

NPN EPITAXIAL SILICON TRANSISTOR IN 4-PIN MINI-MOLD PACKAGE FOR LOW-NOISE MICROWAVE AMPLIFICATION

FEATURES

- Low Noise
- $NF = 1.3 \text{ dB TYP. @ } V_{CE} = 2 \text{ V, } I_c = 3 \text{ mA, } f = 2 \text{ GHz}$
- $NF = 1.3 \text{ dB TYP. @ } V_{CE} = 1 \text{ V, } I_c = 3 \text{ mA, } f = 2 \text{ GHz}$
- 4-pin Mini-Mold package
EIAJ: SC-61

ORDERING INFORMATION

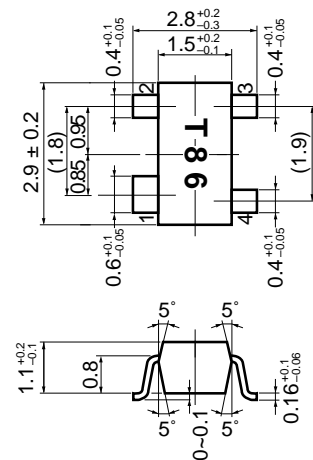
PART NUMBER	QUANTITY	ARRANGEMENT
2SC5183-T1	3 000 units/reel	Embossed tape, 8 mm wide, Pin No. 3 (base) and No. 4 (emitter) facing the perforations
2SC5183-T2		Embossed tape, 8 mm wide, Pins No. 1 (collector) and No. 2 (emitter) facing the perforations

* Contact your NEC sales representatives to order samples for evaluation (available in batches of 50).

ABSOLUTE MAXIMUM RATINGS ($T_A = 25 \text{ }^\circ\text{C}$)

Collector to Base Voltage	V_{CBO}	5	V
Collector to Emitter Voltage	V_{CEO}	3	V
Emitter to Base Voltage	V_{EBO}	2	V
Collector Current	I_c	30	mA
Total Power Dissipation	P_T	90	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-65 to +150	$^\circ\text{C}$

PACKAGE DIMENSIONS
(Units: mm)



PIN CONNECTIONS

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

Caution; This transistor uses high-frequency technology. Be careful not to allow excessive current to flow through the transistor, including static electricity.

ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Collector Cutoff Current	I _{CB0}			100	nA	V _{CB} = 5 V, I _E = 0
Emitter Cutoff Current	I _{EB0}			100	nA	V _{EB} = 1 V, I _C = 0
DC Current Gain	h _{FE}	70		140		V _{CE} = 2 V, I _C = 20 mA* ¹
Insertion Power Gain (1)	S _{21e} ²	7.5	10		dB	V _{CE} = 2 V, I _C = 20 mA, f = 2 GHz
Insertion Power Gain (2)	S _{21e} ²	7	8.5		dB	V _{CE} = 1 V, I _C = 10 mA, f = 2 GHz
Noise Figure (1)	NF		1.3	2.0	dB	V _{CE} = 2 V, I _C = 3 mA, f = 2 GHz
Noise Figure (2)	NF		1.3	2.0	dB	V _{CE} = 1 V, I _C = 3 mA, f = 2 GHz
Gain Bandwidth Product (1)	f _T	9.5	12.5		GHz	V _{CE} = 2 V, I _C = 20 mA, f = 2 GHz
Gain Bandwidth Product (2)	f _T	7.5	10.5		GHz	V _{CE} = 1 V, I _C = 10 mA, f = 2 GHz
Feed-back Capacitance	C _{re}		0.3	0.6	pF	V _{CB} = 2 V, I _E = 0 mA, f = 1 MHz* ²

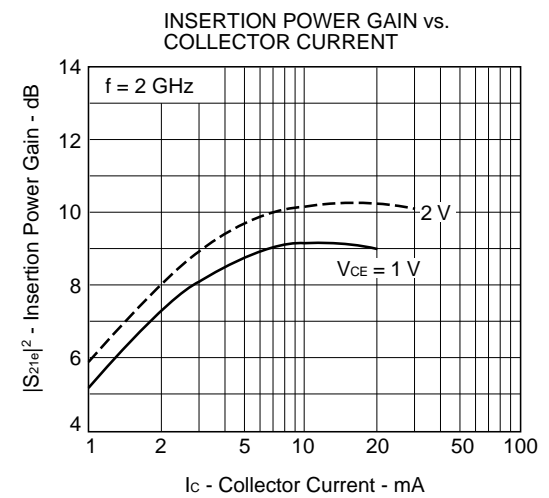
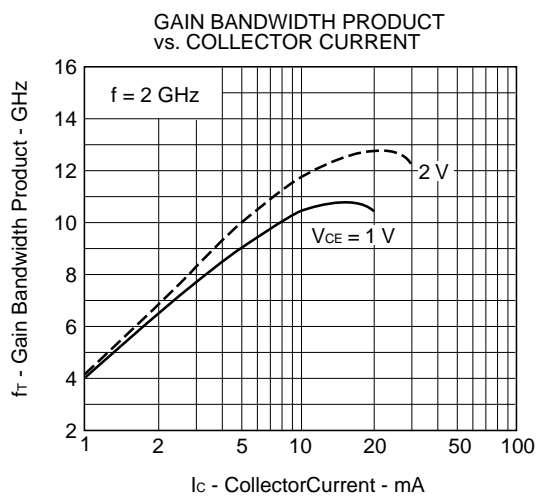
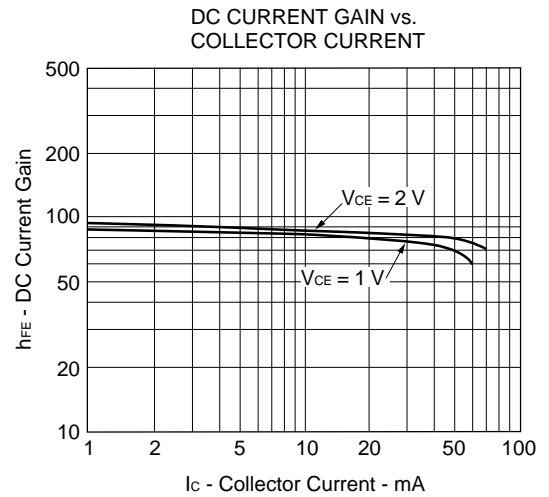
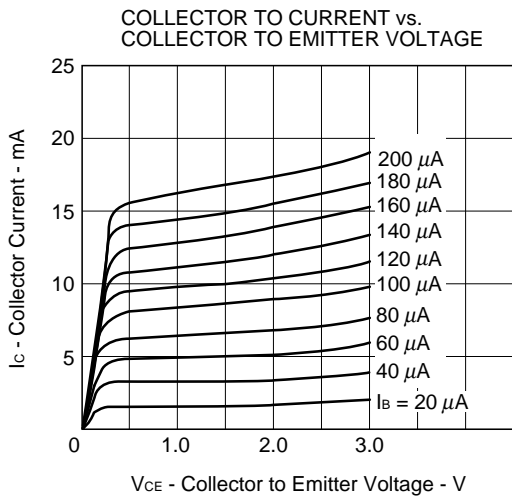
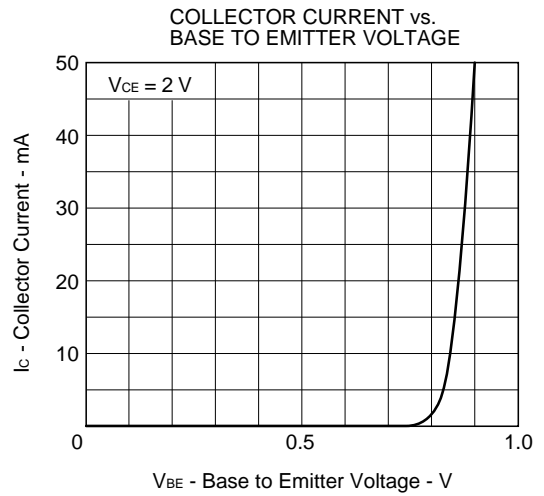
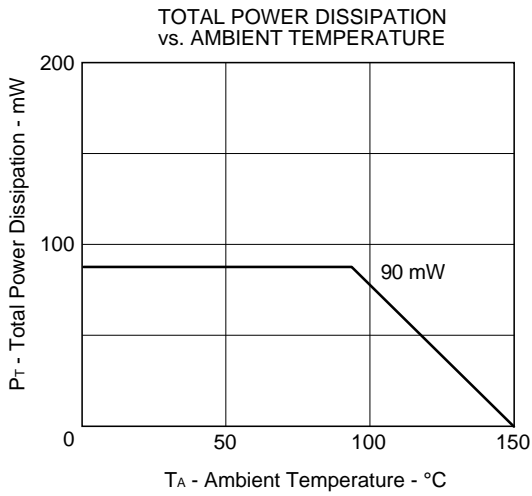
*1 Measured with pulses: Pulse width ≤ 350 μs, duty cycle ≤ 2 %, pulsed.

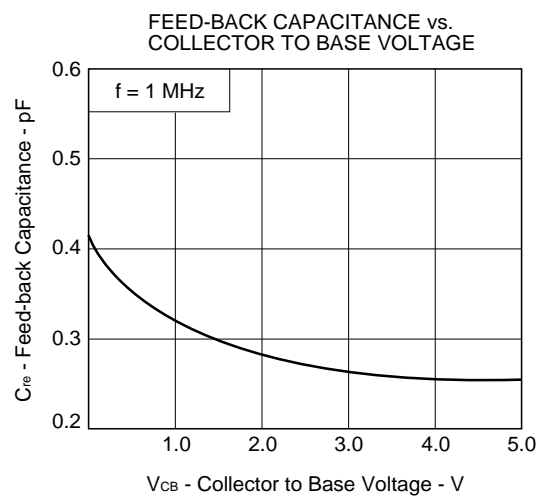
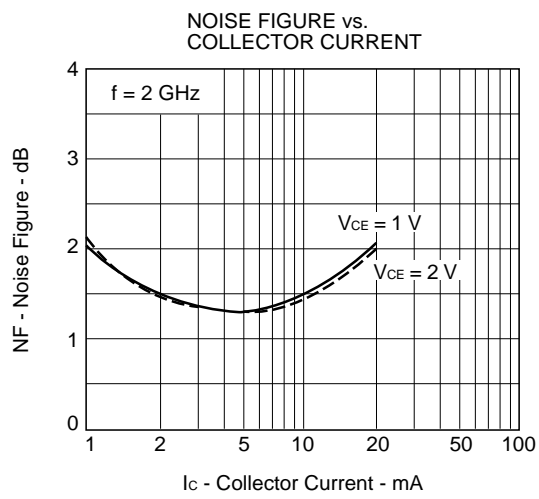
*2 Measured with a three-terminal bridge. The emitter and case terminal are connected to the guard terminal of the bridge.

h_{FE} Class

Class	FB
Marking	T86
h _{FE}	70 to 140

CHARACTERISTICS CURVES ($T_A = 25^\circ\text{C}$)





S-PARAMETERS

V_{CE} = 1 V, I_c = 1 mA, Z_o = 50 Ω

FREQUENCY	S11		S21		S12		S22	
	MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG
200.00	0.939	-18.1	3.502	164.0	0.046	75.5	0.982	-10.2
400.00	0.896	-34.7	3.354	149.0	0.090	67.8	0.938	-19.8
600.00	0.821	-52.0	3.189	134.7	0.129	58.2	0.891	-28.9
800.00	0.754	-69.6	3.019	120.1	0.154	47.7	0.821	-37.2
1000.00	0.662	-86.6	2.797	107.6	0.180	40.3	0.750	-43.0
1200.00	0.587	-103.2	2.549	95.6	0.196	33.5	0.687	-49.7
1400.00	0.529	-121.1	2.353	84.9	0.203	26.1	0.627	-56.9
1600.00	0.480	-137.1	2.157	74.7	0.208	21.5	0.572	-61.4
1800.00	0.441	-154.9	1.961	66.2	0.215	16.7	0.527	-67.0
2000.00	0.436	-170.7	1.824	57.9	0.213	14.3	0.485	-70.8
2200.00	0.427	174.4	1.673	50.3	0.210	11.6	0.458	-75.3
2400.00	0.434	163.8	1.588	43.6	0.206	9.7	0.435	-81.6
2600.00	0.461	150.8	1.504	36.8	0.210	10.1	0.413	-85.1
2800.00	0.472	141.8	1.410	30.1	0.220	10.1	0.391	-91.6
3000.00	0.498	131.3	1.314	23.3	0.210	4.9	0.361	-102.3

V_{CE} = 1 V, I_C = 3 mA, Z_O = 50 Ω

FREQUENCY	S11		S21		S12		S22	
	MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG
200.00	0.814	-29.5	9.022	154.0	0.047	75.7	0.930	-18.2
400.00	0.691	-54.3	7.707	132.8	0.077	64.2	0.801	-33.5
600.00	0.552	-76.7	6.431	116.4	0.103	54.4	0.679	-43.6
800.00	0.458	-97.4	5.442	102.2	0.120	48.2	0.572	-51.0
1000.00	0.377	-117.4	4.633	91.3	0.130	45.8	0.492	-55.9
1200.00	0.324	-137.3	3.974	81.8	0.143	41.6	0.432	-61.6
1400.00	0.302	-156.7	3.506	73.5	0.156	38.0	0.376	-67.2
1600.00	0.291	-174.1	3.114	66.0	0.163	37.7	0.343	-72.7
1800.00	0.293	169.8	2.770	59.3	0.177	35.6	0.308	-78.0
2000.00	0.307	156.1	2.540	52.8	0.192	33.1	0.274	-82.8
2200.00	0.329	145.5	2.297	46.8	0.201	30.8	0.251	-86.2
2400.00	0.361	137.1	2.160	41.1	0.220	30.0	0.222	-95.2
2600.00	0.386	128.9	2.017	35.7	0.225	26.7	0.204	-100.8
2800.00	0.408	121.5	1.904	30.0	0.244	26.2	0.188	-106.8
3000.00	0.433	113.5	1.760	24.1	0.251	21.4	0.190	-126.4

V_{CE} = 1 V, I_c = 5 mA, Z_o = 50 Ω

FREQUENCY	S11		S21		S12		S22	
	MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG
200.00	0.711	-38.3	12.750	146.7	0.040	68.6	0.870	-24.6
400.00	0.545	-66.7	9.866	123.4	0.066	58.5	0.686	-40.6
600.00	0.408	-90.5	7.672	107.6	0.086	54.8	0.553	-49.8
800.00	0.330	-112.0	6.228	94.8	0.107	51.2	0.451	-56.2
1000.00	0.275	-135.4	5.180	85.2	0.118	48.8	0.385	-59.7
1200.00	0.248	-156.0	4.383	77.0	0.137	47.4	0.337	-65.0
1400.00	0.249	-175.0	3.837	69.7	0.147	46.0	0.294	-71.2
1600.00	0.251	167.3	3.385	62.9	0.163	43.1	0.257	-75.9
1800.00	0.264	153.7	2.991	56.8	0.176	42.2	0.224	-83.7
2000.00	0.295	143.5	2.740	51.0	0.193	38.8	0.195	-89.5
2200.00	0.319	133.6	2.476	45.5	0.203	35.9	0.183	-94.2
2400.00	0.339	127.8	2.317	40.3	0.221	34.3	0.163	-109.5
2600.00	0.380	120.5	2.161	35.3	0.233	30.8	0.141	-114.4
2800.00	0.405	115.7	2.042	29.6	0.253	30.2	0.133	-122.3
3000.00	0.425	108.2	1.880	24.1	0.263	24.5	0.152	-147.9

V_{CE} = 1 V, I_c = 7 mA, Z_o = 50 Ω

FREQUENCY	S11		S21		S12		S22	
	MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG
200.00	0.626	-44.6	15.305	141.4	0.039	71.6	0.817	-28.6
400.00	0.446	-75.6	11.046	117.5	0.061	60.1	0.608	-44.8
600.00	0.324	-100.3	8.281	102.6	0.081	54.9	0.475	-53.3
800.00	0.259	-123.9	6.585	90.9	0.101	55.1	0.386	-58.3
1000.00	0.227	-147.9	5.416	82.0	0.116	52.3	0.324	-62.0
1200.00	0.218	-170.2	4.559	74.4	0.130	50.0	0.283	-66.1
1400.00	0.235	174.1	3.971	67.5	0.151	49.2	0.243	-73.8
1600.00	0.245	158.1	3.502	61.3	0.162	46.5	0.219	-79.1
1800.00	0.262	145.6	3.087	55.6	0.181	44.9	0.193	-89.0
2000.00	0.291	136.7	2.821	50.0	0.197	41.3	0.160	-94.3
2200.00	0.319	127.8	2.558	44.8	0.206	37.0	0.157	-103.0
2400.00	0.344	122.8	2.392	39.8	0.230	35.6	0.140	-116.8
2600.00	0.385	116.5	2.223	34.9	0.238	33.3	0.123	-127.2
2800.00	0.406	112.7	2.102	29.5	0.265	31.4	0.109	-140.7
3000.00	0.424	103.3	1.934	24.1	0.270	25.9	0.143	-164.1

V_{CE} = 1 V, I_c = 10 mA, Z_o = 50 Ω

FREQUENCY	S11		S21		S12		S22	
	MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG
200.00	0.522	-52.6	17.862	135.4	0.037	67.1	0.753	-33.4
400.00	0.352	-85.4	12.003	111.9	0.059	58.8	0.528	-48.7
600.00	0.254	-113.2	8.704	98.2	0.073	60.9	0.407	-55.6
800.00	0.213	-137.8	6.819	87.5	0.095	57.5	0.323	-60.4
1000.00	0.202	-162.9	5.571	79.2	0.113	55.9	0.271	-64.3
1200.00	0.206	176.6	4.672	72.2	0.127	54.6	0.236	-70.0
1400.00	0.229	162.4	4.057	65.8	0.149	52.7	0.201	-76.8
1600.00	0.246	148.9	3.570	59.9	0.163	50.0	0.181	-84.0
1800.00	0.269	136.1	3.154	54.3	0.181	47.5	0.155	-93.3
2000.00	0.291	130.9	2.880	48.9	0.202	43.7	0.134	-102.0
2200.00	0.315	123.6	2.606	44.0	0.213	41.1	0.132	-113.6
2400.00	0.344	119.3	2.430	38.9	0.230	37.5	0.118	-131.8
2600.00	0.383	114.1	2.261	34.4	0.246	35.6	0.101	-143.1
2800.00	0.407	109.0	2.135	29.2	0.269	32.5	0.099	-156.8
3000.00	0.437	102.5	1.968	23.8	0.280	26.4	0.144	-177.6

V_{CE} = 1 V, I_c = 20 mA, Z_o = 50 Ω

FREQUENCY	S11		S21		S12		S22	
	MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG
200.00	0.339	-73.6	21.029	125.3	0.030	69.4	0.606	-42.1
400.00	0.229	-112.5	12.708	103.7	0.051	65.5	0.390	-54.8
600.00	0.185	-146.6	8.896	91.9	0.076	66.7	0.291	-60.3
800.00	0.191	-169.2	6.844	82.6	0.094	61.4	0.237	-63.9
1000.00	0.203	171.9	5.545	75.2	0.117	61.5	0.190	-69.2
1200.00	0.223	157.5	4.636	68.8	0.132	57.9	0.166	-76.1
1400.00	0.253	147.3	4.022	62.9	0.151	53.6	0.144	-84.7
1600.00	0.276	137.6	3.531	57.4	0.176	50.7	0.127	-99.6
1800.00	0.294	129.5	3.113	52.1	0.185	49.3	0.109	-112.8
2000.00	0.320	124.1	2.840	47.0	0.208	45.0	0.103	-131.8
2200.00	0.354	117.7	2.562	42.1	0.228	42.2	0.102	-141.3
2400.00	0.375	114.8	2.398	37.4	0.244	40.0	0.105	-167.8
2600.00	0.409	110.0	2.226	33.0	0.258	35.2	0.103	-176.7
2800.00	0.429	105.6	2.094	27.9	0.285	31.6	0.119	174.6
3000.00	0.459	99.1	1.936	22.4	0.296	26.4	0.166	164.1

V_{CE} = 2 V, I_c = 1 mA, Z_o = 50 Ω

FREQUENCY	S11		S21		S12		S22	
	MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG
200.00	0.944	-16.2	3.536	165.1	0.039	79.8	0.983	-8.7
400.00	0.903	-31.6	3.412	151.1	0.074	68.9	0.953	-17.1
600.00	0.840	-47.7	3.270	137.7	0.108	60.6	0.911	-25.0
800.00	0.773	-63.7	3.130	123.8	0.133	51.5	0.853	-32.6
1000.00	0.684	-79.5	2.932	111.7	0.154	43.3	0.797	-37.9
1200.00	0.606	-96.4	2.693	100.0	0.172	36.6	0.735	-44.3
1400.00	0.539	-112.9	2.503	89.5	0.181	30.9	0.675	-50.7
1600.00	0.484	-128.8	2.298	79.2	0.181	26.2	0.628	-54.5
1800.00	0.432	-144.8	2.104	70.6	0.183	21.3	0.585	-59.8
2000.00	0.422	-161.6	1.968	62.3	0.184	18.9	0.553	-63.6
2200.00	0.408	-175.8	1.807	54.9	0.187	16.4	0.526	-67.9
2400.00	0.418	169.6	1.717	47.8	0.189	14.3	0.488	-72.5
2600.00	0.428	156.9	1.619	41.4	0.188	12.2	0.467	-75.4
2800.00	0.444	146.3	1.527	34.3	0.199	13.9	0.446	-81.4
3000.00	0.471	135.0	1.427	27.9	0.196	13.5	0.419	-91.1

V_{CE} = 2 V, I_c = 3 mA, Z_o = 50 Ω

FREQUENCY	S11		S21		S12		S22	
	MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG
200.00	0.827	-25.9	9.104	156.0	0.037	77.0	0.943	-15.4
400.00	0.713	-47.8	7.914	136.1	0.068	59.6	0.831	-28.1
600.00	0.582	-67.5	6.749	120.1	0.088	56.1	0.731	-37.2
800.00	0.476	-85.7	5.790	106.1	0.103	51.5	0.632	-44.0
1000.00	0.381	-103.9	4.988	95.3	0.118	45.6	0.555	-47.6
1200.00	0.322	-123.1	4.304	85.7	0.125	43.7	0.501	-52.6
1400.00	0.285	-141.8	3.812	77.4	0.137	39.8	0.445	-57.0
1600.00	0.258	-160.4	3.399	69.8	0.148	41.5	0.408	-61.2
1800.00	0.248	-178.5	3.026	63.2	0.162	39.1	0.370	-65.2
2000.00	0.263	165.2	2.776	56.6	0.168	37.1	0.339	-69.6
2200.00	0.276	152.1	2.523	50.7	0.182	35.0	0.324	-73.6
2400.00	0.300	142.8	2.368	45.1	0.192	33.1	0.292	-78.0
2600.00	0.337	133.1	2.218	39.8	0.206	31.3	0.273	-81.2
2800.00	0.353	125.5	2.095	33.7	0.222	29.5	0.252	-86.9
3000.00	0.381	115.9	1.935	27.9	0.225	25.9	0.228	-102.4

V_{CE} = 2 V, I_c = 5 mA, Z_o = 50 Ω

FREQUENCY	S11		S21		S12		S22	
	MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG
200.00	0.734	-32.7	12.966	149.3	0.035	74.4	0.894	-20.4
400.00	0.576	-57.2	10.301	126.8	0.059	60.1	0.735	-34.3
600.00	0.432	-77.6	8.183	111.1	0.078	55.5	0.616	-42.1
800.00	0.337	-96.1	6.721	98.3	0.092	55.5	0.520	-47.2
1000.00	0.263	-116.6	5.619	88.8	0.106	51.3	0.455	-50.3
1200.00	0.216	-138.0	4.788	80.4	0.121	51.2	0.404	-53.7
1400.00	0.206	-160.4	4.191	73.1	0.136	48.5	0.363	-58.4
1600.00	0.191	-179.5	3.722	66.5	0.144	47.4	0.329	-61.8
1800.00	0.199	161.0	3.298	60.3	0.158	45.1	0.298	-67.4
2000.00	0.230	150.7	3.024	54.5	0.167	41.0	0.266	-72.0
2200.00	0.250	138.1	2.741	48.8	0.189	40.0	0.264	-75.7
2400.00	0.273	131.2	2.565	43.7	0.200	38.1	0.228	-82.1
2600.00	0.313	124.0	2.394	38.8	0.217	36.0	0.204	-86.1
2800.00	0.341	117.4	2.257	33.2	0.225	33.6	0.193	-90.5
3000.00	0.362	109.1	2.089	27.8	0.249	28.1	0.171	-112.3

$V_{CE} = 2\text{ V}$, $I_c = 7\text{ mA}$, $Z_o = 50\ \Omega$

FREQUENCY	S11		S21		S12		S22	
	MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG
200.00	0.653	-37.7	15.782	144.1	0.034	69.7	0.853	-23.8
400.00	0.475	-63.8	11.759	120.9	0.055	65.6	0.666	-37.6
600.00	0.338	-84.5	8.990	106.0	0.071	60.1	0.546	-43.9
800.00	0.255	-104.5	7.211	94.1	0.084	55.5	0.460	-47.5
1000.00	0.200	-125.2	5.957	85.3	0.102	56.3	0.397	-50.5
1200.00	0.166	-150.4	5.029	77.6	0.121	55.0	0.360	-53.1
1400.00	0.168	-171.1	4.395	71.0	0.132	53.0	0.319	-58.2
1600.00	0.168	168.4	3.883	64.7	0.148	50.3	0.290	-62.7
1800.00	0.184	151.8	3.442	58.9	0.162	48.1	0.254	-69.2
2000.00	0.215	141.5	3.142	53.4	0.179	44.4	0.232	-72.5
2200.00	0.242	129.3	2.855	48.1	0.182	42.2	0.217	-78.3
2400.00	0.264	124.5	2.660	42.9	0.204	39.4	0.189	-89.1
2600.00	0.310	119.2	2.476	38.4	0.218	36.0	0.169	-91.6
2800.00	0.331	112.8	2.334	33.0	0.240	34.1	0.156	-93.9
3000.00	0.350	108.0	2.164	27.8	0.250	29.0	0.153	-118.7

$V_{CE} = 2\text{ V}$, $I_c = 10\text{ mA}$, $Z_o = 50\ \Omega$

FREQUENCY	S11		S21		S12		S22	
	MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG
200.00	0.551	-43.3	18.674	138.6	0.031	69.7	0.800	-27.6
400.00	0.373	-69.6	12.955	115.2	0.051	65.3	0.590	-39.9
600.00	0.248	-90.3	9.543	101.3	0.068	62.3	0.478	-45.3
800.00	0.188	-112.1	7.543	90.6	0.082	62.2	0.403	-47.7
1000.00	0.144	-137.4	6.175	82.4	0.098	58.4	0.352	-50.5
1200.00	0.135	-163.1	5.195	75.3	0.117	57.7	0.317	-53.2
1400.00	0.144	176.0	4.525	69.2	0.134	53.6	0.281	-57.5
1600.00	0.159	156.1	3.994	63.3	0.150	52.1	0.259	-61.9
1800.00	0.176	138.6	3.529	57.9	0.160	51.2	0.228	-68.3
2000.00	0.210	131.3	3.231	52.7	0.179	47.0	0.201	-71.4
2200.00	0.237	125.1	2.933	47.6	0.194	44.2	0.185	-81.2
2400.00	0.267	119.1	2.740	42.7	0.207	41.5	0.162	-90.7
2600.00	0.302	114.0	2.555	38.2	0.219	38.3	0.143	-90.9
2800.00	0.340	111.0	2.396	32.7	0.236	35.2	0.127	-101.1
3000.00	0.360	103.5	2.205	27.7	0.256	29.8	0.134	-127.4

$V_{CE} = 2\text{ V}$, $I_c = 20\text{ mA}$, $Z_o = 50\ \Omega$

FREQUENCY	S11		S21		S12		S22	
	MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG
200.00	0.367	-54.7	22.865	129.1	0.026	73.5	0.682	-33.0
400.00	0.223	-82.7	14.270	107.1	0.045	68.7	0.477	-42.2
600.00	0.142	-107.6	10.122	95.3	0.062	67.7	0.389	-44.6
800.00	0.108	-137.1	7.845	86.0	0.084	67.2	0.327	-46.8
1000.00	0.108	-170.1	6.376	78.6	0.101	63.4	0.291	-48.1
1200.00	0.122	168.0	5.346	72.3	0.118	60.7	0.260	-52.5
1400.00	0.141	148.9	4.638	66.6	0.135	57.8	0.232	-57.7
1600.00	0.159	137.5	4.087	61.3	0.152	56.9	0.209	-62.8
1800.00	0.193	127.3	3.611	56.1	0.169	52.1	0.184	-70.4
2000.00	0.217	123.6	3.297	51.2	0.183	50.3	0.158	-76.2
2200.00	0.245	117.4	2.987	46.3	0.203	46.5	0.147	-84.1
2400.00	0.278	113.9	2.801	41.7	0.221	43.5	0.127	-95.5
2600.00	0.314	110.1	2.597	37.3	0.232	40.0	0.110	-104.8
2800.00	0.335	106.1	2.458	32.2	0.260	36.6	0.096	-109.1
3000.00	0.357	99.8	2.259	26.7	0.262	30.8	0.117	-143.4

[MEMO]

[MEMO]

[MEMO]

No part of this document may be copied or reproduced in any form or by any means without the prior written consent of NEC Corporation. NEC Corporation assumes no responsibility for any errors which may appear in this document.

NEC Corporation does not assume any liability for infringement of patents, copyrights or other intellectual property rights of third parties by or arising from use of a device described herein or any other liability arising from use of such device. No license, either express, implied or otherwise, is granted under any patents, copyrights or other intellectual property rights of NEC Corporation or others.

While NEC Corporation has been making continuous effort to enhance the reliability of its semiconductor devices, the possibility of defects cannot be eliminated entirely. To minimize risks of damage or injury to persons or property arising from a defect in an NEC semiconductor device, customers must incorporate sufficient safety measures in its design, such as redundancy, fire-containment, and anti-failure features.

NEC devices are classified into the following three quality grades:

"Standard", "Special", and "Specific". The Specific quality grade applies only to devices developed based on a customer designated "quality assurance program" for a specific application. The recommended applications of a device depend on its quality grade, as indicated below. Customers must check the quality grade of each device before using it in a particular application.

Standard: Computers, office equipment, communications equipment, test and measurement equipment, audio and visual equipment, home electronic appliances, machine tools, personal electronic equipment and industrial robots

Special: Transportation equipment (automobiles, trains, ships, etc.), traffic control systems, anti-disaster systems, anti-crime systems, safety equipment and medical equipment (not specifically designed for life support)

Specific: Aircrafts, aerospace equipment, submersible repeaters, nuclear reactor control systems, life support systems or medical equipment for life support, etc.

The quality grade of NEC devices is "Standard" unless otherwise specified in NEC's Data Sheets or Data Books. If customers intend to use NEC devices for applications other than those specified for Standard quality grade, they should contact an NEC sales representative in advance.

Anti-radioactive design is not implemented in this product.