

DATA SHEET

NEC

NPN SILICON RF TWIN TRANSISTOR μ PA892TD

NPN SILICON RF TRANSISTOR (WITH 2 ELEMENTS) IN A 6-PIN LEAD-LESS MINIMOLD

FEATURES

- Ideal for low noise · high-gain amplification and oscillation at 3 GHz or over
NF = 1.1 dB TYP. @ $V_{CE} = 2$ V, $I_C = 5$ mA, $f = 2$ GHz
- Maximum available power gain: MAG = 12.5 dB TYP. @ $V_{CE} = 2$ V, $I_C = 20$ mA, $f = 2$ GHz
- High f_T : $f_T = 21.0$ GHz TYP. @ $V_{CE} = 2$ V, $I_C = 20$ mA, $f = 2$ GHz
- 6-pin lead-less minimold package
- Built-in 2 transistors ($2 \times 2SC5668$)

BUILT-IN TRANSISTORS

	Q1, Q2
3-pin thin-type ultra super minimold part No.	2SC5668

ORDERING INFORMATION

Part Number	Quantity	Supplying Form
μ PA892TD	50 pcs (Non reel)	• 8 mm wide embossed taping • Pin 1 (Q1 Collector), Pin 6 (Q1 Base) face the perforation side of the tape
μ PA892TD-T3	10 kpcs/reel	

Remark To order evaluation samples, consult your NEC sales representative.
Unit sample quantity is 50 pcs.

Because this product uses high-frequency technology, avoid excessive static electricity, etc.

The information in this document is subject to change without notice. Before using this document, please confirm that this is the latest version.
Not all devices/types available in every country. Please check with local NEC representative for availability and additional information.

ABSOLUTE MAXIMUM RATINGS (T_A = +25°C)

Parameter	Symbol	Ratings	Unit
Collector to Base Voltage	V _{CBO}	15	V
Collector to Emitter Voltage	V _{CEO}	3.3	V
Emitter to Base Voltage	V _{EBO}	1.5	V
Collector Current	I _C	35	mA
Total Power Dissipation	P _{tot} ^{Note}	115 in 1 element 210 in 2 elements	mW
Junction Temperature	T _J	150	°C
Storage Temperature	T _{stg}	−65 to +150	°C

Note Mounted on 1.08 cm² × 1.0 mm (t) glass epoxy substrate

ELECTRICAL CHARACTERISTICS (T_A = +25°C)

Parameter	Symbol	Test Conditions	MIN.	TYP.	MAX.	Unit
Collector Cut-off Current	I _{CBO}	V _{CB} = 5 V, I _E = 0 mA	–	–	100	nA
Emitter Cut-off Current	I _{EBO}	V _{BE} = 1 V, I _C = 0 mA	–	–	100	nA
DC Current Gain	h _{FE} ^{Note 1}	V _{CE} = 2 V, I _C = 5 mA	50	70	100	–
Gain Bandwidth Product	f _T	V _{CE} = 2 V, I _C = 20 mA, f = 2 GHz	18.0	21.0	–	GHz
Insertion Power Gain (1)	S _{21e} ²	V _{CE} = 1 V, I _C = 10 mA, f = 2 GHz	9.0	11.0	–	dB
Insertion Power Gain (2)	S _{21e} ²	V _{CE} = 2 V, I _C = 20 mA, f = 2 GHz	9.5	11.5	–	dB
Noise Figure	NF	V _{CE} = 2 V, I _C = 5 mA, f = 2 GHz, Z _S = Z _{opt}	–	1.1	1.5	dB
Reverse Transfer Capacitance	C _{re} ^{Note 2}	V _{CB} = 2 V, I _E = 0 mA, f = 1 MHz	–	0.24	0.3	pF
Maximum Available Power Gain	MAG ^{Note 3}	V _{CE} = 2 V, I _C = 20 mA, f = 2 GHz	–	12.5	–	dB
Maximum Stable Power Gain	MSG ^{Note 4}	V _{CE} = 2 V, I _C = 20 mA, f = 2 GHz	–	13.5	–	dB

Notes 1. Pulse measurement: PW ≤ 350 μs, Duty Cycle ≤ 2%

2. Collector to base capacitance measured using capacitance meter (self-balancing bridge method) when the emitter is connected to the guard pin

$$3. \text{ MAG} = \left| \frac{S_{21}}{S_{12}} \right| (k - \sqrt{k^2 - 1})$$

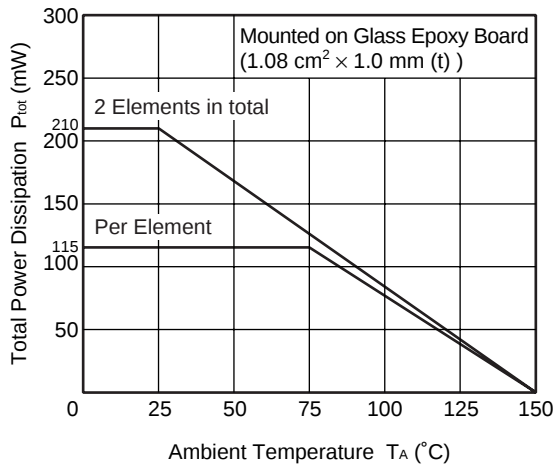
$$4. \text{ MSG} = \left| \frac{S_{21}}{S_{12}} \right|$$

h_{FE} CLASSIFICATION

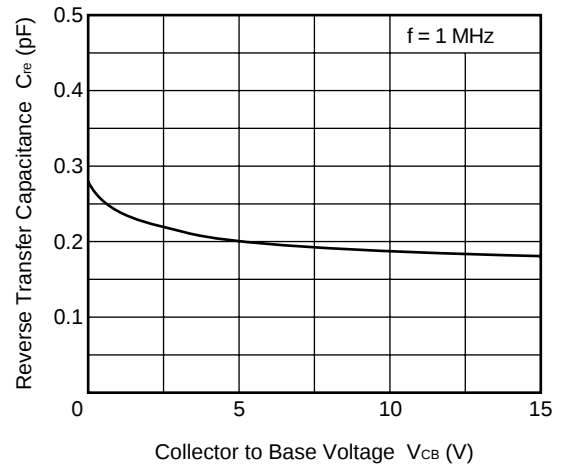
Rank	FB
Marking	kN
h _{FE} Value	50 to 100

TYPICAL CHARACTERISTICS (Unless otherwise specified, $T_A = +25^\circ\text{C}$)

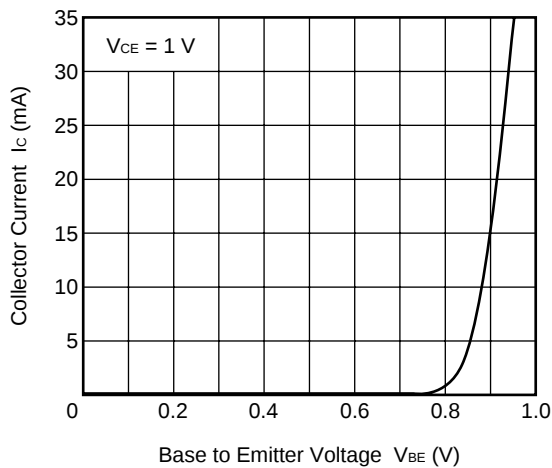
**TOTAL POWER DISSIPATION
vs. AMBIENT TEMPERATURE**



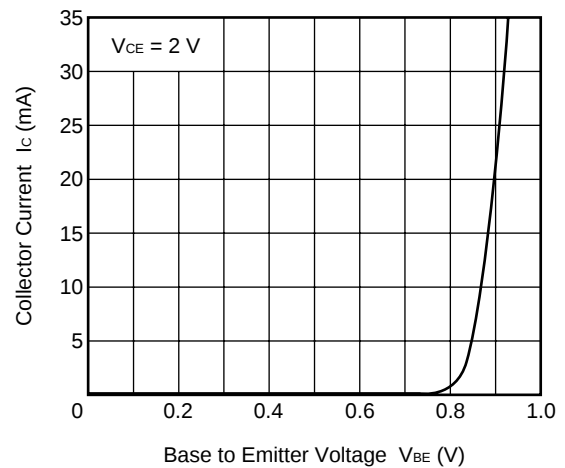
**REVERSE TRANSFER CAPACITANCE
vs. COLLECTOR TO BASE VOLTAGE**



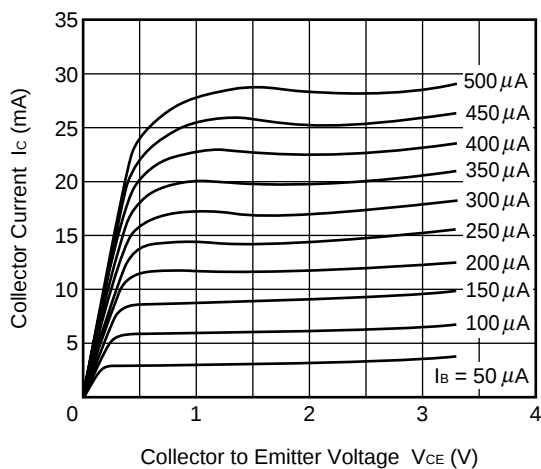
**COLLECTOR CURRENT vs.
BASE TO EMITTER VOLTAGE**

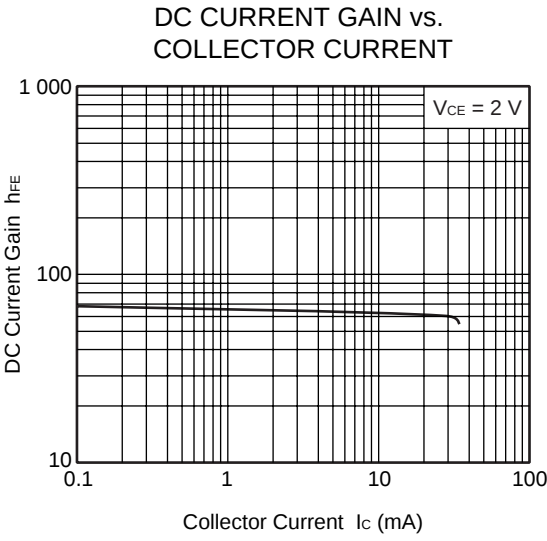
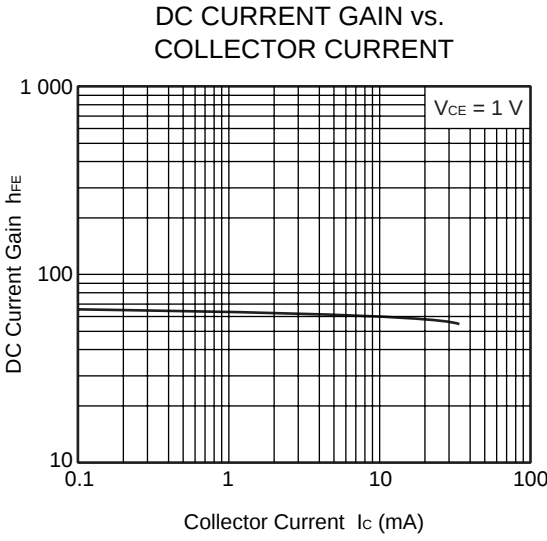


**COLLECTOR CURRENT vs.
BASE TO EMITTER VOLTAGE**

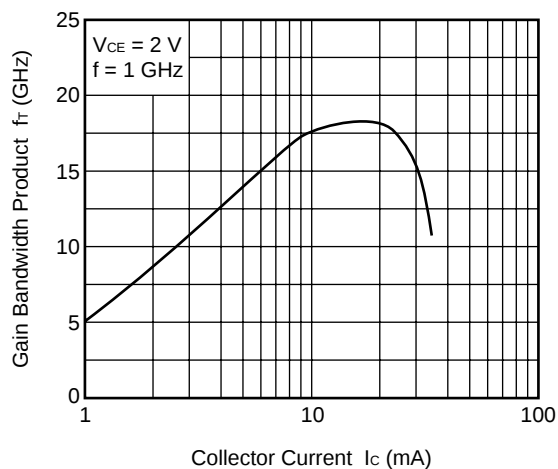


**COLLECTOR CURRENT vs.
COLLECTOR TO EMITTER VOLTAGE**

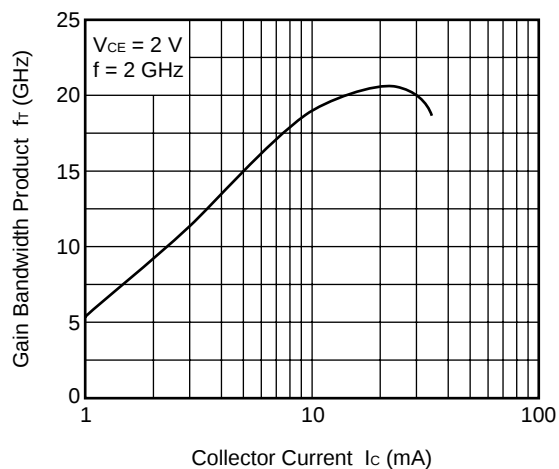




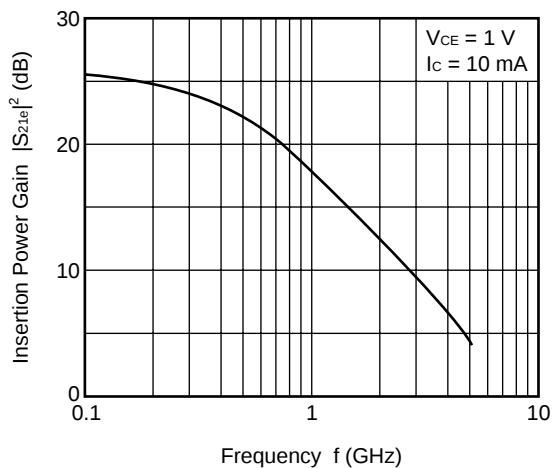
GAIN BANDWIDTH PRODUCT
vs. COLLECTOR CURRENT



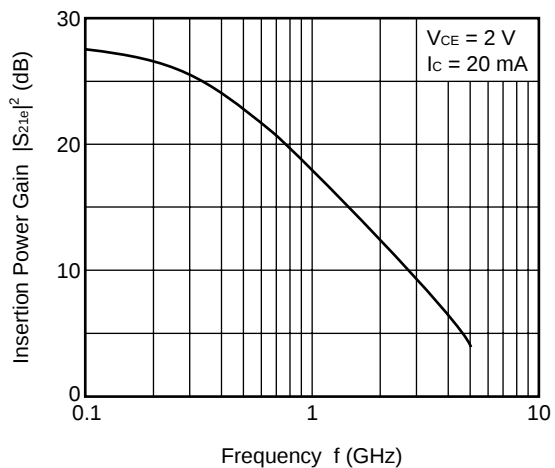
GAIN BANDWIDTH PRODUCT
vs. COLLECTOR CURRENT



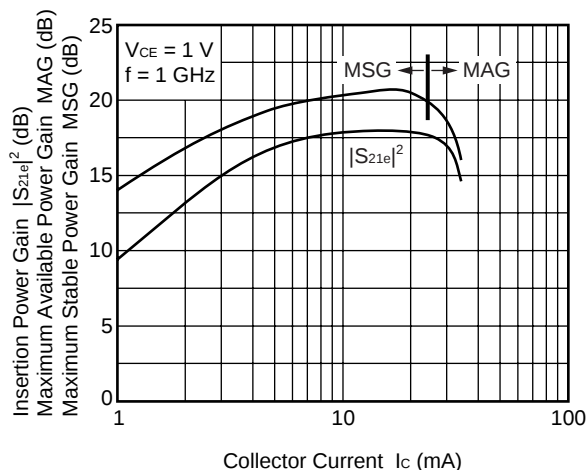
INSERTION POWER GAIN vs. FREQUENCY



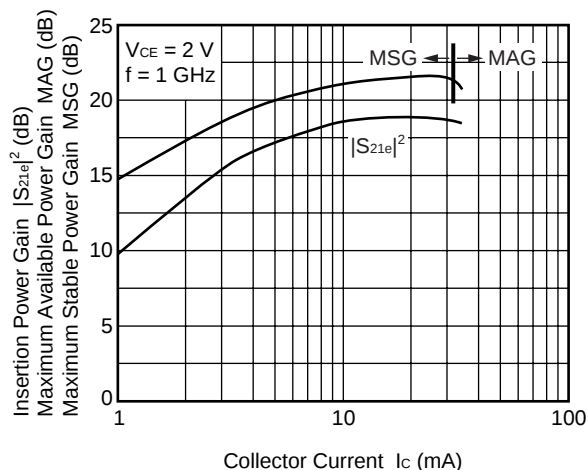
INSERTION POWER GAIN vs. FREQUENCY



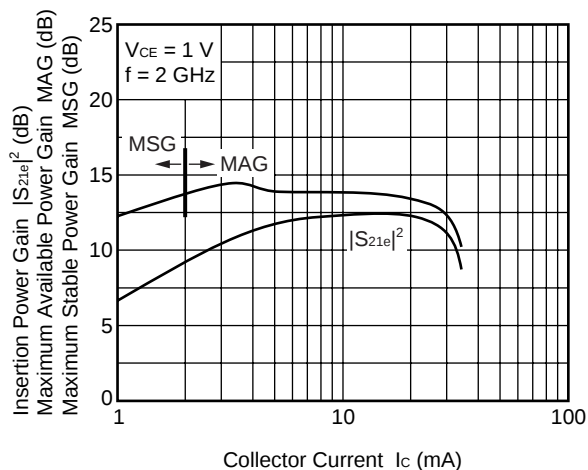
INSERTION POWER GAIN, MAG, MSG
vs. COLLECTOR CURRENT



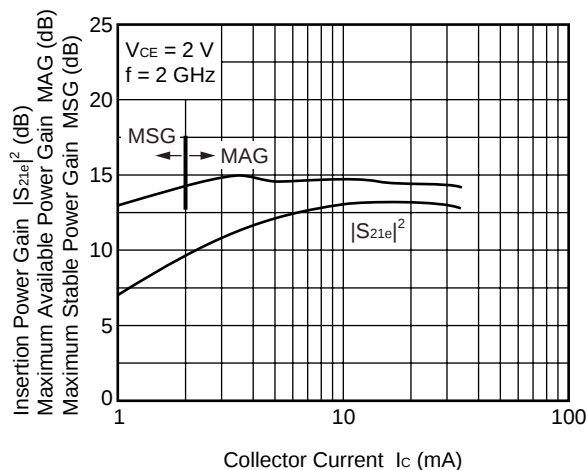
INSERTION POWER GAIN, MAG, MSG
vs. COLLECTOR CURRENT



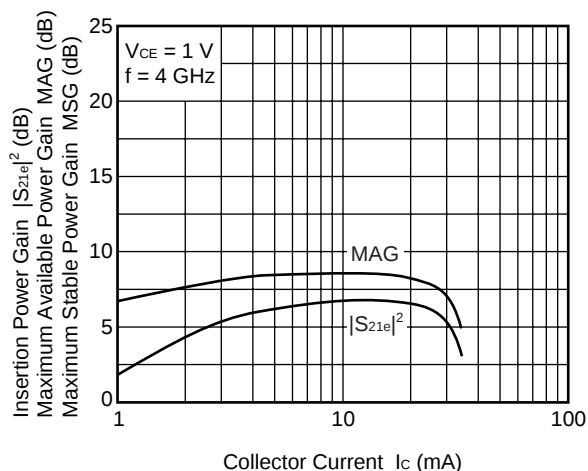
INSERTION POWER GAIN, MAG, MSG
vs. COLLECTOR CURRENT



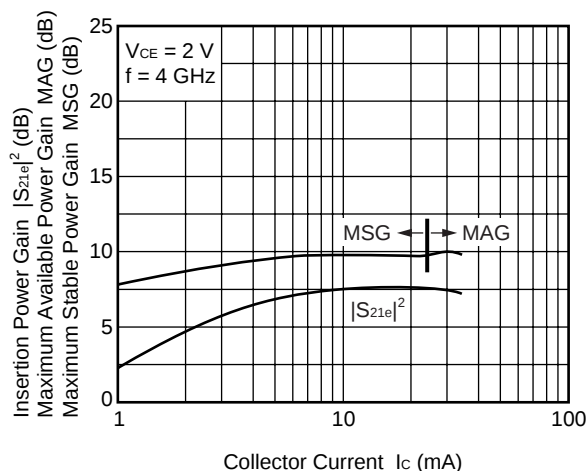
INSERTION POWER GAIN, MAG, MSG
vs. COLLECTOR CURRENT



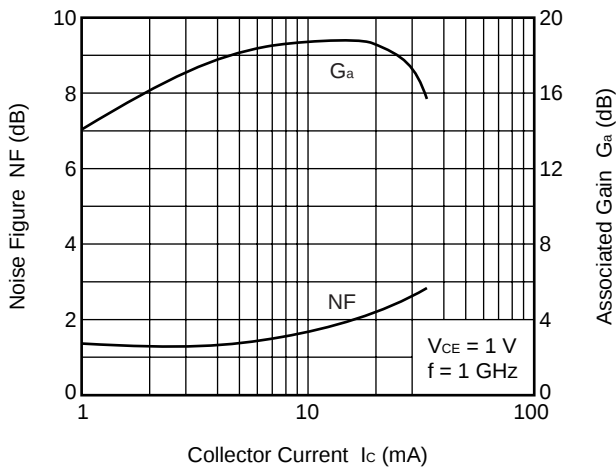
INSERTION POWER GAIN, MAG, MSG
vs. COLLECTOR CURRENT



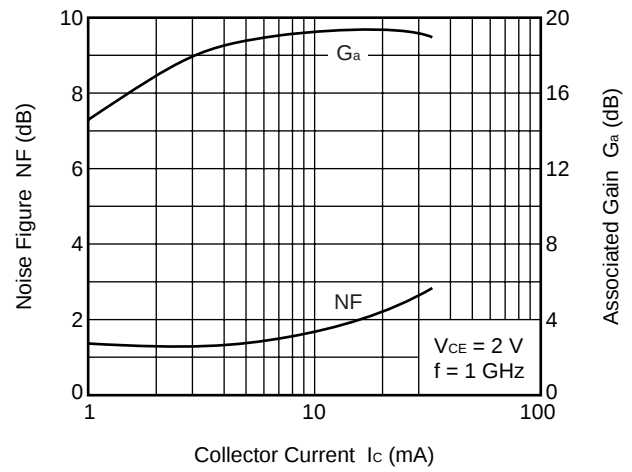
INSERTION POWER GAIN, MAG, MSG
vs. COLLECTOR CURRENT



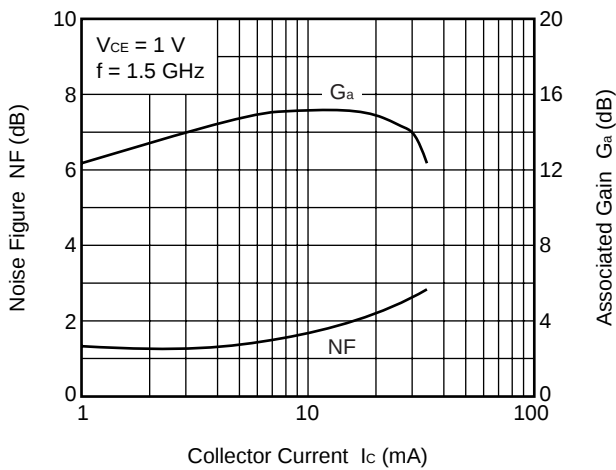
NOISE FIGURE, ASSOCIATED GAIN
vs. COLLECTOR CURRENT



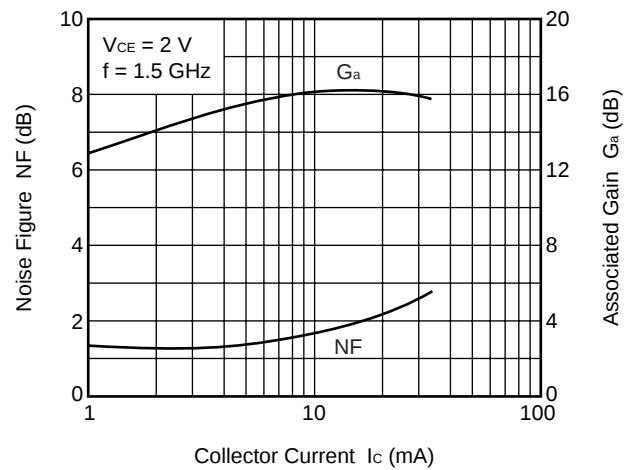
NOISE FIGURE, ASSOCIATED GAIN
vs. COLLECTOR CURRENT



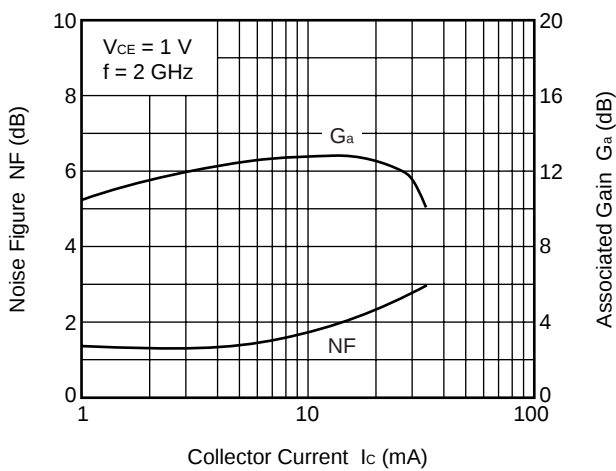
NOISE FIGURE, ASSOCIATED GAIN
vs. COLLECTOR CURRENT



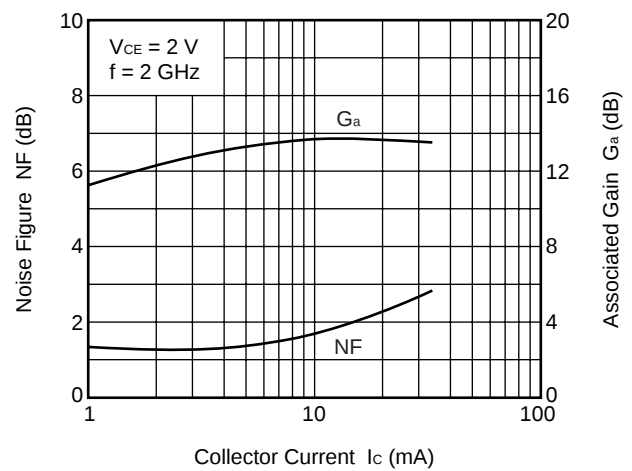
NOISE FIGURE, ASSOCIATED GAIN
vs. COLLECTOR CURRENT



NOISE FIGURE, ASSOCIATED GAIN
vs. COLLECTOR CURRENT



NOISE FIGURE, ASSOCIATED GAIN
vs. COLLECTOR CURRENT



Remark The graphs indicate nominal characteristics.

S-PARAMETERS

Note When $K \geq 1$, the MAG (Maximum Available Gain) is used. $MAG = \left| \frac{S_{21}}{S_{12}} \right| (K - \sqrt{K^2 - 1})$

When $K < 1$, the MSG (Maximum Stable Gain) is used. $MSG = \left| \frac{S_{21}}{S_{12}} \right|$

$V_{CE} = 1 \text{ V}$, $I_C = 1 \text{ mA}$, $Z_O = 50 \Omega$

Frequency (GHz)	S ₁₁		S ₂₁		S ₁₂		S ₂₂		K	MAG/MSG (dB)	Note
	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)			
0.1	0.953	-5.4	3.383	174.6	0.015	82.4	1.001	-3.5	0.090	23.64	
0.2	0.941	-10.7	3.363	170.1	0.029	82.2	0.991	-7.7	0.047	20.70	
0.3	0.933	-16.5	3.345	164.0	0.043	77.3	0.984	-11.7	0.094	18.93	
0.4	0.916	-22.3	3.315	157.8	0.057	73.2	0.969	-15.8	0.133	17.67	
0.5	0.901	-27.5	3.304	152.8	0.070	69.1	0.956	-20.1	0.158	16.74	
0.6	0.879	-33.9	3.262	146.7	0.082	65.0	0.932	-24.4	0.189	16.02	
0.7	0.853	-39.4	3.204	141.4	0.093	60.8	0.910	-28.7	0.224	15.39	
0.8	0.824	-45.3	3.134	135.9	0.102	56.8	0.883	-33.2	0.256	14.87	
0.9	0.794	-51.2	3.062	130.4	0.111	53.0	0.860	-37.4	0.288	14.42	
1.0	0.761	-56.8	2.991	125.2	0.117	49.2	0.831	-41.7	0.329	14.07	
1.1	0.731	-62.7	2.916	120.1	0.123	45.6	0.808	-45.9	0.361	13.75	
1.2	0.702	-68.5	2.817	115.2	0.127	42.3	0.783	-49.7	0.399	13.47	
1.3	0.674	-74.4	2.735	110.6	0.130	39.1	0.762	-53.6	0.429	13.22	
1.4	0.651	-80.1	2.638	106.0	0.133	36.5	0.741	-57.2	0.465	12.99	
1.5	0.628	-85.6	2.552	101.7	0.133	34.0	0.725	-60.5	0.499	12.82	
1.6	0.609	-91.0	2.469	97.5	0.134	31.6	0.705	-63.8	0.540	12.66	
1.7	0.591	-96.4	2.373	93.7	0.133	29.6	0.693	-66.7	0.578	12.51	
1.8	0.576	-101.4	2.282	89.9	0.131	28.0	0.676	-69.4	0.630	12.39	
1.9	0.560	-106.4	2.205	86.6	0.130	26.6	0.668	-71.9	0.671	12.30	
2.0	0.551	-111.0	2.128	82.8	0.127	25.8	0.652	-74.2	0.731	12.24	
2.1	0.541	-115.6	2.066	79.9	0.124	25.5	0.645	-76.6	0.770	12.20	
2.2	0.529	-120.1	1.989	76.7	0.121	25.3	0.632	-78.9	0.844	12.15	
2.3	0.521	-124.6	1.927	73.8	0.118	25.7	0.628	-81.1	0.895	12.13	
2.4	0.517	-128.6	1.871	70.6	0.115	26.2	0.617	-83.3	0.966	12.12	
2.5	0.510	-133.1	1.821	67.8	0.111	27.5	0.612	-85.6	1.025	11.17	
2.6	0.507	-137.1	1.761	65.3	0.108	28.7	0.604	-88.0	1.108	10.13	
2.7	0.504	-140.9	1.712	62.6	0.105	30.7	0.599	-90.5	1.173	9.60	
2.8	0.500	-144.7	1.657	60.1	0.103	32.9	0.594	-92.6	1.251	9.05	
2.9	0.497	-148.1	1.609	56.8	0.102	35.3	0.585	-95.1	1.325	8.56	
3.0	0.492	-152.5	1.567	54.2	0.101	38.7	0.577	-98.2	1.400	8.13	
4.0	0.505	167.7	1.242	30.0	0.163	64.8	0.593	-127.0	1.118	6.74	
5.0	0.536	124.0	0.896	9.2	0.293	51.7	0.660	-155.1	0.910	4.85	

V_{CE} = 1 V, I_C = 3 mA, Z_O = 50 Ω

Frequency (GHz)	S ₁₁		S ₂₁		S ₁₂		S ₂₂		K	MAG/MSG (dB)
	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)		
0.1	0.857	-9.2	8.768	172.2	0.013	79.0	0.989	-5.9	0.138	28.41
0.2	0.838	-17.5	8.546	164.3	0.027	79.0	0.966	-12.4	0.113	24.96
0.3	0.802	-26.4	8.303	156.0	0.040	73.5	0.937	-18.4	0.175	23.22
0.4	0.761	-34.7	7.969	147.8	0.051	68.7	0.897	-24.5	0.236	21.92
0.5	0.727	-42.5	7.672	141.1	0.061	64.3	0.858	-30.1	0.280	21.01
0.6	0.678	-50.7	7.286	133.8	0.069	60.3	0.807	-35.5	0.341	20.21
0.7	0.629	-57.9	6.893	127.8	0.076	56.7	0.762	-40.4	0.398	19.55
0.8	0.583	-65.4	6.487	121.9	0.082	53.8	0.715	-45.0	0.453	18.99
0.9	0.542	-72.4	6.110	116.3	0.087	51.3	0.675	-49.4	0.506	18.47
1.0	0.501	-79.3	5.766	111.4	0.090	49.4	0.635	-53.5	0.562	18.07
1.1	0.467	-86.2	5.442	106.8	0.093	47.6	0.604	-57.4	0.611	17.66
1.2	0.437	-92.9	5.110	102.4	0.096	46.3	0.572	-60.7	0.667	17.28
1.3	0.413	-99.7	4.838	98.6	0.098	45.5	0.548	-64.1	0.710	16.95
1.4	0.394	-106.1	4.565	94.8	0.100	44.8	0.526	-67.3	0.757	16.61
1.5	0.377	-111.9	4.330	91.3	0.101	44.5	0.509	-70.0	0.803	16.32
1.6	0.363	-117.9	4.124	88.0	0.103	44.1	0.492	-72.8	0.847	16.04
1.7	0.353	-123.3	3.911	85.0	0.104	44.4	0.480	-75.1	0.887	15.75
1.8	0.344	-128.7	3.717	81.9	0.105	44.8	0.466	-77.2	0.934	15.48
1.9	0.339	-133.6	3.551	79.3	0.107	45.1	0.459	-79.2	0.965	15.21
2.0	0.335	-137.9	3.392	76.3	0.109	46.0	0.446	-80.9	1.007	14.42
2.1	0.331	-142.3	3.271	74.1	0.110	47.1	0.441	-82.7	1.033	13.61
2.2	0.328	-146.4	3.130	71.7	0.113	47.8	0.430	-84.4	1.070	12.83
2.3	0.327	-150.7	3.012	69.4	0.115	48.8	0.427	-86.1	1.090	12.36
2.4	0.326	-153.8	2.907	66.9	0.117	49.8	0.418	-87.7	1.116	11.87
2.5	0.326	-158.0	2.810	64.7	0.120	50.8	0.414	-89.5	1.132	11.49
2.6	0.328	-161.1	2.713	62.8	0.122	51.7	0.407	-91.5	1.156	11.07
2.7	0.329	-164.5	2.624	60.5	0.125	52.7	0.404	-93.6	1.167	10.73
2.8	0.329	-168.0	2.529	58.6	0.129	53.4	0.400	-95.4	1.185	10.32
2.9	0.328	-170.9	2.449	56.0	0.134	53.8	0.395	-97.9	1.190	9.98
3.0	0.330	-174.6	2.381	53.7	0.139	54.9	0.390	-100.4	1.192	9.70
4.0	0.377	-151.8	1.849	32.8	0.204	58.2	0.427	-127.8	1.055	8.14
5.0	0.443	117.2	1.375	12.7	0.296	45.6	0.522	-153.3	0.940	6.67

V_{CE} = 1 V, I_C = 5 mA, Z_O = 50 Ω

Frequency (GHz)	S ₁₁		S ₂₁		S ₁₂		S ₂₂		K	MAG/MSG (dB)
	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)		
0.1	0.774	-11.0	12.726	169.9	0.013	81.9	0.975	-7.8	0.132	29.94
0.2	0.749	-22.4	12.171	160.1	0.025	77.4	0.940	-15.9	0.166	26.81
0.3	0.702	-33.3	11.561	150.2	0.037	71.7	0.893	-23.1	0.244	24.93
0.4	0.648	-43.3	10.804	141.2	0.047	66.8	0.836	-29.9	0.322	23.64
0.5	0.602	-52.2	10.143	133.7	0.055	62.9	0.780	-35.9	0.384	22.66
0.6	0.545	-61.2	9.378	126.3	0.062	59.8	0.717	-41.3	0.459	21.82
0.7	0.498	-69.5	8.672	120.2	0.067	57.1	0.665	-46.1	0.522	21.11
0.8	0.450	-77.5	8.011	114.7	0.072	55.3	0.611	-50.7	0.592	20.48
0.9	0.410	-85.3	7.390	109.4	0.076	53.8	0.572	-54.5	0.652	19.88
1.0	0.378	-92.8	6.878	104.9	0.079	53.0	0.532	-58.4	0.710	19.38
1.1	0.348	-100.5	6.419	100.8	0.083	52.1	0.502	-62.0	0.760	18.91
1.2	0.325	-108.0	5.966	96.9	0.085	51.8	0.473	-65.0	0.815	18.44
1.3	0.310	-115.1	5.603	93.5	0.089	51.8	0.453	-68.3	0.852	18.01
1.4	0.296	-122.4	5.256	90.1	0.092	51.9	0.434	-71.1	0.893	17.59
1.5	0.287	-128.4	4.952	87.1	0.094	52.1	0.420	-73.6	0.929	17.21
1.6	0.280	-134.7	4.689	84.2	0.097	52.3	0.404	-76.1	0.963	16.83
1.7	0.281	-140.3	4.433	81.4	0.100	52.8	0.397	-78.2	0.984	16.45
1.8	0.276	-145.1	4.202	78.8	0.103	53.3	0.385	-80.3	1.018	15.27
1.9	0.273	-149.9	4.009	76.5	0.106	53.7	0.380	-81.9	1.038	14.56
2.0	0.273	-153.9	3.820	74.0	0.110	54.3	0.369	-83.6	1.062	13.89
2.1	0.274	-157.8	3.671	71.9	0.114	55.0	0.365	-85.3	1.071	13.46
2.2	0.272	-161.7	3.512	69.7	0.117	55.6	0.356	-86.9	1.095	12.89
2.3	0.278	-165.6	3.376	67.8	0.121	56.1	0.354	-88.5	1.099	12.54
2.4	0.279	-168.6	3.257	65.5	0.125	56.5	0.346	-89.8	1.109	12.15
2.5	0.278	-171.9	3.144	63.4	0.129	57.0	0.343	-91.7	1.116	11.78
2.6	0.282	-174.6	3.029	61.8	0.133	57.3	0.338	-93.4	1.127	11.40
2.7	0.286	-177.5	2.928	59.7	0.138	57.7	0.334	-95.5	1.131	11.08
2.8	0.288	179.4	2.818	58.0	0.142	57.8	0.331	-97.2	1.141	10.70
2.9	0.287	176.8	2.723	55.6	0.148	57.5	0.328	-99.8	1.142	10.36
3.0	0.292	173.4	2.647	53.5	0.154	57.9	0.325	-102.3	1.138	10.11
4.0	0.350	143.1	2.041	34.1	0.219	56.7	0.371	-130.1	1.042	8.44
5.0	0.419	113.0	1.536	15.4	0.300	43.3	0.470	-154.8	0.963	7.09

V_{CE} = 1 V, I_C = 7 mA, Z_O = 50 Ω

Frequency (GHz)	S ₁₁		S ₂₁		S ₁₂		S ₂₂		K	MAG/MSG (dB)
	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)		
0.1	0.727	-13.3	15.582	168.3	0.013	78.0	0.965	-9.1	0.197	30.95
0.2	0.684	-26.3	14.748	157.0	0.025	75.3	0.918	-18.3	0.222	27.75
0.3	0.630	-38.5	13.750	146.3	0.035	70.5	0.859	-26.3	0.297	25.92
0.4	0.566	-49.2	12.586	136.7	0.044	65.7	0.788	-33.4	0.394	24.55
0.5	0.520	-59.0	11.588	129.0	0.051	62.8	0.721	-39.4	0.462	23.54
0.6	0.461	-68.9	10.535	121.7	0.057	60.4	0.655	-44.8	0.543	22.65
0.7	0.416	-77.7	9.605	115.7	0.062	58.2	0.600	-49.3	0.613	21.88
0.8	0.372	-86.0	8.778	110.5	0.067	57.3	0.548	-53.6	0.684	21.19
0.9	0.337	-94.6	8.033	105.5	0.071	56.4	0.509	-57.3	0.743	20.55
1.0	0.311	-102.8	7.425	101.4	0.074	56.3	0.473	-60.9	0.797	20.00
1.1	0.288	-111.0	6.886	97.6	0.078	55.9	0.445	-64.3	0.843	19.45
1.2	0.272	-119.2	6.374	93.9	0.082	55.7	0.420	-67.3	0.888	18.92
1.3	0.262	-126.8	5.958	90.8	0.085	55.9	0.402	-70.4	0.922	18.45
1.4	0.256	-134.1	5.578	87.7	0.089	56.2	0.385	-73.0	0.953	17.97
1.5	0.252	-140.6	5.245	84.9	0.092	56.6	0.373	-75.6	0.980	17.54
1.6	0.248	-146.7	4.953	82.1	0.097	56.8	0.360	-78.0	1.004	16.70
1.7	0.250	-151.8	4.667	79.7	0.100	57.2	0.353	-80.1	1.024	15.73
1.8	0.247	-156.2	4.424	77.2	0.104	57.7	0.343	-82.1	1.049	14.94
1.9	0.249	-160.2	4.211	75.0	0.108	57.8	0.339	-83.7	1.059	14.42
2.0	0.253	-164.9	4.011	72.6	0.112	58.4	0.329	-85.3	1.075	13.86
2.1	0.252	-168.0	3.851	70.8	0.116	58.7	0.326	-87.0	1.082	13.44
2.2	0.255	-171.1	3.686	68.8	0.121	58.9	0.318	-88.5	1.093	12.98
2.3	0.259	-174.5	3.542	66.9	0.126	59.2	0.317	-90.0	1.095	12.62
2.4	0.259	-178.3	3.415	64.6	0.130	59.3	0.310	-91.4	1.104	12.23
2.5	0.264	-179.4	3.294	62.8	0.135	59.6	0.307	-93.1	1.104	11.91
2.6	0.269	-176.9	3.173	61.1	0.139	59.6	0.302	-94.9	1.110	11.55
2.7	0.272	-174.8	3.065	59.3	0.144	59.7	0.299	-97.0	1.114	11.22
2.8	0.274	-171.4	2.956	57.7	0.149	59.5	0.297	-98.8	1.120	10.87
2.9	0.274	-169.3	2.850	55.3	0.155	58.9	0.294	-101.4	1.120	10.53
3.0	0.279	-166.3	2.769	53.4	0.161	59.2	0.292	-103.8	1.116	10.28
4.0	0.342	-138.7	2.125	34.7	0.227	56.0	0.343	-132.0	1.037	8.54
5.0	0.412	-110.6	1.607	16.8	0.304	42.2	0.445	-156.3	0.973	7.24

V_{CE} = 1 V, I_C = 10 mA, Z_O = 50 Ω

Frequency (GHz)	S ₁₁		S ₂₁		S ₁₂		S ₂₂		K	MAG/MSG (dB)
	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)		
0.1	0.646	-16.0	18.824	166.4	0.012	76.8	0.951	-10.6	0.239	32.05
0.2	0.606	-30.7	17.451	153.6	0.024	75.2	0.889	-21.0	0.270	28.59
0.3	0.544	-44.8	15.874	142.0	0.034	69.3	0.814	-29.7	0.369	26.73
0.4	0.478	-56.4	14.222	132.1	0.041	65.7	0.733	-36.9	0.471	25.40
0.5	0.431	-67.2	12.822	124.3	0.048	62.9	0.660	-42.8	0.551	24.30
0.6	0.377	-77.6	11.486	117.2	0.053	61.8	0.591	-47.9	0.635	23.34
0.7	0.337	-87.0	10.362	111.6	0.058	60.3	0.537	-52.3	0.706	22.52
0.8	0.302	-96.6	9.372	106.6	0.063	59.9	0.487	-56.1	0.773	21.76
0.9	0.276	-106.0	8.524	102.0	0.067	59.4	0.451	-59.9	0.826	21.05
1.0	0.255	-115.1	7.812	98.2	0.071	59.7	0.417	-63.2	0.876	20.41
1.1	0.242	-123.9	7.220	94.6	0.075	59.6	0.393	-66.3	0.912	19.81
1.2	0.231	-132.7	6.654	91.4	0.079	59.8	0.371	-69.3	0.952	19.23
1.3	0.231	-140.9	6.207	88.4	0.084	60.0	0.355	-72.3	0.974	18.70
1.4	0.227	-147.4	5.809	85.6	0.088	60.2	0.341	-75.1	0.999	18.20
1.5	0.230	-153.4	5.436	82.9	0.092	60.6	0.331	-77.4	1.018	16.89
1.6	0.232	-159.0	5.132	80.4	0.097	60.7	0.320	-80.0	1.035	16.12
1.7	0.235	-163.8	4.838	78.1	0.101	60.8	0.315	-81.9	1.047	15.47
1.8	0.235	-168.1	4.581	75.7	0.106	61.1	0.306	-84.0	1.065	14.82
1.9	0.238	-171.7	4.355	73.7	0.110	61.2	0.303	-85.5	1.071	14.34
2.0	0.243	-175.6	4.149	71.4	0.115	61.3	0.294	-87.2	1.082	13.83
2.1	0.246	-178.7	3.807	67.7	0.125	61.4	0.286	-90.3	1.093	12.99
2.2	0.252	-176.2	3.656	66.0	0.130	61.7	0.285	-91.8	1.091	12.65
2.3	0.254	-173.3	3.520	63.9	0.135	61.5	0.279	-93.2	1.096	12.28
2.4	0.257	-170.8	3.396	62.0	0.140	61.5	0.277	-95.0	1.095	11.96
2.5	0.265	-168.6	3.275	60.5	0.145	61.4	0.272	-96.7	1.099	11.63
2.6	0.267	-166.7	3.161	58.7	0.150	61.2	0.270	-98.9	1.101	11.30
2.7	0.269	-164.2	3.042	57.2	0.155	60.8	0.267	-100.7	1.106	10.94
2.8	0.272	-162.1	2.930	54.9	0.162	60.0	0.266	-103.5	1.104	10.61
2.9	0.276	-159.4	2.850	53.1	0.168	59.9	0.264	-105.9	1.099	10.37
3.0	0.342	-134.3	2.180	35.1	0.234	55.3	0.321	-134.4	1.034	8.57
4.0	0.412	-108.3	1.649	17.7	0.306	41.2	0.424	-158.3	0.984	7.32
5.0										

V_{CE} = 1 V, I_C = 20 mA, Z₀ = 50 Ω

Frequency (GHz)	S ₁₁		S ₂₁		S ₁₂		S ₂₂		K	MAG/MSG (dB)
	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)		
0.1	0.506	-23.6	23.959	162.4	0.012	74.9	0.905	-13.8	0.342	33.06
0.2	0.450	-42.2	21.326	146.8	0.023	72.7	0.815	-26.3	0.405	29.75
0.3	0.385	-60.6	18.512	134.2	0.030	68.3	0.716	-35.7	0.518	27.87
0.4	0.336	-75.8	15.934	124.0	0.037	65.8	0.622	-43.0	0.624	26.32
0.5	0.301	-89.1	13.930	116.5	0.043	64.8	0.547	-48.4	0.708	25.10
0.6	0.266	-102.2	12.194	109.9	0.049	64.4	0.481	-52.9	0.789	24.00
0.7	0.245	-114.0	10.795	104.9	0.054	64.1	0.432	-56.6	0.850	23.03
0.8	0.229	-125.1	9.658	100.4	0.058	64.2	0.389	-60.2	0.907	22.18
0.9	0.222	-135.3	8.698	96.5	0.064	64.4	0.358	-63.5	0.946	21.36
1.0	0.218	-145.3	7.928	93.0	0.068	64.8	0.331	-66.8	0.983	20.65
1.1	0.218	-153.8	7.277	89.9	0.073	64.8	0.313	-70.0	1.006	19.47
1.2	0.223	-161.4	6.685	87.0	0.078	65.0	0.296	-73.0	1.030	18.25
1.3	0.230	-167.1	6.210	84.3	0.083	65.1	0.285	-76.1	1.043	17.45
1.4	0.236	-173.1	5.793	81.8	0.089	65.1	0.275	-78.9	1.056	16.71
1.5	0.241	-177.0	5.423	79.3	0.094	65.3	0.269	-81.4	1.066	16.06
1.6	0.247	178.9	5.101	77.0	0.099	65.1	0.262	-84.0	1.075	15.45
1.7	0.255	176.0	4.805	75.0	0.104	65.0	0.260	-86.1	1.080	14.92
1.8	0.257	172.7	4.532	72.9	0.109	65.1	0.253	-88.3	1.092	14.33
1.9	0.262	170.4	4.313	71.0	0.115	64.8	0.253	-89.8	1.090	13.92
2.0	0.266	167.9	4.107	68.8	0.120	64.8	0.246	-91.7	1.096	13.45
2.1	0.272	166.2	3.939	67.1	0.126	64.8	0.245	-93.2	1.092	13.11
2.2	0.273	163.4	3.762	65.4	0.131	64.3	0.240	-94.9	1.099	12.66
2.3	0.279	162.1	3.614	63.7	0.137	64.0	0.240	-96.4	1.094	12.35
2.4	0.285	159.9	3.478	61.8	0.143	63.7	0.236	-97.9	1.092	12.02
2.5	0.289	158.2	3.355	60.1	0.148	63.3	0.235	-99.7	1.090	11.71
2.6	0.291	156.5	3.230	58.6	0.154	62.9	0.231	-101.7	1.094	11.36
2.7	0.296	155.0	3.117	56.8	0.160	62.5	0.230	-104.0	1.092	11.06
2.8	0.300	152.8	3.004	55.5	0.165	61.9	0.229	-106.0	1.095	10.72
2.9	0.301	151.4	2.893	53.3	0.172	60.9	0.229	-109.1	1.093	10.39
3.0	0.307	148.7	2.808	51.5	0.179	60.6	0.228	-111.6	1.088	10.15
4.0	0.375	127.5	2.139	34.1	0.244	54.3	0.297	-140.5	1.034	8.30
5.0	0.439	103.8	1.610	17.6	0.313	39.4	0.403	-163.3	1.002	6.86

V_{CE} = 2 V, I_C = 1 mA, Z₀ = 50 Ω

Frequency (GHz)	S ₁₁		S ₂₁		S ₁₂		S ₂₂		K	MAG/MSG (dB)
	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)		
0.1	0.952	-5.9	3.448	175.1	0.013	81.8	1.001	-3.3	0.085	24.24
0.2	0.947	-10.0	3.410	170.6	0.025	83.1	0.993	-7.1	0.040	21.38
0.3	0.936	-15.5	3.399	164.7	0.037	78.0	0.985	-10.8	0.093	19.59
0.4	0.920	-20.8	3.369	158.7	0.049	74.3	0.972	-14.7	0.132	18.37
0.5	0.909	-25.9	3.360	154.1	0.061	70.4	0.960	-18.7	0.149	17.44
0.6	0.885	-31.7	3.322	148.1	0.071	66.5	0.938	-22.7	0.188	16.70
0.7	0.860	-36.7	3.273	143.0	0.081	62.5	0.920	-26.7	0.222	16.07
0.8	0.833	-42.4	3.207	137.7	0.089	58.5	0.894	-30.9	0.257	15.55
0.9	0.803	-48.0	3.140	132.3	0.097	55.0	0.873	-34.9	0.289	15.11
1.0	0.772	-53.4	3.074	127.2	0.102	51.2	0.845	-39.0	0.331	14.78
1.1	0.743	-59.0	3.007	122.3	0.108	47.9	0.823	-43.0	0.361	14.46
1.2	0.714	-64.7	2.913	117.4	0.111	44.8	0.799	-46.6	0.401	14.19
1.3	0.685	-70.2	2.829	112.9	0.114	41.8	0.780	-50.3	0.434	13.94
1.4	0.662	-75.7	2.738	108.4	0.116	39.2	0.759	-53.7	0.471	13.71
1.5	0.640	-81.1	2.653	104.1	0.117	36.8	0.744	-57.0	0.506	13.55
1.6	0.619	-86.2	2.571	100.1	0.117	34.5	0.724	-60.2	0.552	13.40
1.7	0.599	-91.3	2.477	96.2	0.116	32.8	0.713	-63.1	0.592	13.28
1.8	0.582	-96.3	2.385	92.4	0.115	31.5	0.695	-65.7	0.649	13.16
1.9	0.566	-101.4	2.306	89.1	0.114	30.3	0.688	-68.2	0.689	13.08
2.0	0.554	-106.0	2.225	85.4	0.111	29.9	0.672	-70.5	0.757	13.02
2.1	0.542	-110.2	2.166	82.4	0.109	29.8	0.665	-72.8	0.803	13.00
2.2	0.528	-114.7	2.083	79.3	0.106	30.2	0.654	-74.9	0.880	12.95
2.3	0.520	-119.1	2.023	76.3	0.103	31.0	0.648	-77.1	0.933	12.94
2.4	0.515	-123.5	1.964	73.1	0.100	32.1	0.636	-79.1	1.010	12.31
2.5	0.506	-127.5	1.913	70.3	0.097	33.8	0.632	-81.4	1.074	11.27
2.6	0.503	-131.8	1.850	67.9	0.094	35.6	0.624	-83.8	1.158	10.52
2.7	0.499	-135.5	1.802	64.9	0.093	38.4	0.619	-86.2	1.219	10.07
2.8	0.493	-139.4	1.741	62.4	0.091	41.3	0.613	-88.2	1.297	9.53
2.9	0.489	-143.0	1.694	59.3	0.092	44.5	0.604	-90.7	1.362	9.08
3.0	0.484	-147.1	1.654	56.5	0.092	48.3	0.596	-93.7	1.415	8.70
4.0	0.486	171.8	1.320	32.2	0.167	71.6	0.607	-122.2	1.032	7.88
5.0	0.514	126.9	0.950	10.5	0.301	55.4	0.673	-151.1	0.846	4.99

V_{CE} = 2 V, I_C = 3 mA, Z_O = 50 Ω

Frequency (GHz)	S ₁₁		S ₂₁		S ₁₂		S ₂₂		K	MAG/MSG (dB)
	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)		
0.1	0.849	-8.1	8.766	172.7	0.013	81.5	0.991	-5.2	0.115	28.45
0.2	0.848	-15.9	8.544	165.2	0.024	79.7	0.971	-11.1	0.113	25.55
0.3	0.813	-23.7	8.340	157.3	0.034	75.3	0.947	-16.5	0.168	23.83
0.4	0.776	-31.4	8.038	149.5	0.045	70.3	0.911	-21.9	0.236	22.56
0.5	0.747	-38.3	7.789	143.1	0.053	66.3	0.875	-27.1	0.277	21.63
0.6	0.696	-45.9	7.422	136.0	0.061	62.5	0.829	-32.0	0.339	20.84
0.7	0.654	-52.6	7.059	130.1	0.068	59.1	0.787	-36.4	0.394	20.18
0.8	0.606	-59.1	6.676	124.4	0.073	56.3	0.743	-40.9	0.451	19.63
0.9	0.563	-65.6	6.326	118.9	0.077	54.0	0.706	-44.9	0.504	19.12
1.0	0.523	-71.8	5.997	113.9	0.081	52.1	0.667	-48.7	0.560	18.72
1.1	0.484	-78.5	5.680	109.4	0.084	50.3	0.635	-52.3	0.610	18.32
1.2	0.450	-84.4	5.350	104.9	0.086	49.2	0.605	-55.4	0.669	17.94
1.3	0.424	-90.6	5.074	101.0	0.088	48.4	0.581	-58.8	0.713	17.61
1.4	0.401	-96.5	4.800	97.3	0.090	47.9	0.559	-61.6	0.762	17.28
1.5	0.384	-102.1	4.564	93.8	0.091	47.6	0.542	-64.2	0.803	16.98
1.6	0.365	-108.0	4.348	90.3	0.093	47.4	0.523	-66.8	0.851	16.70
1.7	0.353	-113.0	4.131	87.3	0.094	47.8	0.513	-68.9	0.891	16.42
1.8	0.344	-117.9	3.933	84.3	0.096	48.2	0.497	-70.9	0.937	16.14
1.9	0.332	-123.2	3.763	81.6	0.097	48.7	0.490	-72.8	0.971	15.87
2.0	0.325	-127.6	3.597	78.7	0.099	49.7	0.477	-74.5	1.016	14.85
2.1	0.321	-131.8	3.464	76.5	0.101	51.0	0.472	-76.2	1.038	14.18
2.2	0.317	-136.1	3.324	73.9	0.103	51.8	0.462	-77.9	1.071	13.48
2.3	0.312	-140.2	3.202	71.7	0.105	53.1	0.458	-79.3	1.091	13.00
2.4	0.309	-144.0	3.094	69.1	0.108	54.1	0.449	-80.9	1.116	12.52
2.5	0.308	-148.2	2.989	66.9	0.110	55.4	0.445	-82.6	1.132	12.13
2.6	0.308	-151.4	2.886	64.9	0.113	56.4	0.437	-84.5	1.152	11.71
2.7	0.309	-155.2	2.795	62.7	0.116	57.5	0.433	-86.3	1.162	11.38
2.8	0.307	-158.8	2.695	60.8	0.120	58.5	0.429	-88.1	1.174	10.99
2.9	0.302	-161.8	2.607	58.1	0.125	58.9	0.423	-90.4	1.184	10.61
3.0	0.306	-165.4	2.540	55.8	0.129	60.0	0.419	-92.8	1.177	10.38
4.0	0.345	-158.2	1.983	35.0	0.199	63.4	0.447	-119.8	1.013	9.27
5.0	0.411	-121.8	1.483	14.2	0.296	50.0	0.544	-146.7	0.882	7.00

V_{CE} = 2 V, I_C = 5 mA, Z_O = 50 Ω

Frequency (GHz)	S ₁₁		S ₂₁		S ₁₂		S ₂₂		K	MAG/MSG (dB)
	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)		
0.1	0.793	-9.6	12.650	170.5	0.011	79.8	0.981	-6.7	0.164	30.67
0.2	0.766	-19.3	12.156	161.4	0.022	79.4	0.950	-13.9	0.159	27.36
0.3	0.721	-29.4	11.624	152.1	0.032	72.6	0.910	-20.3	0.248	25.54
0.4	0.671	-38.1	10.959	143.3	0.041	69.0	0.859	-26.4	0.317	24.26
0.5	0.627	-46.2	10.354	136.2	0.049	65.0	0.807	-31.7	0.382	23.29
0.6	0.572	-54.3	9.653	128.9	0.055	62.3	0.749	-36.7	0.453	22.44
0.7	0.523	-61.3	8.978	122.9	0.060	59.6	0.699	-41.1	0.519	21.73
0.8	0.474	-68.5	8.329	117.3	0.065	57.9	0.649	-45.3	0.585	21.10
0.9	0.431	-75.4	7.741	112.2	0.069	56.4	0.609	-48.9	0.645	20.53
1.0	0.394	-82.0	7.228	107.6	0.072	55.8	0.570	-52.4	0.704	20.02
1.1	0.361	-88.6	6.768	103.4	0.075	54.9	0.541	-55.6	0.756	19.56
1.2	0.332	-95.5	6.313	99.6	0.078	54.6	0.512	-58.5	0.809	19.09
1.3	0.311	-102.2	5.929	96.0	0.081	54.6	0.491	-61.4	0.850	18.67
1.4	0.296	-108.6	5.585	92.7	0.084	54.7	0.472	-63.9	0.887	18.25
1.5	0.283	-115.0	5.284	89.4	0.086	55.0	0.457	-66.2	0.922	17.88
1.6	0.271	-120.7	4.996	86.5	0.089	55.1	0.440	-68.5	0.958	17.50
1.7	0.265	-126.1	4.727	83.9	0.092	55.8	0.432	-70.5	0.985	17.12
1.8	0.257	-131.4	4.482	81.2	0.095	56.2	0.420	-72.3	1.017	15.95
1.9	0.253	-136.5	4.279	78.8	0.098	56.8	0.414	-73.9	1.034	15.28
2.0	0.250	-141.1	4.082	76.1	0.101	57.7	0.403	-75.4	1.060	14.57
2.1	0.248	-145.3	3.927	74.1	0.104	58.4	0.399	-77.0	1.070	14.14
2.2	0.245	-149.4	3.759	71.9	0.108	58.9	0.390	-78.4	1.089	13.60
2.3	0.246	-153.4	3.615	69.9	0.112	59.7	0.388	-79.8	1.096	13.21
2.4	0.245	-156.6	3.490	67.6	0.116	60.1	0.380	-81.1	1.106	12.81
2.5	0.246	-160.7	3.369	65.7	0.120	60.7	0.376	-82.7	1.110	12.47
2.6	0.248	-163.8	3.248	63.9	0.123	61.2	0.370	-84.3	1.122	12.08
2.7	0.252	-166.3	3.139	61.9	0.128	61.7	0.367	-86.1	1.121	11.78
2.8	0.253	-170.0	3.024	60.2	0.132	61.8	0.364	-87.7	1.129	11.41
2.9	0.252	-173.2	2.926	57.7	0.138	61.7	0.359	-90.1	1.129	11.09
3.0	0.255	-176.5	2.849	55.5	0.144	62.2	0.356	-92.4	1.121	10.86
4.0	0.307	-150.1	2.206	36.5	0.212	61.4	0.390	-119.9	1.010	9.56
5.0	0.380	-117.6	1.674	17.1	0.297	47.7	0.490	-146.3	0.913	7.50

V_{CE} = 2 V, I_C = 7 mA, Z_O = 50 Ω

Frequency (GHz)	S ₁₁		S ₂₁		S ₁₂		S ₂₂		K	MAG/MSG (dB)
	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)		
0.1	0.738	-11.4	15.535	169.0	0.012	79.1	0.972	-7.8	0.195	31.23
0.2	0.703	-22.4	14.745	158.5	0.021	77.8	0.932	-15.8	0.211	28.37
0.3	0.653	-33.3	13.867	148.5	0.031	72.3	0.881	-22.9	0.295	26.48
0.4	0.597	-42.8	12.835	139.1	0.039	68.3	0.818	-29.3	0.382	25.19
0.5	0.547	-51.3	11.917	131.7	0.046	65.1	0.757	-34.7	0.454	24.18
0.6	0.489	-59.8	10.929	124.4	0.051	62.9	0.695	-39.6	0.533	23.29
0.7	0.441	-67.4	10.045	118.5	0.056	60.7	0.642	-43.6	0.604	22.53
0.8	0.393	-74.4	9.212	113.2	0.060	59.8	0.591	-47.5	0.677	21.86
0.9	0.355	-81.6	8.480	108.3	0.064	59.0	0.552	-50.8	0.733	21.20
1.0	0.322	-88.7	7.861	104.1	0.068	58.7	0.514	-53.9	0.791	20.66
1.1	0.293	-96.0	7.320	100.2	0.071	58.3	0.487	-57.0	0.836	20.12
1.2	0.268	-103.3	6.790	96.5	0.075	58.5	0.460	-59.7	0.884	19.60
1.3	0.253	-110.7	6.360	93.3	0.078	58.6	0.441	-62.3	0.918	19.13
1.4	0.241	-117.7	5.971	90.1	0.082	59.0	0.424	-64.8	0.947	18.64
1.5	0.232	-124.4	5.621	87.3	0.085	59.3	0.411	-67.0	0.976	18.23
1.6	0.225	-130.9	5.316	84.6	0.088	59.6	0.398	-69.2	0.999	17.79
1.7	0.224	-136.4	5.019	82.1	0.092	60.1	0.391	-71.0	1.017	16.57
1.8	0.218	-141.5	4.759	79.4	0.095	60.5	0.379	-72.8	1.043	15.71
1.9	0.215	-146.3	4.532	77.3	0.100	60.7	0.375	-74.3	1.053	15.17
2.0	0.216	-150.8	4.321	74.8	0.103	61.4	0.364	-75.7	1.070	14.59
2.1	0.218	-155.1	4.150	73.0	0.107	61.9	0.361	-77.2	1.074	14.21
2.2	0.216	-158.7	3.975	70.9	0.111	62.1	0.354	-78.6	1.087	13.72
2.3	0.217	-162.6	3.822	69.0	0.116	62.6	0.352	-79.9	1.090	13.35
2.4	0.218	-165.3	3.679	66.9	0.121	62.7	0.344	-81.0	1.096	12.95
2.5	0.222	-169.1	3.551	65.0	0.125	63.1	0.342	-82.7	1.097	12.64
2.6	0.224	-172.1	3.422	63.3	0.129	63.1	0.336	-84.2	1.104	12.26
2.7	0.228	-174.8	3.303	61.4	0.134	63.3	0.333	-86.0	1.106	11.94
2.8	0.228	-177.7	3.188	59.8	0.139	63.2	0.330	-87.6	1.109	11.60
2.9	0.231	179.4	3.077	57.4	0.145	62.7	0.326	-90.0	1.107	11.28
3.0	0.232	176.0	2.996	55.4	0.151	63.0	0.323	-92.2	1.102	11.03
4.0	0.293	145.1	2.313	37.1	0.218	60.3	0.361	-120.4	1.009	9.68
5.0	0.367	115.1	1.758	18.5	0.299	46.6	0.464	-146.6	0.928	7.69

V_{CE} = 2 V, I_C = 10 mA, Z_O = 50 Ω

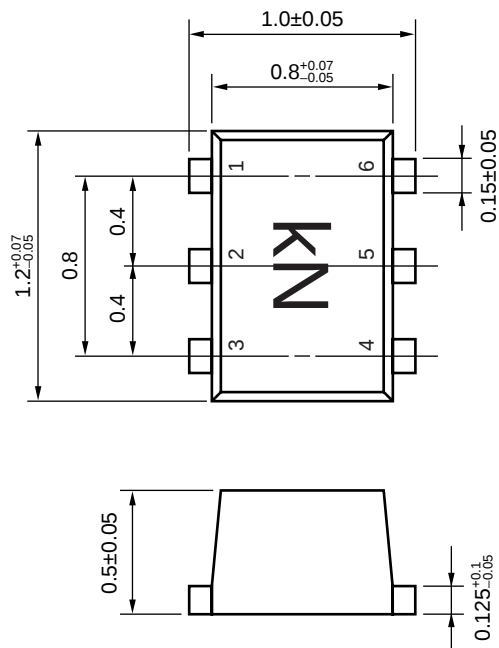
Frequency (GHz)	S ₁₁		S ₂₁		S ₁₂		S ₂₂		K	MAG/MSG (dB)
	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)		
0.1	0.669	-13.1	18.827	167.3	0.011	81.6	0.960	-9.1	0.196	32.37
0.2	0.633	-25.9	17.591	155.4	0.020	76.2	0.908	-18.0	0.271	29.37
0.3	0.570	-37.8	16.209	144.5	0.029	71.9	0.844	-25.6	0.361	27.44
0.4	0.511	-48.0	14.664	134.8	0.036	67.7	0.771	-32.1	0.462	26.05
0.5	0.463	-57.3	13.369	127.2	0.043	65.6	0.702	-37.4	0.537	24.96
0.6	0.404	-65.9	12.067	120.1	0.048	64.3	0.637	-41.9	0.623	24.05
0.7	0.358	-73.7	10.941	114.4	0.052	62.9	0.584	-45.6	0.694	23.19
0.8	0.316	-81.4	9.951	109.3	0.057	62.3	0.534	-49.1	0.763	22.45
0.9	0.283	-89.2	9.095	104.8	0.061	62.1	0.497	-52.0	0.816	21.76
1.0	0.256	-97.3	8.375	100.8	0.065	62.2	0.463	-55.0	0.865	21.13
1.1	0.235	-105.2	7.752	97.2	0.068	62.1	0.438	-57.8	0.904	20.54
1.2	0.214	-113.4	7.173	93.8	0.072	62.2	0.415	-60.3	0.944	19.96
1.3	0.207	-121.0	6.696	90.8	0.076	62.5	0.398	-62.9	0.967	19.43
1.4	0.198	-129.3	6.274	88.0	0.081	62.9	0.383	-65.2	0.991	18.92
1.5	0.195	-136.2	5.898	85.2	0.084	63.3	0.372	-67.3	1.009	17.84
1.6	0.193	-142.4	5.561	82.7	0.089	63.2	0.360	-69.4	1.027	16.97
1.7	0.192	-148.7	5.241	80.4	0.093	63.5	0.354	-71.2	1.042	16.27
1.8	0.193	-153.1	4.965	78.1	0.097	64.0	0.344	-73.0	1.058	15.63
1.9	0.194	-158.0	4.727	76.0	0.102	63.9	0.341	-74.5	1.059	15.18
2.0	0.194	-161.8	4.502	73.6	0.106	64.3	0.331	-75.8	1.074	14.62
2.1	0.196	-165.4	4.326	71.9	0.111	64.7	0.329	-77.3	1.075	14.26
2.2	0.197	-168.8	4.135	69.9	0.115	64.6	0.322	-78.5	1.083	13.79
2.3	0.201	-172.0	3.977	68.1	0.120	64.8	0.321	-79.8	1.080	13.46
2.4	0.202	-174.9	3.828	66.0	0.125	64.7	0.315	-81.0	1.087	13.08
2.5	0.205	-178.1	3.694	64.3	0.130	64.8	0.313	-82.6	1.085	12.76
2.6	0.210	179.6	3.557	62.7	0.135	64.7	0.307	-84.0	1.088	12.41
2.7	0.214	177.2	3.436	61.0	0.139	64.7	0.304	-85.8	1.089	12.09
2.8	0.215	173.8	3.313	59.5	0.145	64.3	0.302	-87.4	1.093	11.74
2.9	0.216	171.6	3.194	57.2	0.151	63.7	0.299	-90.0	1.091	11.41
3.0	0.222	168.4	3.109	55.2	0.157	63.7	0.296	-92.1	1.083	11.21
4.0	0.287	140.5	2.392	37.6	0.224	59.7	0.337	-121.1	1.007	9.77
5.0	0.361	112.4	1.824	19.9	0.301	45.7	0.440	-147.2	0.942	7.83

$V_{CE} = 2\text{ V}$, $I_C = 20\text{ mA}$, $Z_0 = 50\ \Omega$

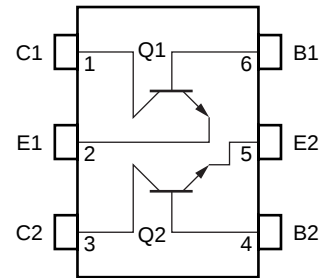
Frequency (GHz)	S ₁₁		S ₂₁		S ₁₂		S ₂₂		K	MAG/MSG (dB)
	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)	MAG.	ANG. (deg.)		
0.1	0.542	-17.9	24.232	164.1	0.010	66.6	0.934	-11.1	0.399	33.96
0.2	0.493	-33.0	21.939	149.7	0.019	75.1	0.858	-21.6	0.380	30.72
0.3	0.431	-47.4	19.388	137.6	0.026	71.9	0.770	-29.7	0.484	28.64
0.4	0.367	-58.9	16.973	127.6	0.033	69.1	0.684	-35.9	0.601	27.17
0.5	0.322	-69.1	14.992	120.1	0.038	68.0	0.611	-40.5	0.686	25.96
0.6	0.277	-79.2	13.250	113.5	0.043	67.4	0.547	-44.3	0.766	24.87
0.7	0.243	-88.4	11.802	108.2	0.048	66.8	0.498	-47.2	0.832	23.94
0.8	0.212	-98.5	10.616	103.7	0.052	67.0	0.453	-50.1	0.888	23.08
0.9	0.193	-108.5	9.591	99.6	0.057	67.0	0.422	-52.6	0.929	22.27
1.0	0.175	-117.8	8.791	96.1	0.061	67.4	0.393	-55.0	0.967	21.56
1.1	0.167	-127.8	8.092	92.9	0.066	67.4	0.372	-57.5	0.991	20.89
1.2	0.160	-137.7	7.439	89.9	0.070	67.7	0.353	-59.7	1.020	19.38
1.3	0.163	-146.3	6.932	87.3	0.075	67.8	0.341	-62.1	1.030	18.58
1.4	0.164	-154.2	6.475	84.6	0.080	67.8	0.329	-64.4	1.043	17.81
1.5	0.166	-160.4	6.067	82.1	0.085	68.1	0.321	-66.5	1.055	17.12
1.6	0.169	-166.1	5.723	79.9	0.090	67.9	0.312	-68.6	1.061	16.53
1.7	0.177	-170.1	5.378	77.9	0.094	68.1	0.308	-70.3	1.069	15.96
1.8	0.176	-174.4	5.085	75.7	0.099	68.1	0.300	-72.1	1.081	15.36
1.9	0.182	-177.9	4.839	73.7	0.104	67.9	0.299	-73.5	1.079	14.95
2.0	0.186	178.7	4.607	71.4	0.109	68.0	0.292	-74.9	1.084	14.48
2.1	0.191	176.1	4.421	69.9	0.115	68.1	0.291	-76.3	1.081	14.13
2.2	0.193	174.1	4.231	68.0	0.120	67.7	0.285	-77.7	1.084	13.72
2.3	0.198	171.5	4.058	66.4	0.125	67.6	0.285	-79.0	1.082	13.37
2.4	0.202	169.2	3.910	64.5	0.130	67.3	0.280	-80.1	1.081	13.04
2.5	0.206	167.6	3.768	62.7	0.135	67.1	0.279	-81.8	1.079	12.73
2.6	0.211	165.4	3.629	61.4	0.141	66.7	0.274	-83.1	1.080	12.39
2.7	0.214	164.0	3.510	59.5	0.146	66.4	0.272	-85.1	1.077	12.11
2.8	0.219	160.9	3.380	58.2	0.151	65.8	0.270	-86.7	1.080	11.76
2.9	0.219	159.3	3.258	56.1	0.158	64.9	0.268	-89.5	1.079	11.43
3.0	0.225	156.6	3.168	54.3	0.165	64.7	0.267	-91.7	1.071	11.22
4.0	0.295	133.2	2.424	37.3	0.232	59.2	0.313	-122.2	1.007	9.68
5.0	0.367	108.4	1.848	20.3	0.305	44.6	0.417	-148.7	0.956	7.82

PACKAGE DIMENSIONS

6-PIN LEAD-LESS MINIMOLD (UNIT: mm)



(Top View)



PIN CONNECTIONS

1. Collector (Q1)
2. Emitter (Q1)
3. Collector (Q2)
4. Base (Q2)
5. Emitter (Q2)
6. Base (Q1)

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