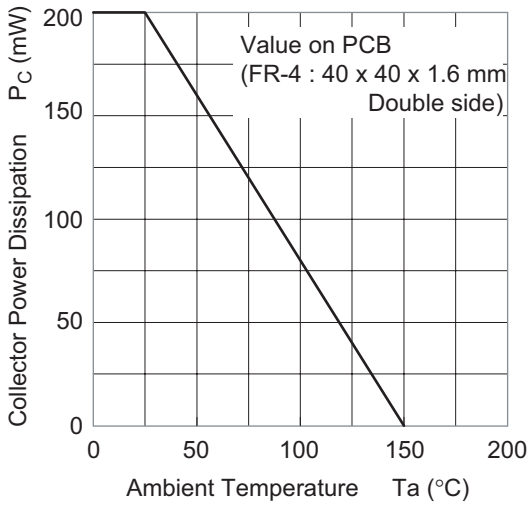
Electrical Characteristics

(Ta = 25°C)

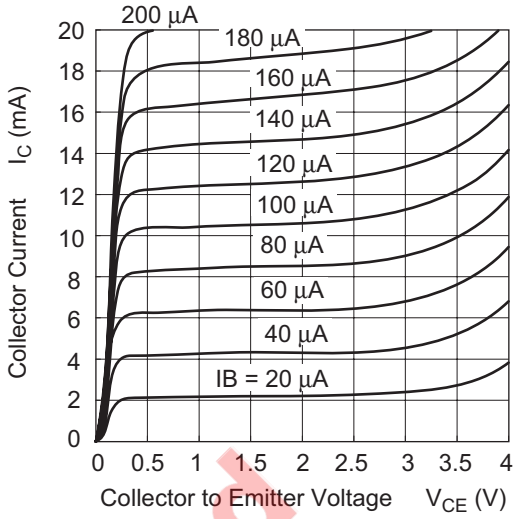
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Collector cutoff current	I_{CBO}	—	—	1	µA	V_{CB} = 12 V, I_E = 0
Collector cutoff current	I_{CEO}	—	—	1	µA	V_{CE} = 4 V, R_{BE} = ∞
Emitter cutoff current	I_{EEO}	—	—	10	µA	V_{EB} = 1.5 V, I_C = 0
DC current transfer ratio	h_{FE}	70	110	150	—	V_{CE} = 2 V, I_C = 20 mA
Collector output capacitance	C_{ob}	—	0.3	0.6	pF	V_{CB} = 2 V, I_E = 0, f = 1 MHz
Gain bandwidth product	f_T	17	20	—	GHz	V_{CE} = 2 V, I_C = 30 mA, f = 2 GHz
Power gain	PG	13	17.5	—	dB	V_{CE} = 2 V, I_C = 30 mA, f = 1.8 GHz
Noise figure	NF	—	1.15	1.7	dB	V_{CE} = 2 V, I_C = 5 mA, f = 1.8 GHz

Main Characteristics

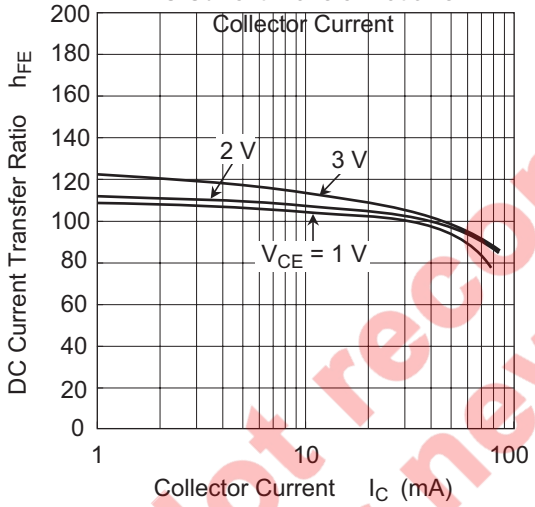
Collector Power Dissipation Curve



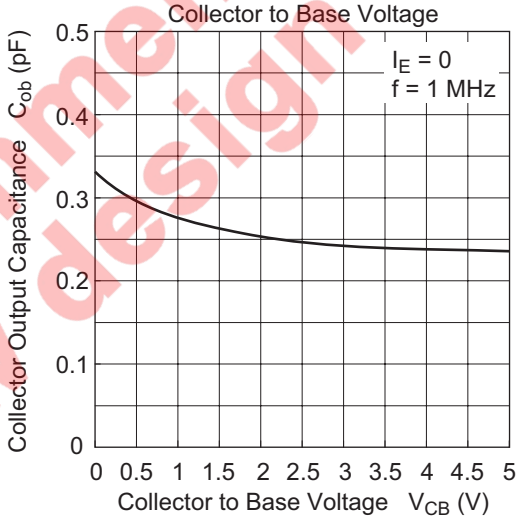
Typical Output Characteristics



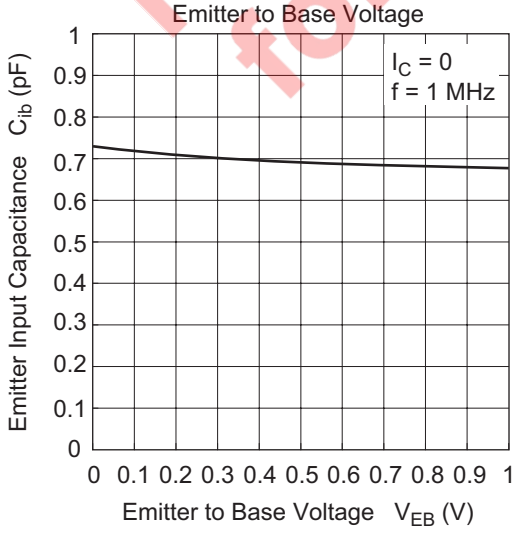
DC Current Transfer Ratio vs. Collector Current



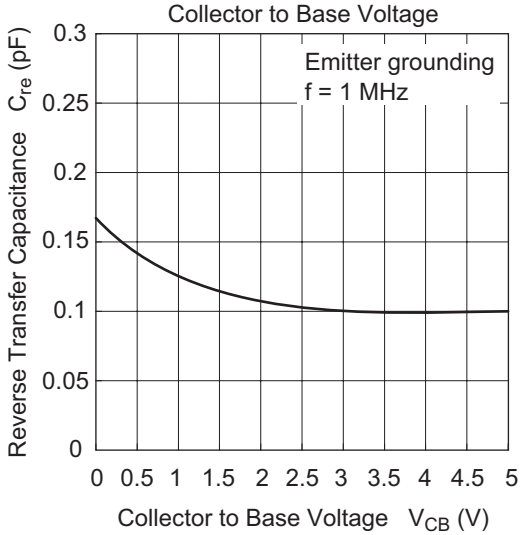
Collector Output Capacitance vs. Collector to Base Voltage



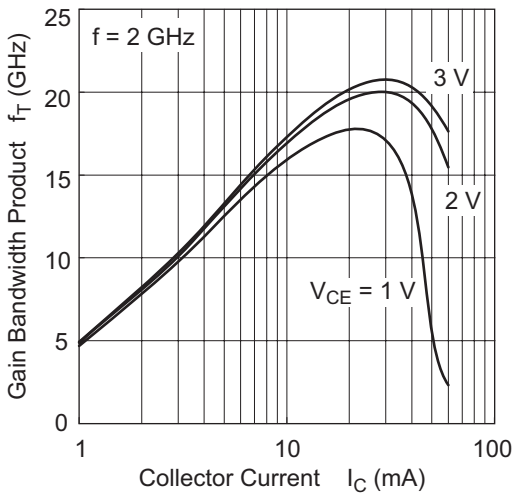
Emitter Input Capacitance vs. Emitter to Base Voltage



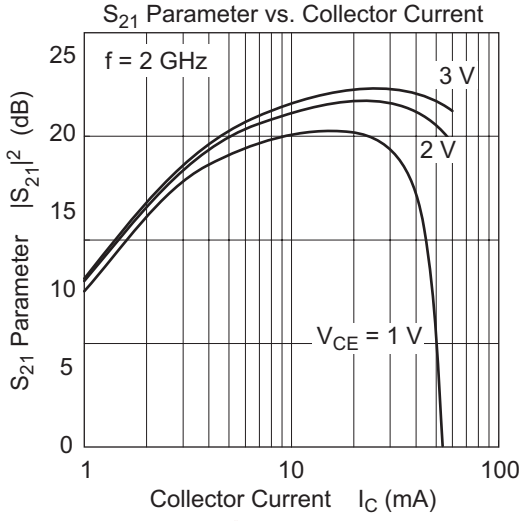
Reverse Transfer Capacitance vs. Collector to Base Voltage



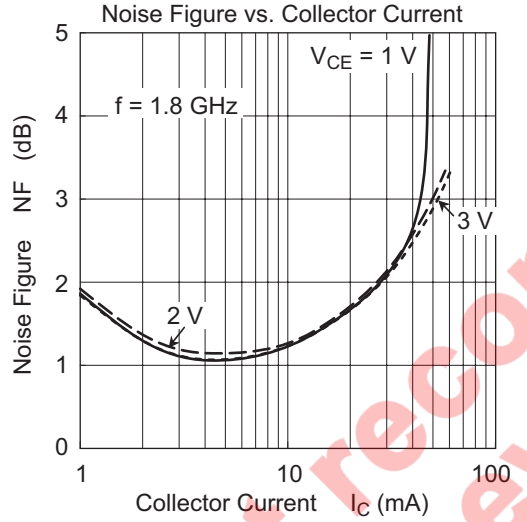
Gain Bandwidth Product vs. Collector Current



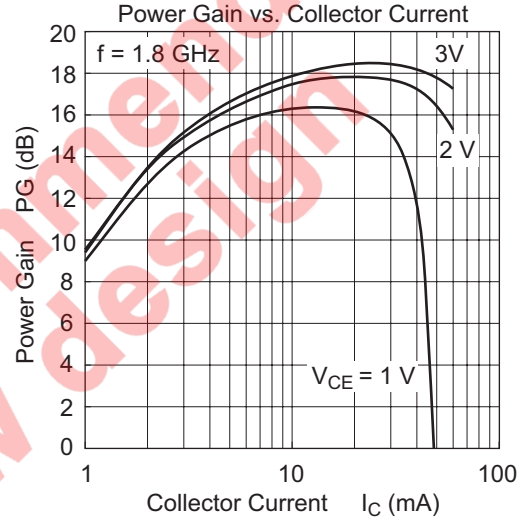
S_{21} Parameter vs. Collector Current



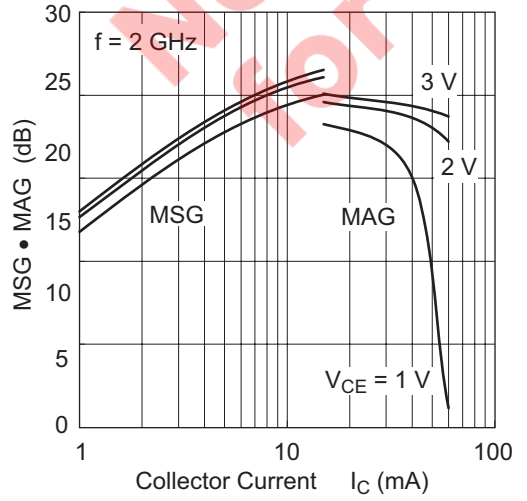
Noise Figure vs. Collector Current



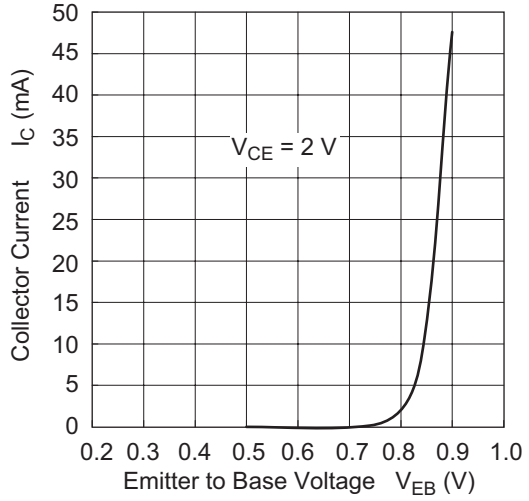
Power Gain vs. Collector Current



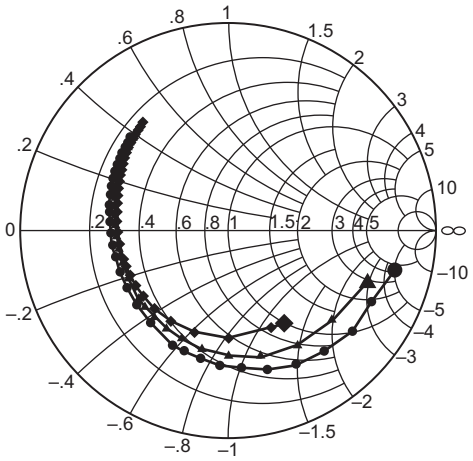
MSG • MAG vs. Collector Current



Typical Transfer Characteristics



S_{11} Parameter vs. Frequency

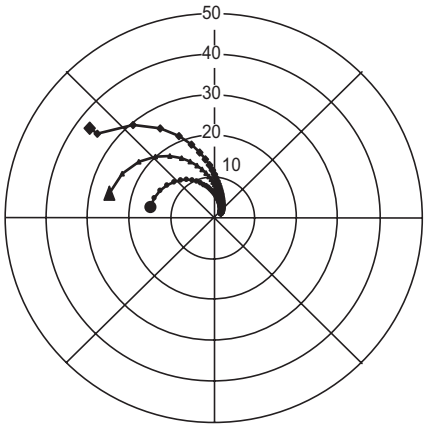


Condition: VCE = 1 V , Zo = 50 Ω
100 to 1000 MHz (100 MHz step)
1000 to 5100 MHz (200 MHz step)

- IC = 5 mA
- IC = 10 mA
- IC = 20 mA

S_{21} Parameter vs. Frequency

Scale: 10 / div.

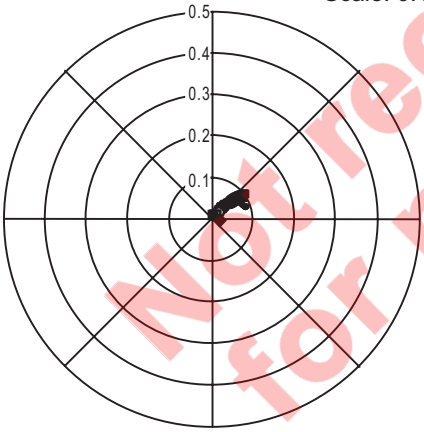


Condition: VCE = 1 V , Zo = 50 Ω
100 to 5100 MHz (100 MHz step)

- IC = 5 mA
- IC = 10 mA
- IC = 20 mA

S_{12} Parameter vs. Frequency

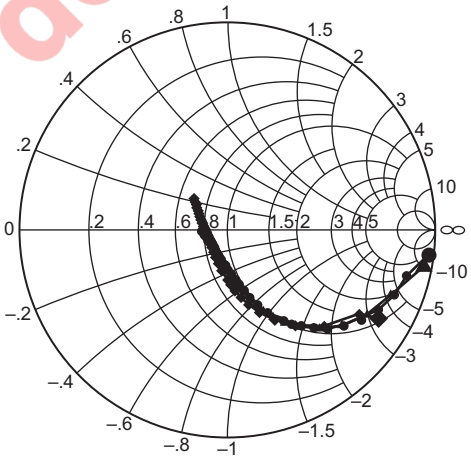
Scale: 0.1 / div.



Condition: VCE = 1 V , Zo = 50 Ω
100 to 5100 MHz (100 MHz step)

- IC = 5 mA
- IC = 10 mA
- IC = 20 mA

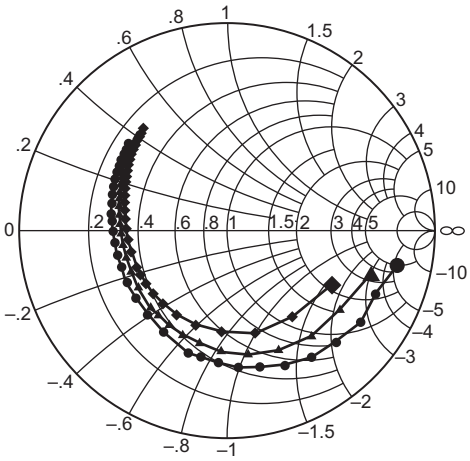
S_{22} Parameter vs. Frequency



Condition: VCE = 1 V , Zo = 50 Ω
100 to 1000 MHz (100 MHz step)
1000 to 5100 MHz (200 MHz step)

- IC = 5 mA
- IC = 10 mA
- IC = 20 mA

S_{11} Parameter vs. Frequency

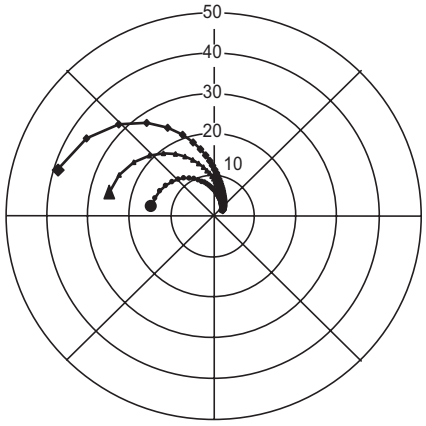


Condition: VCE = 2 V , Zo = 50 Ω
100 to 1000 MHz (100 MHz step)
1000 to 5100 MHz (200 MHz step)

IC = 5 mA
IC = 10 mA
IC = 20 mA

S_{21} Parameter vs. Frequency

Scale: 10 / div.

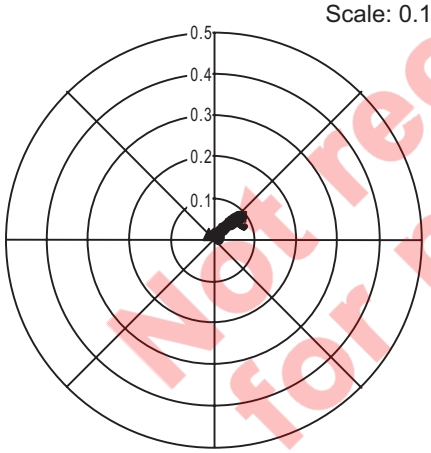


Condition: VCE = 2 V , Zo = 50 Ω
100 to 5100 MHz (100 MHz step)

IC = 5 mA
IC = 10 mA
IC = 20 mA

S_{12} Parameter vs. Frequency

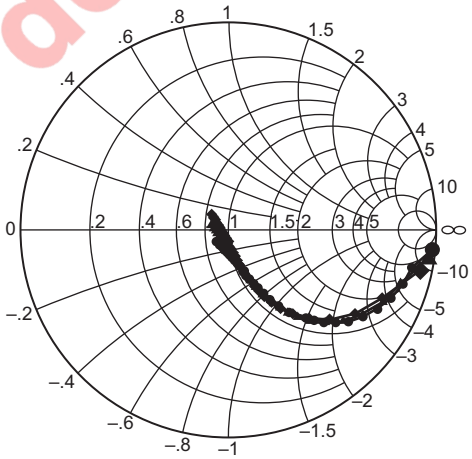
Scale: 0.1 / div.



Condition: VCE = 2 V , Zo = 50 Ω
100 to 5100 MHz (100 MHz step)

IC = 5 mA
IC = 10 mA
IC = 20 mA

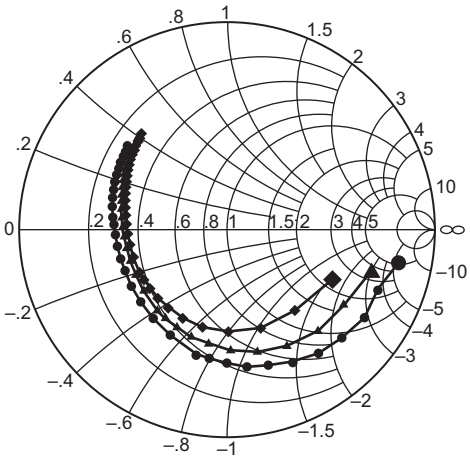
S_{22} Parameter vs. Frequency



Condition: VCE = 2 V , Zo = 50 Ω
100 to 1000 MHz (100 MHz step)
1000 to 5100 MHz (200 MHz step)

IC = 5 mA
IC = 10 mA
IC = 20 mA

S11 Parameter vs. Frequency

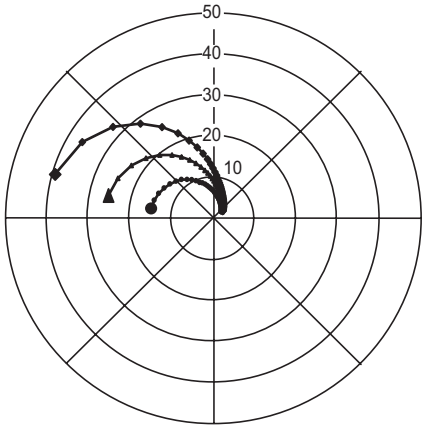


Condition: VCE = 3 V , Zo = 50 Ω
100 to 1000 MHz (100 MHz step)
1000 to 5100 MHz (200 MHz step)

- IC = 5 mA
- IC = 10 mA
- IC = 20 mA

S21 Parameter vs. Frequency

Scale: 10 / div.

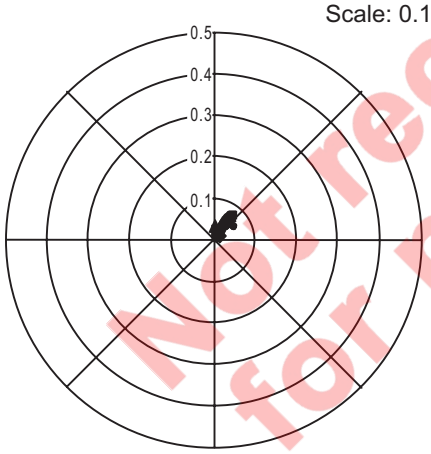


Condition: VCE = 3 V , Zo = 50 Ω
100 to 5100 MHz (100 MHz step)

- IC = 5 mA
- IC = 10 mA
- IC = 20 mA

S12 Parameter vs. Frequency

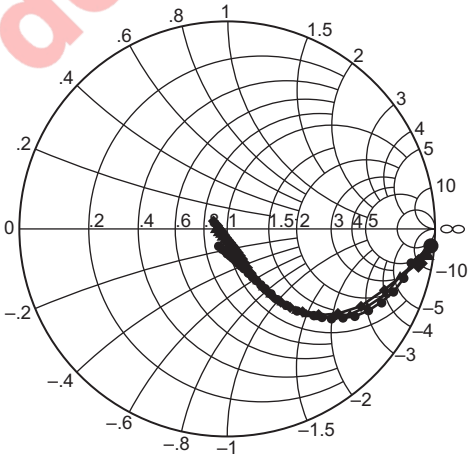
Scale: 0.1 / div.



Condition: VCE = 3 V , Zo = 50 Ω
100 to 5100 MHz (100 MHz step)

- IC = 5 mA
- IC = 10 mA
- IC = 20 mA

S22 Parameter vs. Frequency



Condition: VCE = 3 V , Zo = 50 Ω
100 to 1000 MHz (100 MHz step)
1000 to 5100 MHz (200 MHz step)

- IC = 5 mA
- IC = 10 mA
- IC = 20 mA

S parameter

(V_{CE} = 1 V, I_C = 5 mA, Zo =50 Ω)

	S11		S21		S12		S22	
f(MHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
100	0.828	-13.3	15.36	170.8	0.0098	84.3	0.979	-7.0
200	0.830	-26.4	14.97	161.7	0.0201	78.4	0.960	-14.4
300	0.831	-39.1	14.41	153.0	0.0300	72.8	0.929	-21.3
400	0.801	-51.5	13.65	145.1	0.0381	66.9	0.887	-28.0
500	0.778	-63.1	12.83	137.8	0.0461	61.5	0.839	-34.0
600	0.750	-74.3	12.03	131.0	0.0524	56.2	0.784	-39.6
700	0.716	-84.5	11.27	125.2	0.0576	51.7	0.731	-44.8
800	0.703	-93.5	10.40	119.7	0.0624	47.9	0.678	-48.6
900	0.680	-102.2	9.68	114.9	0.0661	43.8	0.629	-52.5
1000	0.665	-110.1	8.94	110.4	0.0692	40.9	0.583	-55.2
1100	0.662	-115.8	8.27	106.6	0.0726	38.0	0.546	-57.7
1200	0.636	-123.9	7.88	103.1	0.0733	36.0	0.503	-61.2
1300	0.626	-130.0	7.39	99.8	0.0746	33.7	0.468	-63.6
1400	0.617	-135.7	6.95	96.7	0.0760	32.2	0.437	-65.8
1500	0.612	-140.8	6.54	94.0	0.0773	30.8	0.410	-67.5
1600	0.606	-145.8	6.19	91.3	0.0781	29.3	0.385	-69.5
1700	0.603	-150.5	5.87	88.7	0.0784	28.6	0.360	-71.2
1800	0.600	-155.3	5.60	86.2	0.0791	27.0	0.334	-73.5
1900	0.600	-159.0	5.30	83.8	0.0794	26.5	0.316	-74.1
2000	0.598	-162.6	5.06	82.0	0.0804	25.5	0.301	-76.3
2100	0.599	-166.8	4.84	79.5	0.0796	24.9	0.278	-77.5
2200	0.600	-169.2	4.60	78.1	0.0819	24.1	0.272	-79.1
2300	0.604	-172.8	4.43	75.6	0.0815	23.7	0.251	-80.5
2400	0.606	-175.7	4.25	73.7	0.0820	23.4	0.237	-82.1
2500	0.609	-178.8	4.10	71.7	0.0819	22.9	0.221	-84.5
2600	0.611	178.8	3.93	70.2	0.0830	22.7	0.213	-86.1
2700	0.615	175.8	3.80	68.2	0.0821	21.9	0.199	-88.9
2800	0.618	173.8	3.66	66.7	0.0836	22.0	0.192	-90.8
2900	0.623	171.0	3.54	64.5	0.0828	22.0	0.177	-92.7
3000	0.627	168.8	3.41	62.6	0.0834	21.4	0.165	-95.0
3100	0.631	167.8	3.25	61.5	0.0849	20.1	0.172	-94.0
3200	0.634	164.9	3.19	59.7	0.0845	21.2	0.155	-99.7
3300	0.639	163.0	3.08	58.1	0.0845	20.8	0.147	-102.7
3400	0.643	161.1	2.99	56.4	0.0854	20.5	0.140	-106.2
3500	0.648	159.1	2.90	54.9	0.0853	20.6	0.133	-109.8
3600	0.652	157.4	2.81	53.3	0.0853	20.5	0.127	-113.8
3700	0.656	155.6	2.73	51.7	0.0847	20.2	0.122	-118.2
3800	0.659	154.0	2.65	50.2	0.0854	20.2	0.118	-122.0
3900	0.664	152.4	2.58	48.7	0.0855	19.9	0.113	-127.3
4000	0.666	150.7	2.50	47.1	0.0857	20.0	0.111	-131.6
4100	0.670	149.2	2.43	45.7	0.0857	20.0	0.108	-136.9
4200	0.672	147.8	2.36	44.3	0.0857	20.2	0.108	-141.3
4300	0.675	146.4	2.30	42.9	0.0858	20.2	0.106	-145.7
4400	0.679	145.1	2.24	41.5	0.0862	20.5	0.108	-151.1
4500	0.683	143.8	2.19	40.0	0.0866	20.4	0.111	-156.5
4600	0.685	142.2	2.13	38.6	0.0857	20.2	0.112	-162.2
4700	0.688	141.0	2.07	37.3	0.0863	20.7	0.113	-166.4
4800	0.689	139.9	2.02	36.1	0.0866	21.1	0.115	-169.2
4900	0.693	138.8	1.97	34.8	0.0881	21.4	0.122	-173.3
5000	0.699	137.5	1.93	33.3	0.0892	20.7	0.128	-177.7
5100	0.704	136.3	1.88	31.9	0.0888	20.0	0.134	178.4

S parameter

(V_{CE} = 1 V, I_C = 10 mA, Zo =50 Ω)

	S11		S21		S12		S22	
f(MHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
100	0.718	-20.9	25.67	166.7	0.0099	80.8	0.957	-10.7
200	0.711	-40.8	24.35	154.2	0.0186	73.0	0.912	-21.8
300	0.698	-58.9	22.48	142.9	0.0266	65.9	0.850	-31.4
400	0.673	-75.5	20.32	133.3	0.0327	59.6	0.775	-39.9
500	0.652	-89.8	18.23	125.1	0.0377	54.8	0.702	-47.1
600	0.632	-102.4	16.34	118.1	0.0416	50.4	0.631	-53.2
700	0.611	-113.2	14.67	112.5	0.0441	46.9	0.568	-58.5
800	0.603	-122.1	13.22	107.5	0.0466	44.5	0.512	-62.5
900	0.592	-130.3	11.99	103.3	0.049	41.8	0.463	-66.3
1000	0.588	-137.3	10.90	99.5	0.0509	40.8	0.419	-69.2
1100	0.584	-142.5	9.99	96.3	0.0528	39.5	0.385	-71.6
1200	0.577	-149.2	9.28	93.4	0.0538	38.7	0.350	-75.2
1300	0.575	-154.2	8.61	90.7	0.0544	37.3	0.320	-77.7
1400	0.574	-158.8	8.02	88.2	0.0562	37.3	0.295	-80.1
1500	0.573	-162.8	7.51	86.0	0.0571	37.0	0.273	-82.0
1600	0.574	-166.8	7.05	83.8	0.0583	36.5	0.253	-84.4
1700	0.575	-170.3	6.65	81.7	0.0591	36.8	0.233	-86.8
1800	0.578	-173.9	6.29	79.6	0.0607	36.3	0.215	-89.4
1900	0.580	-176.8	5.96	77.7	0.0612	36.6	0.200	-90.9
2000	0.582	-179.6	5.66	76.1	0.0625	35.9	0.188	-93.6
2100	0.586	177.4	5.38	74.1	0.0632	36.2	0.172	-96.0
2200	0.588	175.3	5.14	72.6	0.0647	35.8	0.165	-98.3
2300	0.593	172.6	4.92	70.8	0.0662	36.0	0.151	-101.3
2400	0.597	170.4	4.71	69.1	0.0671	35.9	0.141	-104.6
2500	0.601	168.1	4.52	67.5	0.0694	36.1	0.131	-108.8
2600	0.605	166.2	4.34	66.0	0.0693	35.8	0.125	-112.3
2700	0.610	164.0	4.18	64.3	0.0697	35.2	0.119	-117.6
2800	0.614	162.3	4.03	62.9	0.0717	36.2	0.114	-120.8
2900	0.619	160.3	3.88	61.2	0.0724	35.7	0.106	-126.5
3000	0.623	158.7	3.74	59.5	0.074	35.7	0.100	-131.3
3100	0.626	157.5	3.60	58.4	0.0753	35.0	0.100	-131.7
3200	0.632	155.4	3.50	56.9	0.0761	35.3	0.097	-141.0
3300	0.636	154.0	3.38	55.4	0.0772	35.3	0.095	-146.6
3400	0.641	152.4	3.27	53.9	0.0778	35.0	0.095	-152.7
3500	0.647	150.9	3.17	52.6	0.0791	35.1	0.096	-158.9
3600	0.651	149.4	3.08	51.1	0.0801	34.8	0.097	-164.4
3700	0.655	148.0	2.98	49.7	0.0807	34.7	0.099	-169.8
3800	0.659	146.7	2.90	48.4	0.0818	34.2	0.102	-174.2
3900	0.664	145.4	2.81	47.0	0.0829	33.9	0.106	-179.8
4000	0.666	143.9	2.73	45.6	0.0838	33.7	0.110	176.7
4100	0.670	142.7	2.65	44.2	0.0841	34.0	0.113	171.9
4200	0.673	141.6	2.57	43.0	0.0851	34.1	0.118	169.0
4300	0.675	140.3	2.51	41.7	0.0861	33.9	0.122	166.1
4400	0.679	139.3	2.44	40.4	0.0873	33.9	0.129	163.2
4500	0.684	138.1	2.38	39.1	0.0879	33.4	0.136	160.7
4600	0.687	136.8	2.31	37.8	0.088	33.2	0.142	157.3
4700	0.689	135.8	2.25	36.6	0.0897	33.4	0.146	154.8
4800	0.691	134.8	2.20	35.5	0.0906	33.6	0.151	153.2
4900	0.695	133.9	2.14	34.2	0.0923	33.2	0.159	152.0
5000	0.701	132.9	2.10	32.9	0.0939	32.2	0.168	150.3
5100	0.706	131.7	2.04	31.6	0.0934	31.8	0.176	148.1

S parameter

(V_{CE} = 1 V, I_C = 20 mA, Zo =50 Ω)

	S11		S21		S12		S22	
f(MHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
100	0.561	-61.2	36.78	143.8	0.0137	64.0	0.863	-32.6
200	0.557	-66.3	34.53	143.9	0.0167	66.8	0.815	-32.5
300	0.562	-89.9	29.67	130.6	0.0222	59.4	0.711	-44.6
400	0.561	-108.3	25.17	120.5	0.0261	54.8	0.611	-54.4
500	0.561	-122.2	21.47	112.7	0.0291	51.2	0.530	-62.0
600	0.560	-133.2	18.51	106.6	0.0314	49.2	0.460	-68.4
700	0.559	-142.1	16.15	101.8	0.0332	47.9	0.404	-73.7
800	0.561	-149.0	14.30	97.8	0.0352	47.7	0.357	-78.0
900	0.561	-155.3	12.78	94.4	0.0368	46.4	0.318	-82.3
1000	0.563	-160.4	11.53	91.3	0.0389	46.8	0.284	-85.9
1100	0.564	-164.5	10.53	88.8	0.0406	46.7	0.259	-88.9
1200	0.567	-169.0	9.64	86.5	0.0424	46.8	0.233	-93.3
1300	0.569	-172.6	8.90	84.3	0.0437	46.3	0.212	-97.1
1400	0.571	-176.0	8.26	82.2	0.0458	47.5	0.195	-100.6
1500	0.574	-178.9	7.71	80.4	0.0472	47.6	0.179	-104.1
1600	0.577	178.2	7.22	78.5	0.0491	47.0	0.166	-108.0
1700	0.581	175.6	6.78	76.7	0.0507	48.1	0.153	-112.5
1800	0.585	173.0	6.39	75.0	0.0525	47.5	0.142	-117.1
1900	0.589	170.8	6.06	73.3	0.0543	48.0	0.133	-120.9
2000	0.591	168.6	5.75	71.8	0.056	47.5	0.126	-125.4
2100	0.596	166.5	5.45	70.2	0.0577	47.4	0.118	-130.9
2200	0.598	164.7	5.22	68.8	0.0597	47.3	0.114	-134.8
2300	0.605	162.8	4.98	67.2	0.0608	47.3	0.110	-140.9
2400	0.609	161.1	4.76	65.7	0.0629	47.5	0.106	-146.4
2500	0.614	159.4	4.56	64.2	0.0656	47.0	0.105	-152.8
2600	0.618	157.8	4.38	62.8	0.0662	46.6	0.105	-157.7
2700	0.623	156.1	4.20	61.4	0.0673	46.0	0.107	-163.5
2800	0.627	154.7	4.06	60.0	0.0697	46.7	0.108	-167.6
2900	0.633	153.1	3.90	58.5	0.0714	46.0	0.110	-173.2
3000	0.636	151.8	3.76	57.1	0.0728	45.6	0.112	-177.9
3100	0.639	150.7	3.65	55.9	0.0745	45.4	0.112	-179.6
3200	0.645	149.1	3.51	54.5	0.0759	45.3	0.119	174.6
3300	0.649	148.0	3.39	53.2	0.0775	45.0	0.123	171.0
3400	0.655	146.6	3.29	51.8	0.079	44.0	0.128	167.4
3500	0.660	145.4	3.18	50.5	0.0805	44.1	0.134	163.9
3600	0.663	144.1	3.09	49.1	0.0817	43.8	0.139	161.2
3700	0.668	143.0	2.99	47.8	0.083	43.2	0.145	158.1
3800	0.672	141.9	2.90	46.6	0.0848	43.0	0.151	155.9
3900	0.677	140.6	2.82	45.3	0.0855	42.5	0.157	153.3
4000	0.679	139.4	2.73	43.9	0.0871	42.0	0.162	151.3
4100	0.683	138.3	2.66	42.7	0.0876	42.1	0.168	149.2
4200	0.685	137.3	2.58	41.5	0.0889	42.0	0.174	147.7
4300	0.688	136.3	2.51	40.3	0.0906	41.5	0.179	145.8
4400	0.692	135.4	2.44	39.1	0.0919	41.1	0.187	144.7
4500	0.696	134.3	2.38	37.8	0.0931	40.6	0.195	143.2
4600	0.700	133.1	2.31	36.6	0.0939	40.4	0.203	141.2
4700	0.702	132.3	2.25	35.5	0.0954	40.4	0.206	139.9
4800	0.703	131.4	2.19	34.5	0.0969	39.8	0.212	138.8
4900	0.707	130.6	2.14	33.3	0.0987	39.4	0.219	138.3
5000	0.713	129.7	2.09	32.0	0.1003	38.3	0.228	137.4
5100	0.717	128.6	2.04	30.7	0.1001	37.6	0.237	135.9

S parameter

(V_{CE} = 2 V, I_C = 5 mA, Zo =50 Ω)

	S11		S21		S12		S22	
f(MHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
100	0.835	-11.7	15.31	171.6	0.0077	85.2	0.985	-5.6
200	0.838	-23.3	14.98	163.4	0.0158	80.3	0.970	-11.7
300	0.841	-34.6	14.51	155.4	0.0237	75.7	0.948	-17.3
400	0.813	-45.8	13.88	148.1	0.0309	70.7	0.915	-22.9
500	0.792	-56.4	13.17	141.2	0.0382	66.3	0.877	-28.1
600	0.764	-66.9	12.48	134.6	0.0441	61.0	0.831	-33.0
700	0.730	-76.6	11.83	128.9	0.0489	56.7	0.784	-37.6
800	0.715	-85.3	10.99	123.4	0.0534	52.8	0.736	-40.9
900	0.689	-93.8	10.31	118.7	0.0569	48.5	0.691	-44.3
1000	0.672	-101.7	9.56	114.2	0.0603	45.5	0.647	-46.7
1100	0.669	-107.6	8.86	110.2	0.0637	42.4	0.610	-48.8
1200	0.636	-115.7	8.51	106.6	0.0650	40.5	0.567	-51.8
1300	0.623	-121.9	8.01	103.2	0.0661	37.7	0.533	-53.9
1400	0.612	-127.9	7.56	100.1	0.0681	36.4	0.501	-55.5
1500	0.603	-133.2	7.13	97.3	0.0688	34.5	0.473	-56.8
1600	0.596	-138.4	6.76	94.6	0.0696	32.9	0.448	-58.3
1700	0.590	-143.3	6.43	91.9	0.0704	32.1	0.422	-59.5
1800	0.585	-148.4	6.15	89.3	0.0709	30.8	0.396	-61.0
1900	0.585	-152.4	5.82	86.9	0.0713	29.7	0.378	-61.2
2000	0.580	-156.2	5.57	85.2	0.0724	28.8	0.362	-62.8
2100	0.580	-160.8	5.33	82.5	0.0720	28.3	0.339	-63.2
2200	0.580	-163.3	5.07	81.2	0.0739	27.5	0.332	-64.6
2300	0.583	-167.2	4.88	78.6	0.0734	27.1	0.310	-65.0
2400	0.584	-170.3	4.69	76.7	0.0738	26.6	0.296	-65.9
2500	0.586	-173.7	4.54	74.7	0.0742	26.3	0.278	-67.2
2600	0.588	-176.2	4.35	73.2	0.0747	25.6	0.270	-68.0
2700	0.591	-179.5	4.21	71.1	0.0741	25.5	0.255	-69.4
2800	0.594	178.4	4.05	69.7	0.0755	25.3	0.246	-70.7
2900	0.598	175.4	3.92	67.5	0.0754	25.5	0.232	-71.0
3000	0.604	173.0	3.79	65.5	0.0754	24.8	0.218	-71.7
3100	0.608	171.9	3.59	64.5	0.0769	23.6	0.225	-72.1
3200	0.610	168.8	3.54	62.7	0.0762	24.4	0.206	-74.6
3300	0.614	166.8	3.43	61.1	0.0763	24.0	0.196	-75.8
3400	0.619	164.7	3.32	59.4	0.0769	24.0	0.186	-77.7
3500	0.624	162.6	3.22	57.8	0.0771	24.2	0.178	-79.5
3600	0.628	160.8	3.13	56.2	0.0774	23.7	0.169	-81.3
3700	0.631	158.9	3.04	54.7	0.0771	24.0	0.160	-83.4
3800	0.635	157.2	2.95	53.2	0.0777	23.7	0.153	-85.5
3900	0.640	155.4	2.87	51.6	0.0778	23.3	0.145	-88.0
4000	0.643	153.6	2.79	50.1	0.0779	23.5	0.138	-90.6
4100	0.647	152.1	2.71	48.7	0.0775	23.7	0.131	-93.4
4200	0.649	150.6	2.64	47.3	0.0776	23.8	0.125	-96.8
4300	0.652	149.1	2.57	45.9	0.0778	24.1	0.120	-99.2
4400	0.656	147.8	2.51	44.5	0.0785	24.4	0.115	-103.8
4500	0.661	146.4	2.44	43.0	0.0784	24.0	0.111	-108.3
4600	0.663	144.7	2.38	41.6	0.0783	24.0	0.105	-113.3
4700	0.665	143.4	2.32	40.3	0.0790	24.5	0.100	-117.2
4800	0.667	142.3	2.26	39.1	0.0788	25.1	0.098	-120.8
4900	0.671	141.3	2.21	37.7	0.0804	24.9	0.099	-126.6
5000	0.677	139.9	2.17	36.2	0.0813	24.7	0.098	-133.8
5100	0.682	138.6	2.11	34.8	0.0810	24.0	0.098	-140.8

S parameter

(V_{CE} = 2 V, I_C = 10 mA, Zo =50 Ω)

	S11		S21		S12		S22	
f(MHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
100	0.723	-17.9	26.12	168.0	0.0071	82.8	0.968	-8.4
200	0.717	-35.3	25.04	156.6	0.0146	76.8	0.935	-17.4
300	0.705	-51.6	23.44	146.2	0.0213	70.0	0.886	-25.2
400	0.678	-66.8	21.53	137.0	0.0267	64.7	0.824	-32.4
500	0.655	-80.4	19.59	128.9	0.0310	59.5	0.761	-38.6
600	0.630	-92.8	17.77	121.9	0.0352	55.3	0.695	-43.9
700	0.605	-103.7	16.13	116.1	0.0379	52.0	0.635	-48.4
800	0.593	-112.9	14.61	111.0	0.0404	49.5	0.579	-51.7
900	0.578	-121.4	13.32	106.6	0.0424	46.1	0.530	-54.7
1000	0.569	-128.9	12.15	102.6	0.0450	45.1	0.485	-56.8
1100	0.565	-134.6	11.15	99.3	0.0469	43.6	0.449	-58.7
1200	0.553	-141.6	10.40	96.3	0.0478	42.5	0.412	-61.0
1300	0.548	-147.1	9.67	93.6	0.0487	41.1	0.381	-62.6
1400	0.545	-152.1	9.03	91.0	0.0498	41.2	0.353	-63.9
1500	0.544	-156.5	8.45	88.7	0.0512	40.7	0.330	-64.9
1600	0.543	-160.8	7.95	86.5	0.0520	40.0	0.309	-66.1
1700	0.543	-164.7	7.51	84.3	0.0528	40.4	0.287	-67.0
1800	0.544	-168.6	7.12	82.2	0.0543	39.7	0.267	-68.2
1900	0.546	-171.8	6.74	80.3	0.0551	40.0	0.252	-68.4
2000	0.547	-174.9	6.41	78.7	0.0563	39.2	0.238	-69.7
2100	0.550	-178.2	6.10	76.7	0.0569	39.5	0.221	-69.9
2200	0.553	179.6	5.82	75.3	0.0590	39.0	0.212	-71.2
2300	0.558	176.7	5.58	73.4	0.0592	39.1	0.197	-71.8
2400	0.561	174.3	5.34	71.7	0.0605	39.4	0.185	-72.8
2500	0.565	171.9	5.14	70.1	0.0622	39.3	0.172	-74.1
2600	0.569	169.8	4.93	68.6	0.0627	39.6	0.164	-75.5
2700	0.574	167.4	4.75	67.0	0.0633	38.9	0.153	-77.2
2800	0.578	165.6	4.58	65.6	0.0648	39.3	0.145	-78.8
2900	0.583	163.5	4.42	63.8	0.0658	39.0	0.134	-79.9
3000	0.587	161.7	4.26	62.2	0.0669	39.2	0.124	-81.1
3100	0.592	160.5	4.09	61.1	0.0682	38.7	0.124	-82.3
3200	0.597	158.3	3.98	59.6	0.0692	38.9	0.112	-86.2
3300	0.601	156.8	3.85	58.1	0.0699	38.5	0.104	-88.4
3400	0.607	155.1	3.73	56.7	0.0714	38.4	0.096	-92.0
3500	0.612	153.5	3.62	55.3	0.0723	38.3	0.089	-95.9
3600	0.616	152.0	3.51	53.9	0.0733	38.4	0.082	-99.7
3700	0.621	150.5	3.41	52.5	0.0739	38.6	0.076	-105.1
3800	0.625	149.1	3.31	51.1	0.0747	37.9	0.072	-109.9
3900	0.631	147.7	3.21	49.7	0.0758	37.7	0.066	-116.8
4000	0.633	146.2	3.12	48.3	0.0766	37.8	0.064	-122.7
4100	0.637	144.9	3.03	47.0	0.0767	37.5	0.061	-131.1
4200	0.640	143.7	2.95	45.8	0.0780	37.9	0.059	-138.2
4300	0.643	142.5	2.87	44.5	0.0788	37.7	0.058	-145.2
4400	0.648	141.4	2.80	43.3	0.0801	37.8	0.061	-153.5
4500	0.653	140.2	2.73	41.9	0.0807	37.4	0.063	-161.8
4600	0.656	138.8	2.66	40.6	0.0811	37.4	0.065	-170.7
4700	0.659	137.7	2.59	39.5	0.0821	37.4	0.067	-175.6
4800	0.659	136.8	2.52	38.4	0.0833	37.4	0.071	-179.9
4900	0.664	135.9	2.47	37.1	0.0852	37.3	0.078	175.9
5000	0.671	134.8	2.41	35.8	0.0865	36.5	0.086	171.4
5100	0.676	133.7	2.35	34.4	0.0865	35.4	0.094	166.1

S parameter

(V_{CE} = 2 V, I_C = 20 mA, Zo =50Ω)

	S11		S21		S12		S22	
f(MHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
100	0.566	-28.1	39.50	163.4	0.0067	79.3	0.938	-12.0
200	0.560	-53.7	36.24	148.5	0.0129	71.9	0.872	-24.1
300	0.554	-75.5	32.12	135.9	0.0176	65.6	0.788	-33.8
400	0.543	-93.7	27.97	125.8	0.0213	60.1	0.701	-41.8
500	0.536	-108.4	24.30	117.6	0.0243	57.5	0.622	-48.0
600	0.528	-120.5	21.21	111.1	0.0271	54.9	0.551	-52.9
700	0.523	-130.5	18.68	106.0	0.0286	53.0	0.492	-56.9
800	0.520	-138.5	16.60	101.6	0.0308	52.5	0.439	-59.7
900	0.518	-145.6	14.90	98.0	0.0327	50.2	0.395	-62.2
1000	0.519	-151.6	13.46	94.7	0.0345	51.0	0.357	-64.0
1100	0.519	-156.4	12.28	92.0	0.0361	50.8	0.326	-65.7
1200	0.519	-161.6	11.30	89.6	0.0379	50.6	0.297	-67.5
1300	0.520	-165.8	10.45	87.3	0.0391	50.2	0.272	-68.8
1400	0.522	-169.6	9.71	85.2	0.0408	50.7	0.250	-70.0
1500	0.524	-173.0	9.06	83.3	0.0423	50.9	0.230	-70.8
1600	0.527	-176.3	8.49	81.4	0.0435	50.2	0.214	-72.0
1700	0.529	-179.3	8.00	79.6	0.0454	51.2	0.196	-73.0
1800	0.533	177.8	7.55	77.9	0.0470	50.5	0.182	-74.2
1900	0.536	175.3	7.15	76.2	0.0486	51.3	0.169	-74.7
2000	0.540	172.9	6.78	74.7	0.0502	50.6	0.157	-75.7
2100	0.544	170.6	6.45	73.1	0.0519	50.8	0.144	-76.5
2200	0.548	168.6	6.16	71.6	0.0537	50.3	0.136	-78.1
2300	0.553	166.5	5.88	70.1	0.0550	50.3	0.124	-79.1
2400	0.558	164.7	5.63	68.7	0.0565	50.2	0.115	-81.0
2500	0.562	162.8	5.41	67.2	0.0584	49.9	0.105	-83.0
2600	0.567	161.1	5.19	65.8	0.0595	50.0	0.097	-85.7
2700	0.572	159.3	4.99	64.4	0.0604	49.2	0.089	-89.0
2800	0.577	157.7	4.81	63.0	0.0628	49.6	0.083	-91.8
2900	0.582	156.1	4.63	61.6	0.0642	49.4	0.074	-95.4
3000	0.586	154.7	4.47	60.1	0.0653	49.0	0.067	-99.3
3100	0.590	153.4	4.32	59.0	0.0672	48.3	0.065	-101.9
3200	0.596	151.8	4.18	57.6	0.0687	48.3	0.058	-109.8
3300	0.601	150.6	4.04	56.3	0.0700	47.9	0.053	-117.6
3400	0.606	149.3	3.92	54.9	0.0715	48.0	0.049	-125.8
3500	0.612	147.9	3.80	53.7	0.0728	47.6	0.048	-136.2
3600	0.617	146.6	3.68	52.3	0.0741	47.0	0.046	-146.1
3700	0.621	145.3	3.57	51.0	0.0752	46.8	0.047	-157.0
3800	0.626	144.2	3.47	49.8	0.0767	46.5	0.049	-165.4
3900	0.631	142.9	3.37	48.4	0.0778	45.9	0.051	-175.2
4000	0.634	141.7	3.27	47.2	0.0794	45.7	0.055	178.3
4100	0.638	140.6	3.18	46.0	0.0801	45.5	0.060	170.9
4200	0.642	139.5	3.09	44.8	0.0810	45.5	0.065	166.7
4300	0.644	138.4	3.01	43.5	0.0826	45.1	0.069	162.1
4400	0.648	137.5	2.93	42.4	0.0842	44.8	0.077	159.3
4500	0.654	136.5	2.86	41.1	0.0846	44.4	0.085	155.8
4600	0.657	135.1	2.77	39.9	0.0852	44.1	0.091	151.3
4700	0.659	134.3	2.70	38.8	0.0867	44.2	0.096	149.0
4800	0.661	133.5	2.64	37.8	0.0879	43.9	0.100	147.5
4900	0.666	132.7	2.58	36.6	0.0902	43.1	0.109	147.2
5000	0.673	131.7	2.52	35.3	0.0914	42.0	0.119	145.3
5100	0.678	130.6	2.46	34.0	0.0913	41.4	0.128	142.7

S parameter

(V_{CE} = 3 V, I_C = 5 mA, Zo =50 Ω)

	S11		S21		S12		S22	
f(MHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
100	0.839	-11.0	15.26	171.9	0.0073	81.8	0.982	-5.1
200	0.843	-22.0	14.95	164.0	0.0143	79.8	0.970	-10.6
300	0.847	-32.8	14.51	156.4	0.0215	75.6	0.950	-15.7
400	0.819	-43.5	13.93	149.3	0.0284	71.6	0.922	-20.9
500	0.799	-53.7	13.29	142.6	0.0345	67.0	0.888	-25.7
600	0.771	-63.8	12.64	136.2	0.0406	62.7	0.846	-30.2
700	0.737	-73.2	12.04	130.5	0.0452	58.4	0.803	-34.6
800	0.722	-81.8	11.22	125.1	0.0497	54.5	0.758	-37.7
900	0.695	-90.1	10.55	120.3	0.0528	50.1	0.715	-40.9
1000	0.676	-97.9	9.81	115.8	0.0565	47.1	0.673	-43.2
1100	0.673	-103.8	9.11	111.8	0.0600	44.1	0.636	-45.2
1200	0.638	-112.0	8.78	108.2	0.0614	42.2	0.594	-48.0
1300	0.623	-118.3	8.28	104.7	0.0626	39.4	0.560	-49.8
1400	0.611	-124.3	7.82	101.6	0.0641	37.8	0.529	-51.3
1500	0.601	-129.7	7.39	98.7	0.0654	36.4	0.502	-52.5
1600	0.592	-135.0	7.01	96.0	0.0662	34.8	0.476	-53.8
1700	0.586	-140.0	6.67	93.4	0.0668	33.5	0.451	-54.9
1800	0.580	-145.2	6.39	90.7	0.0672	32.0	0.425	-56.2
1900	0.578	-149.3	6.05	88.2	0.0679	31.7	0.407	-56.3
2000	0.573	-153.2	5.79	86.5	0.0689	30.6	0.391	-57.8
2100	0.572	-158.0	5.55	83.9	0.0687	29.9	0.368	-57.9
2200	0.572	-160.5	5.28	82.6	0.0707	29.0	0.360	-59.2
2300	0.573	-164.5	5.09	80.0	0.0700	28.2	0.339	-59.3
2400	0.575	-167.8	4.89	78.0	0.0703	28.1	0.325	-60.1
2500	0.576	-171.2	4.73	76.0	0.0708	27.6	0.308	-60.9
2600	0.578	-173.8	4.53	74.5	0.0712	27.2	0.299	-61.9
2700	0.580	-177.3	4.39	72.4	0.0703	26.5	0.284	-62.7
2800	0.584	-179.4	4.23	71.0	0.0717	26.6	0.276	-63.8
2900	0.588	177.5	4.09	68.8	0.0714	26.7	0.260	-63.8
3000	0.592	175.0	3.96	66.8	0.0715	26.5	0.248	-64.2
3100	0.597	173.9	3.74	65.8	0.0734	24.8	0.254	-64.9
3200	0.599	170.7	3.70	64.0	0.0730	25.9	0.234	-66.5
3300	0.603	168.6	3.58	62.4	0.0727	26.1	0.224	-67.7
3400	0.607	166.4	3.47	60.7	0.0734	25.7	0.215	-68.8
3500	0.612	164.4	3.37	59.2	0.0734	25.7	0.206	-70.2
3600	0.616	162.5	3.27	57.6	0.0734	25.5	0.197	-71.5
3700	0.620	160.5	3.18	56.0	0.0733	25.4	0.187	-72.9
3800	0.624	158.8	3.09	54.5	0.0736	25.4	0.180	-74.6
3900	0.629	156.9	3.00	53.0	0.0741	25.1	0.171	-75.9
4000	0.631	155.1	2.92	51.4	0.0745	25.3	0.164	-78.1
4100	0.635	153.5	2.84	49.9	0.0740	25.4	0.155	-79.9
4200	0.638	151.9	2.76	48.6	0.0742	25.6	0.149	-82.4
4300	0.641	150.4	2.69	47.2	0.0748	26.0	0.143	-84.3
4400	0.644	149.1	2.63	45.8	0.0756	26.1	0.136	-87.5
4500	0.650	147.6	2.56	44.3	0.0753	26.1	0.130	-90.7
4600	0.653	146.0	2.49	42.9	0.0750	26.1	0.122	-94.2
4700	0.655	144.6	2.43	41.6	0.0753	26.7	0.116	-96.8
4800	0.656	143.5	2.37	40.4	0.0752	27.2	0.113	-99.7
4900	0.660	142.3	2.32	39.0	0.0770	27.2	0.110	-104.8
5000	0.667	141.0	2.28	37.5	0.0781	26.7	0.106	-110.6
5100	0.672	139.7	2.22	36.1	0.0773	26.1	0.102	-116.5

S parameter

(V_{CE} = 3 V, I_C = 10 mA, Zo =50 Ω)

	S11		S21		S12		S22	
f(MHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
100	0.725	-16.7	26.01	168.5	0.0066	79.2	0.962	-7.5
200	0.720	-33.0	25.02	157.7	0.0131	74.8	0.934	-15.5
300	0.708	-48.4	23.57	147.7	0.0192	70.1	0.892	-22.6
400	0.682	-63.0	21.80	138.7	0.0242	65.6	0.838	-29.2
500	0.657	-76.2	19.97	130.8	0.0288	61.7	0.780	-34.9
600	0.631	-88.4	18.23	123.8	0.0328	56.9	0.718	-39.9
700	0.604	-99.2	16.63	118.0	0.0351	54.0	0.662	-44.2
800	0.590	-108.4	15.11	112.7	0.0378	51.1	0.608	-47.2
900	0.573	-117.0	13.83	108.3	0.0402	48.1	0.559	-50.0
1000	0.563	-124.6	12.64	104.3	0.0424	46.2	0.516	-51.8
1100	0.558	-130.5	11.60	100.9	0.0439	44.9	0.478	-53.6
1200	0.544	-137.8	10.86	97.8	0.0453	44.6	0.442	-55.5
1300	0.538	-143.4	10.10	95.0	0.0460	43.3	0.411	-56.8
1400	0.534	-148.6	9.44	92.4	0.0474	42.8	0.384	-57.8
1500	0.531	-153.3	8.84	90.0	0.0485	42.2	0.359	-58.6
1600	0.529	-157.7	8.32	87.8	0.0497	41.4	0.338	-59.5
1700	0.529	-161.7	7.87	85.6	0.0503	41.6	0.317	-60.0
1800	0.530	-165.8	7.46	83.5	0.0518	40.9	0.297	-60.8
1900	0.531	-169.2	7.06	81.5	0.0525	41.4	0.282	-60.8
2000	0.532	-172.4	6.72	79.9	0.0537	40.5	0.268	-61.7
2100	0.535	-175.8	6.41	77.9	0.0546	40.9	0.251	-61.5
2200	0.537	-178.1	6.10	76.5	0.0560	40.4	0.242	-62.5
2300	0.541	178.9	5.85	74.6	0.0568	41.0	0.226	-62.5
2400	0.546	176.4	5.61	73.0	0.0576	40.6	0.215	-63.1
2500	0.549	173.8	5.40	71.3	0.0594	40.7	0.202	-64.0
2600	0.553	171.7	5.18	69.8	0.0596	40.5	0.194	-64.6
2700	0.558	169.2	4.99	68.2	0.0605	40.4	0.182	-65.7
2800	0.562	167.4	4.81	66.8	0.0623	40.7	0.175	-66.6
2900	0.567	165.1	4.65	65.1	0.0627	40.7	0.163	-66.9
3000	0.571	163.3	4.48	63.4	0.0640	40.3	0.154	-67.0
3100	0.576	162.0	4.30	62.3	0.0653	39.7	0.153	-68.2
3200	0.581	159.7	4.19	60.8	0.0657	40.6	0.140	-70.1
3300	0.586	158.2	4.06	59.4	0.0673	40.3	0.131	-71.4
3400	0.591	156.5	3.93	57.9	0.0682	39.8	0.123	-73.2
3500	0.596	154.8	3.81	56.5	0.0686	40.4	0.114	-75.1
3600	0.601	153.3	3.70	55.1	0.0698	40.0	0.107	-77.3
3700	0.605	151.7	3.59	53.7	0.0706	39.9	0.098	-79.3
3800	0.610	150.3	3.49	52.4	0.0715	39.4	0.092	-82.2
3900	0.615	148.8	3.39	51.0	0.0723	39.3	0.084	-85.2
4000	0.618	147.3	3.29	49.6	0.0734	39.2	0.078	-89.2
4100	0.622	146.0	3.20	48.3	0.0739	39.1	0.071	-92.7
4200	0.626	144.8	3.11	47.1	0.0749	39.7	0.066	-97.6
4300	0.629	143.5	3.03	45.7	0.0754	39.4	0.061	-102.2
4400	0.633	142.4	2.96	44.5	0.0769	39.5	0.058	-110.0
4500	0.639	141.2	2.88	43.1	0.0778	39.2	0.055	-119.2
4600	0.642	139.8	2.81	41.8	0.0777	39.1	0.050	-129.0
4700	0.645	138.7	2.73	40.7	0.0790	39.1	0.048	-136.4
4800	0.646	137.7	2.67	39.6	0.0796	39.4	0.049	-143.6
4900	0.650	136.8	2.61	38.3	0.0818	38.9	0.053	-152.3
5000	0.657	135.7	2.55	37.0	0.0830	38.0	0.057	-162.0
5100	0.663	134.6	2.49	35.6	0.0830	37.3	0.062	-172.1

S parameter

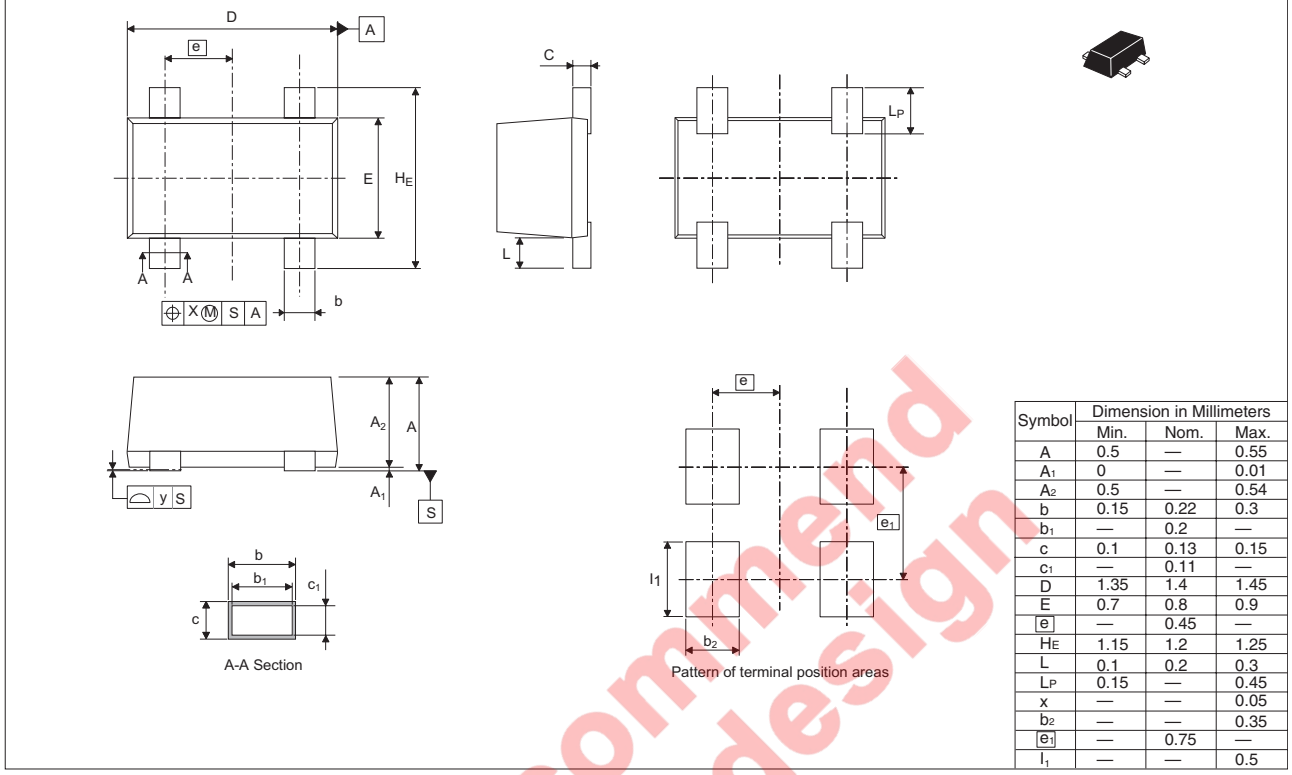
(V_{CE} = 3 V, I_C = 20 mA, Zo =50 Ω)

	S11		S21		S12		S22	
f(MHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
100	0.561	-25.7	39.57	164.2	0.0062	77.3	0.933	-10.4
200	0.555	-49.7	36.60	150.0	0.0114	72.4	0.878	-21.2
300	0.547	-70.6	32.78	137.9	0.0160	66.7	0.804	-30.0
400	0.534	-88.5	28.83	127.8	0.0196	62.0	0.724	-37.3
500	0.524	-103.2	25.24	119.6	0.0227	58.7	0.651	-43.0
600	0.515	-115.6	22.17	113.0	0.0251	56.3	0.582	-47.5
700	0.508	-126.0	19.59	107.7	0.0268	55.1	0.523	-51.1
800	0.504	-134.3	17.46	103.3	0.0288	54.2	0.472	-53.5
900	0.500	-141.8	15.71	99.5	0.0303	52.0	0.428	-55.6
1000	0.500	-148.0	14.21	96.2	0.0327	52.7	0.389	-57.0
1100	0.500	-153.1	12.95	93.4	0.0340	51.6	0.358	-58.4
1200	0.498	-158.6	11.95	90.9	0.0360	52.4	0.328	-59.3
1300	0.500	-163.0	11.06	88.6	0.0368	51.6	0.303	-60.3
1400	0.501	-167.1	10.28	86.4	0.0386	52.0	0.281	-60.9
1500	0.503	-170.7	9.59	84.5	0.0401	52.0	0.261	-61.2
1600	0.506	-174.1	9.00	82.6	0.0415	51.9	0.244	-61.7
1700	0.508	-177.2	8.48	80.8	0.0430	52.6	0.227	-61.9
1800	0.511	179.8	8.00	79.0	0.0450	52.2	0.212	-62.4
1900	0.515	177.1	7.58	77.4	0.0463	52.5	0.199	-62.1
2000	0.519	174.7	7.20	75.9	0.0474	52.0	0.188	-62.7
2100	0.523	172.2	6.85	74.2	0.0491	52.1	0.176	-62.4
2200	0.526	170.2	6.53	72.8	0.0511	51.8	0.167	-63.2
2300	0.532	168.0	6.25	71.3	0.0524	51.6	0.155	-63.1
2400	0.537	166.0	5.98	69.8	0.0540	51.8	0.146	-63.6
2500	0.541	164.1	5.75	68.4	0.0560	51.7	0.135	-64.3
2600	0.546	162.3	5.52	67.0	0.0571	51.1	0.127	-65.1
2700	0.551	160.4	5.31	65.6	0.0573	50.9	0.119	-66.2
2800	0.556	158.9	5.12	64.2	0.0598	51.5	0.111	-67.4
2900	0.561	157.2	4.93	62.8	0.0611	51.1	0.102	-68.1
3000	0.565	155.7	4.76	61.4	0.0631	50.5	0.094	-68.8
3100	0.570	154.5	4.59	60.2	0.0643	50.0	0.090	-70.6
3200	0.576	152.9	4.45	58.9	0.0652	49.8	0.081	-72.7
3300	0.581	151.6	4.31	57.5	0.0664	49.6	0.074	-74.7
3400	0.586	150.2	4.17	56.2	0.0680	49.4	0.065	-78.3
3500	0.592	148.8	4.05	54.9	0.0695	49.4	0.058	-81.8
3600	0.597	147.6	3.93	53.6	0.0709	48.8	0.051	-86.9
3700	0.602	146.3	3.81	52.3	0.0721	48.8	0.045	-92.9
3800	0.606	145.0	3.70	51.0	0.0730	48.3	0.040	-99.3
3900	0.612	143.8	3.59	49.7	0.0741	47.7	0.033	-110.1
4000	0.615	142.5	3.49	48.4	0.0753	47.2	0.031	-121.2
4100	0.619	141.4	3.39	47.2	0.0762	46.9	0.028	-137.0
4200	0.622	140.2	3.29	46.0	0.0780	47.2	0.029	-151.8
4300	0.625	139.2	3.21	44.8	0.0790	47.0	0.029	-162.8
4400	0.629	138.3	3.13	43.7	0.0810	46.8	0.035	-175.0
4500	0.636	137.2	3.05	42.3	0.0814	46.4	0.041	174.5
4600	0.639	135.9	2.97	41.1	0.0819	45.9	0.046	165.2
4700	0.642	135.0	2.89	40.1	0.0834	45.9	0.050	160.1
4800	0.643	134.1	2.82	39.1	0.0844	46.0	0.054	156.5
4900	0.648	133.4	2.76	37.8	0.0868	45.2	0.063	155.2
5000	0.655	132.5	2.70	36.6	0.0880	44.1	0.072	153.1
5100	0.661	131.4	2.63	35.3	0.0883	43.4	0.081	148.8

Package Dimensions

MFPAK-4

EIAJ Package Code	JEDEC Code	Mass (g) (reference value)	Lead Material
—	—	0.0016	Cu Alloy



Symbol	Dimension in Millimeters		
	Min.	Nom.	Max.
A	0.5	—	0.55
A_1	0	—	0.01
A_2	0.5	—	0.54
b	0.15	0.22	0.3
b_1	—	0.2	—
c	0.1	0.13	0.15
c_1	—	0.11	—
D	1.35	1.4	1.45
E	0.7	0.8	0.9
e	—	0.45	—
H_E	1.15	1.2	1.25
L	0.1	0.2	0.3
L_P	0.15	—	0.45
x	—	—	0.05
b_2	—	—	0.35
e_1	—	0.75	—
l_1	—	—	0.5

Ordering Information

Part Name	Quantity	Shipping Container
2SC5975	10,000	TL Taping

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

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Colophon .1.0