

SANYO	No.5512A	2SC5347
		NPN Epitaxial Planar Silicon Transistor High-Frequency Semi-Power Output Stage, Low-Noise Medium Output Amplifiers Applications

Features

- High frequency medium output amplification : $f_T = 4.7\text{GHz typ (} f = 1\text{GHz)}$.
($V_{CE} = 5\text{V, } I_C = 50\text{mA}$)
- : $|S_{21e}|^2 = 8\text{dB typ (} f = 1\text{GHz)}$.
- : $NF = 1.8\text{dB typ (} f = 1\text{GHz)}$.

Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

			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	150	mA
Collector Dissipation	P_C	Mounted on ceramic board ($250\text{mm}^2 \times 0.8\text{mm}$)	1.3 W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a = 25^\circ\text{C}$

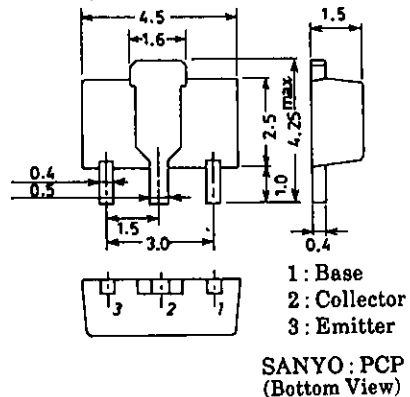
			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = 10\text{V, } I_E = 0$			1.0	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 1\text{V, } I_C = 0$			10	μA
DC Current Gain	h_{FE}	$V_{CE} = 5\text{V, } I_C = 50\text{mA}$	60*		270*	
Gain-Bandwidth Product	f_T	$V_{CE} = 5\text{V, } I_C = 50\text{mA}$	3	4.7		GHz
Output Capacitance	C_{ob}	$V_{CB} = 10\text{V, } f = 1\text{MHz}$		1.3	2.0	pF
Reverse Transfer Capacitance	C_{re}	$V_{CB} = 10\text{V, } f = 1\text{MHz}$		0.9		pF
Forward Transfer Gain	$ S_{21e} ^2$	$V_{CE} = 5\text{V, } I_C = 50\text{mA, } f = 1\text{GHz}$	6	8		dB
Noise Figure	NF	$V_{CE} = 5\text{V, } I_C = 50\text{mA, } f = 1\text{GHz}$		1.8	3.0	dB

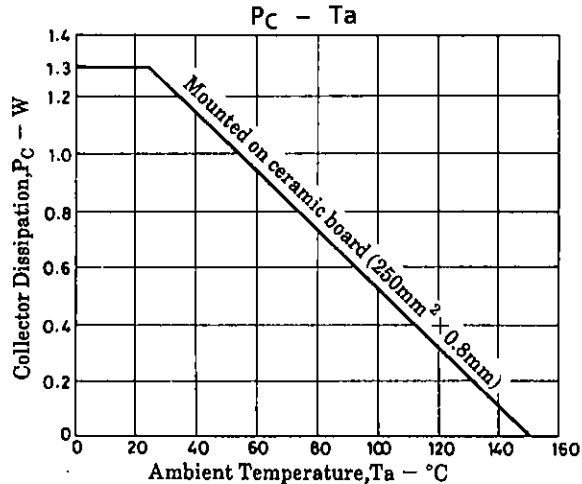
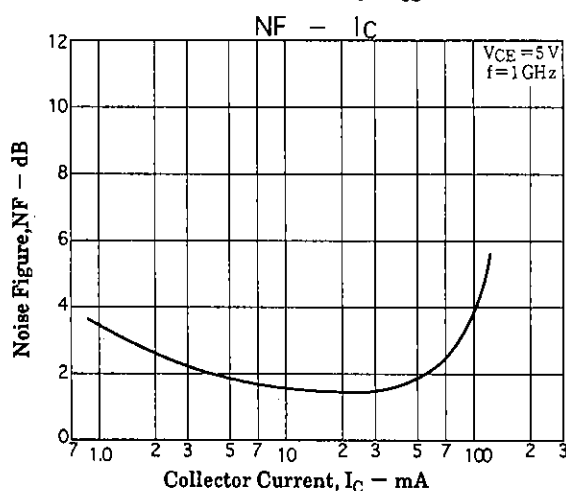
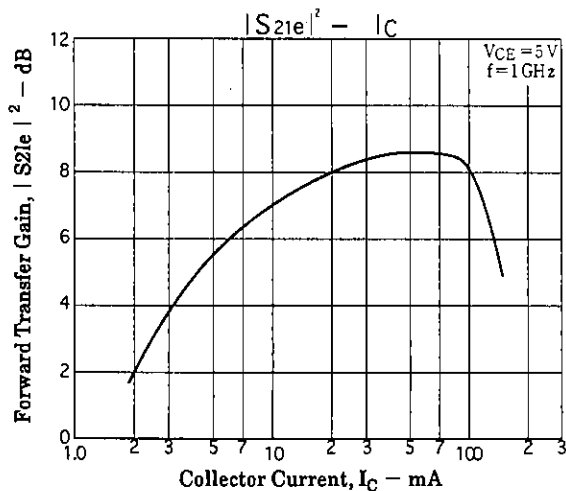
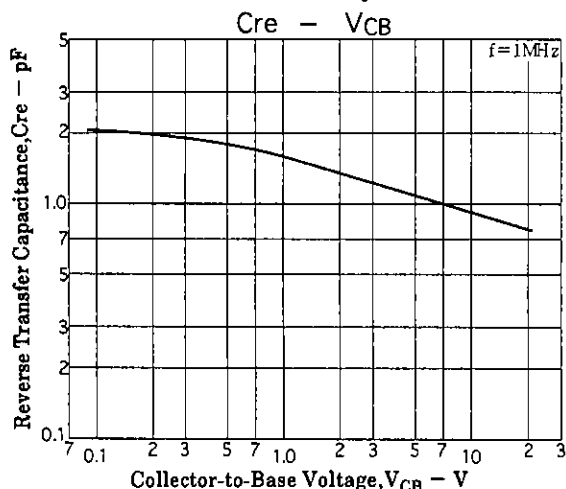
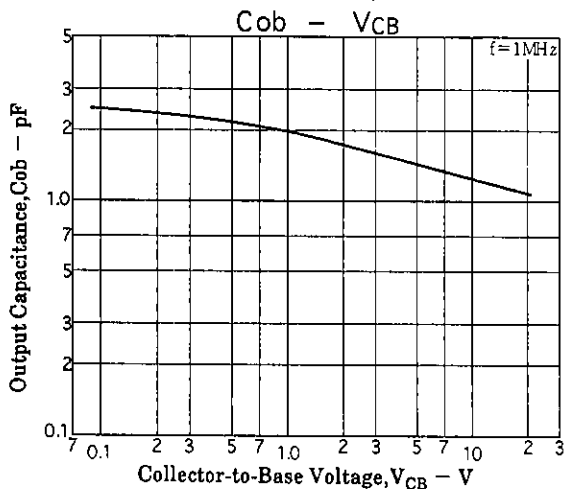
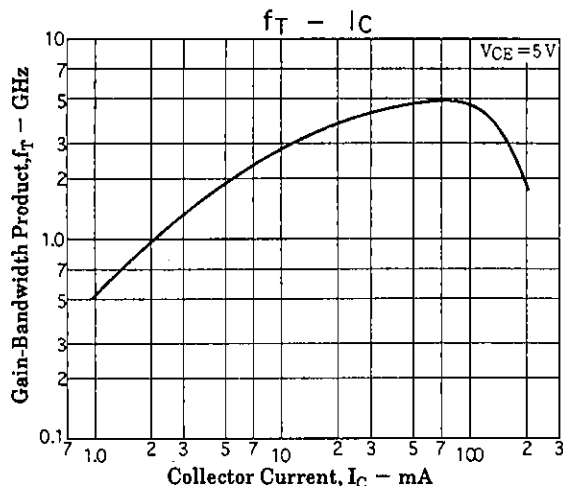
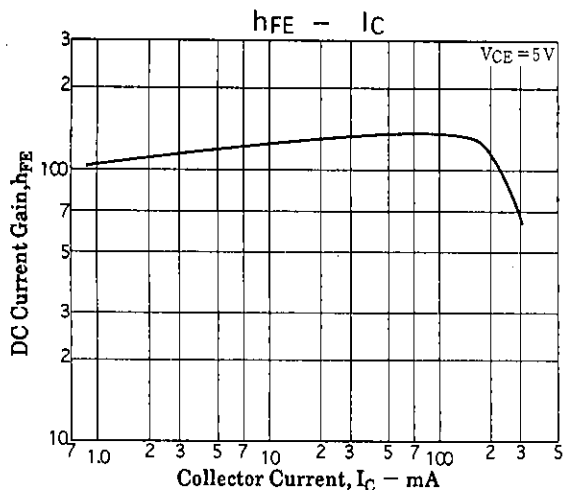
* : The 2SC5347 is classified by 50mA h_{FE} as follows :

60 D 120	90 E 180	135 F 270
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Marking : CZ
 h_{FE} rank : D, E, F

Package Dimensions 2038A
(unit : mm)

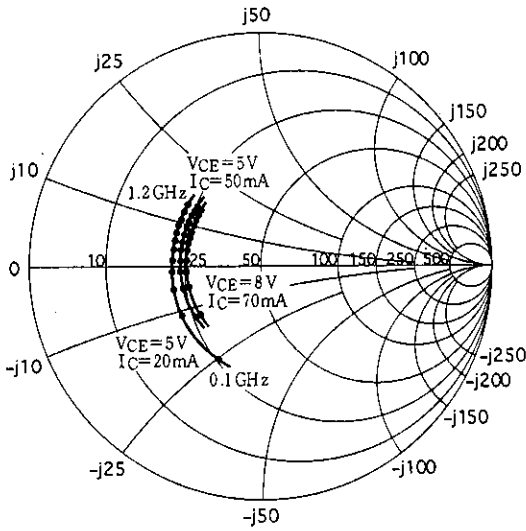




S Parameters

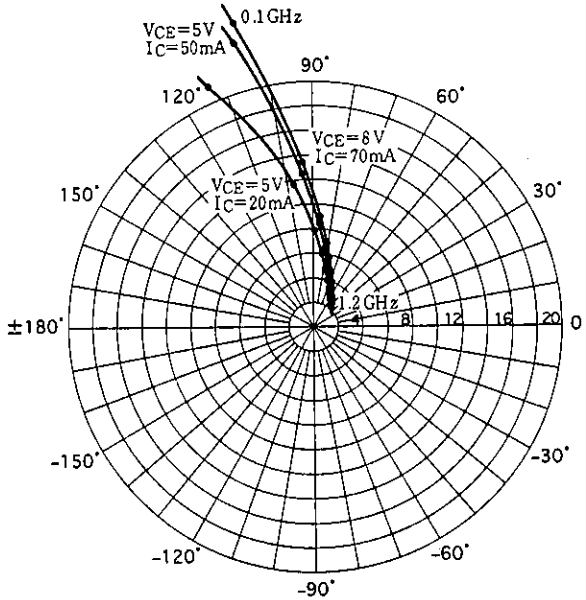
S11e

f=100MHz to 1200MHz (100MHz step)



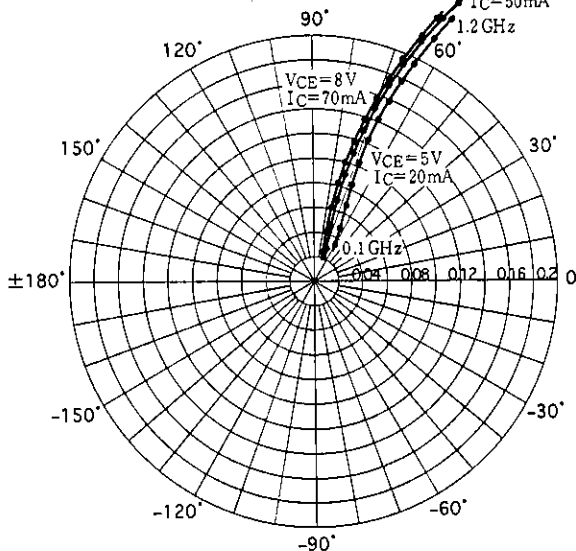
S21e

f=100MHz to 1200MHz (100MHz step)



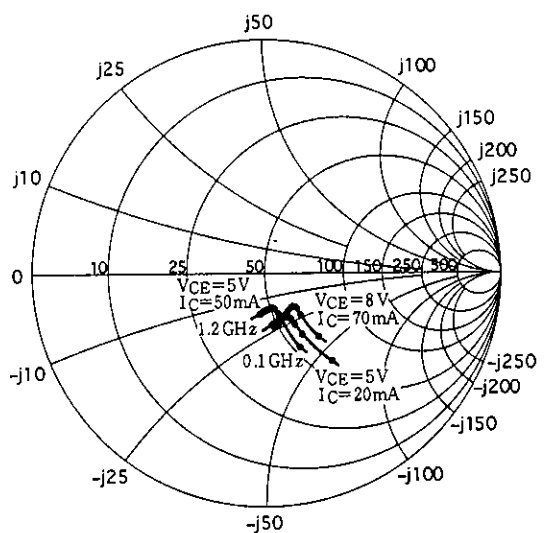
S12e

f=100MHz to 1200MHz (100MHz step)



S22e

f=100MHz to 1200MHz (100MHz step)



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S Parameters (Common emitter) $V_{CE}=5V, I_C=50mA, Z_O=50\Omega$

Freq (MHz)	$ S_{11} $	$\angle S_{11}$	$ S_{21} $	$\angle S_{21}$	$ S_{12} $	$\angle S_{12}$	$ S_{22} $	$\angle S_{22}$
100	0.358	-141.0	24.005	105.9	0.027	68.4	0.342	-63.0
200	0.354	-165.7	12.593	93.3	0.047	72.7	0.205	-68.4
300	0.355	-176.8	8.532	86.8	0.068	74.1	0.166	-69.7
400	0.359	174.9	6.428	81.9	0.089	73.7	0.149	-72.3
500	0.359	169.3	5.293	77.6	0.110	72.8	0.145	-75.3
600	0.362	163.9	4.360	73.5	0.130	71.7	0.143	-78.6
700	0.366	158.5	3.774	69.9	0.151	70.2	0.147	-82.1
800	0.364	153.5	3.334	66.4	0.171	68.6	0.151	-85.6
900	0.368	149.8	2.995	62.9	0.191	66.7	0.158	-90.1
1000	0.370	145.3	2.725	59.4	0.210	65.1	0.166	-92.3
1100	0.373	141.5	2.494	56.5	0.230	63.0	0.170	-95.1
1200	0.377	137.6	2.307	53.0	0.248	61.4	0.177	-97.8

 $V_{CE}=5V, I_C=20mA, Z_O=50\Omega$

Freq (MHz)	$ S_{11} $	$\angle S_{11}$	$ S_{21} $	$\angle S_{21}$	$ S_{12} $	$\angle S_{12}$	$ S_{22} $	$\angle S_{22}$
100	0.445	-115.4	21.095	113.8	0.032	59.7	0.479	-52.4
200	0.400	-149.6	11.567	97.4	0.049	63.4	0.300	-58.0
300	0.394	-165.7	7.917	89.3	0.066	67.0	0.242	-58.8
400	0.391	-176.5	5.974	82.5	0.085	68.5	0.214	-60.0
500	0.391	176.7	4.845	78.4	0.103	68.8	0.203	-62.2
600	0.392	169.4	4.065	73.9	0.122	68.6	0.199	-64.7
700	0.393	163.8	3.522	70.0	0.141	67.8	0.198	-67.9
800	0.394	158.4	3.114	66.4	0.159	67.1	0.201	-71.2
900	0.396	154.1	2.798	62.5	0.178	65.7	0.204	-74.7
1000	0.399	149.3	2.548	58.9	0.196	64.5	0.212	-78.1
1100	0.403	144.9	2.333	55.5	0.215	62.9	0.218	-81.4
1200	0.408	141.0	2.158	51.8	0.233	61.8	0.224	-84.1

 $V_{CE}=8V, I_C=70mA, Z_O=50\Omega$

Freq (MHz)	$ S_{11} $	$\angle S_{11}$	$ S_{21} $	$\angle S_{21}$	$ S_{12} $	$\angle S_{12}$	$ S_{22} $	$\angle S_{22}$
100	0.328	-141.2	25.505	105.1	0.024	70.5	0.348	-50.8
200	0.323	-165.7	13.334	93.0	0.043	75.0	0.233	-48.9
300	0.323	-176.6	9.025	86.7	0.062	75.8	0.204	-47.0
400	0.326	175.1	6.819	81.8	0.081	75.5	0.191	-48.0
500	0.325	169.5	5.481	77.8	0.100	74.5	0.187	-50.5
600	0.328	163.6	4.612	73.7	0.119	73.4	0.185	-53.6
700	0.330	158.4	3.980	70.2	0.139	71.8	0.188	-57.3
800	0.333	153.5	3.524	66.7	0.157	70.4	0.191	-60.9
900	0.335	150.0	3.148	63.3	0.177	68.5	0.198	-65.1
1000	0.341	144.7	2.866	60.0	0.194	67.1	0.204	-69.0
1100	0.345	141.2	2.629	57.0	0.213	65.1	0.208	-72.1
1200	0.348	138.0	2.424	53.4	0.230	62.6	0.215	-75.3