Ordering number: EN 5512A

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=4.7GHz typ (f=1GHz).
  (V_{CE}=5V, I_C=50mA) : $|S21e|^2$=8dB typ (f=1GHz).
  : NF=1.8dB typ (f=1GHz).

Absolute Maximum Ratings at Ta=25°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 (250mm²×0.8mm)	1.3	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Electrical Characteristics at Ta=25°C

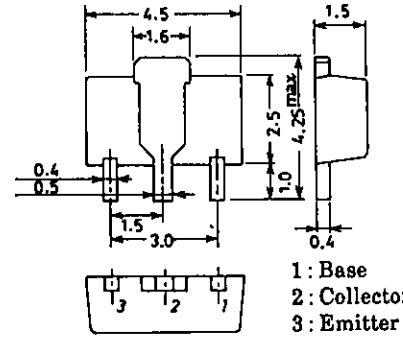
			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	V_{CB}=10V, I_E=0			1.0	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=1V, I_C=0			10	μA
DC Current Gain	h_{FE}	V_{CE}=5V, I_C=50mA	60※		270※	
Gain-Bandwidth Product	f_T	V_{CE}=5V, I_C=50mA	3	4.7		GHz
Output Capacitance	Cob	V_{CB}=10V, f=1MHz		1.3	2.0	pF
Reverse Transfer Capacitance	Cre	V_{CB}=10V, f=1MHz		0.9		pF
Forward Transfer Gain	$\|S21e\|^2$	V_{CE}=5V, I_C=50mA, f=1GHz	6	8		dB
Noise Figure	NF	V_{CE}=5V, I_C=50mA, f=1GHz		1.8	3.0	dB

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

60 D 120	90 E 180	135 F 270

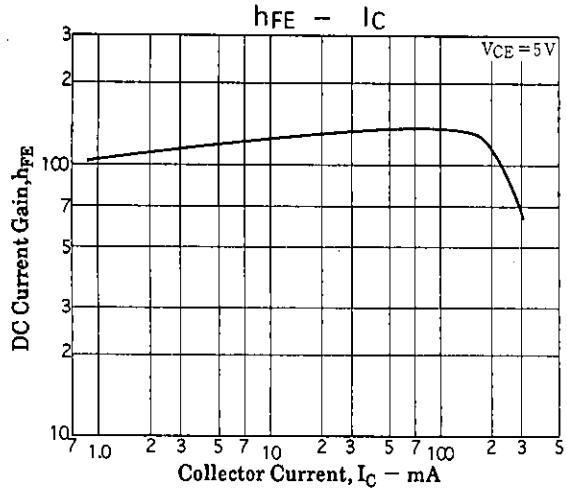
Marking : CZ
h_{FE} rank : D, E, F

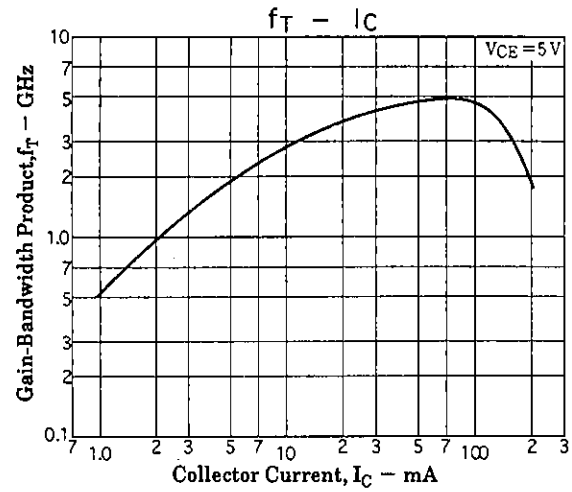
Package Dimensions 2038A
(unit : mm)

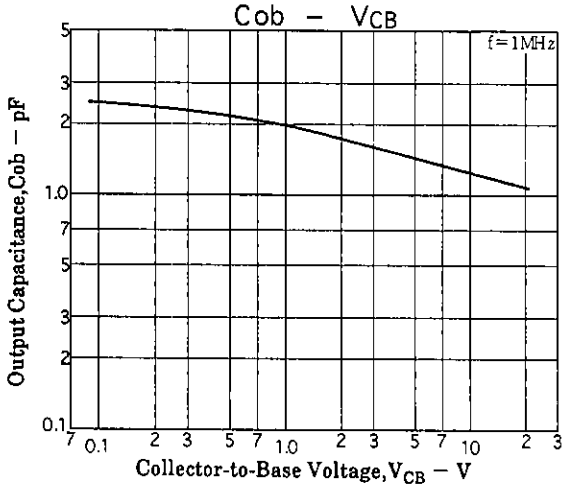


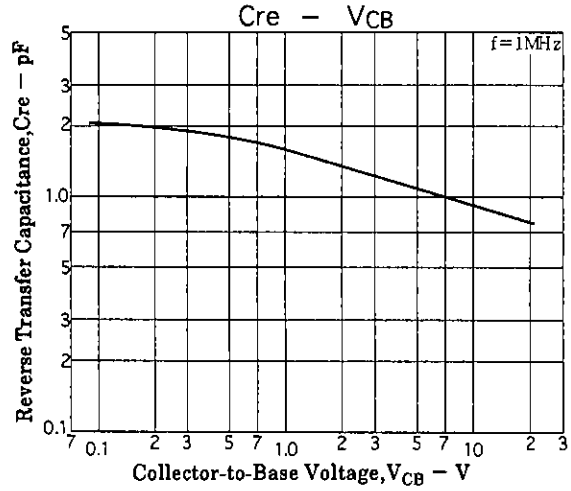
1 : Base
2 : Collector
3 : Emitter

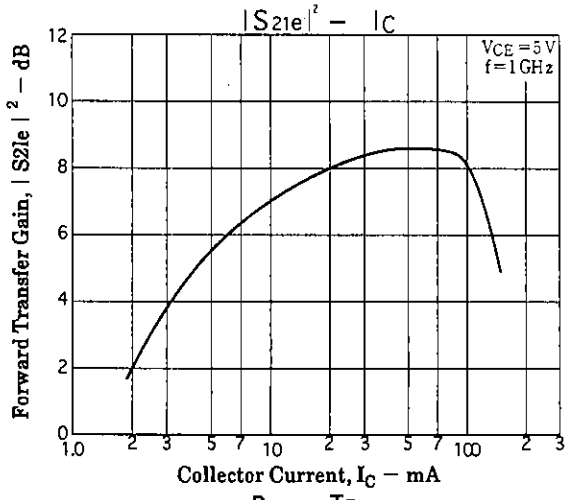
SANYO : PCP
(Bottom View)

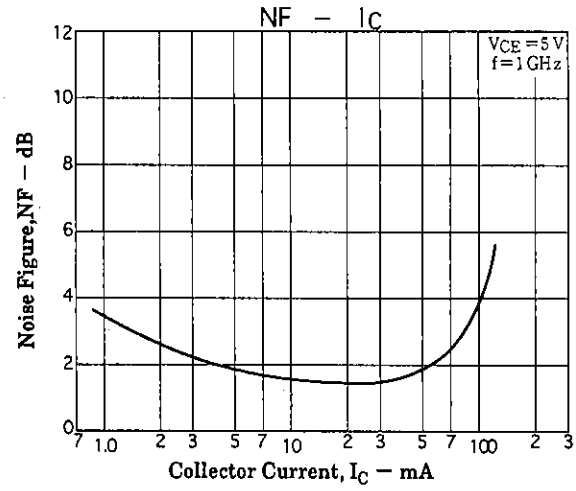

hFE – IC
VCE = 5 V
DC Current Gain, hFE
Collector Current, IC – mA

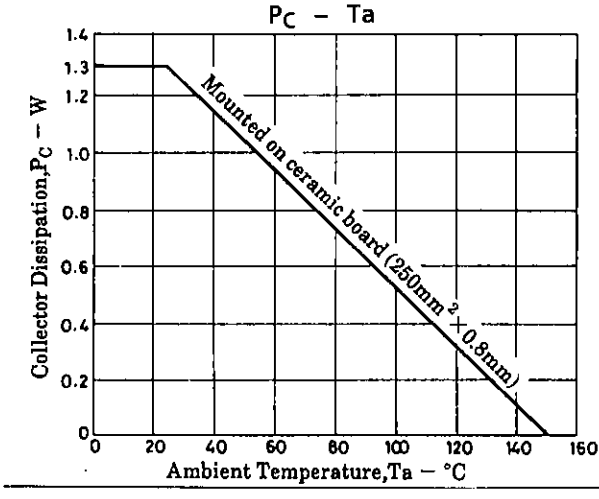

fT – IC
VCE = 5 V
Gain-Bandwidth Product, fT – GHz
Collector Current, IC – mA


Cob – VCB
f = 1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V


Cre – VCB
f = 1MHz
Reverse Transfer Capacitance, Cre – pF
Collector-to-Base Voltage, VCB – V


|S21e|² – IC
VCE = 5 V
f = 1 GHz
Forward Transfer Gain, |S21e|² – dB
Collector Current, IC – mA

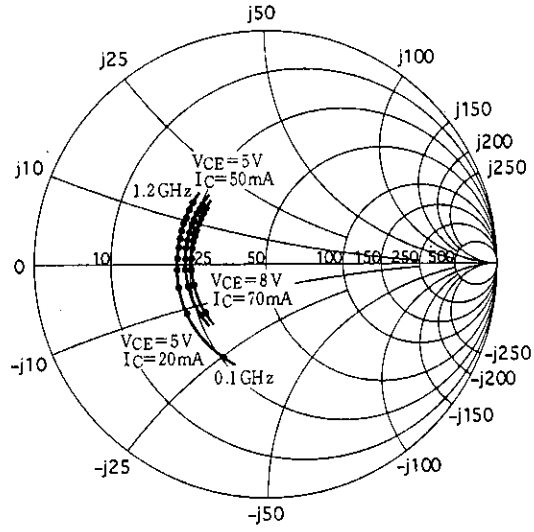

NF – IC
VCE = 5 V
f = 1 GHz
Noise Figure, NF – dB
Collector Current, IC – mA


PC – Ta
Mounted on ceramic board (250mm² × 0.8mm)
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C

S Parameters

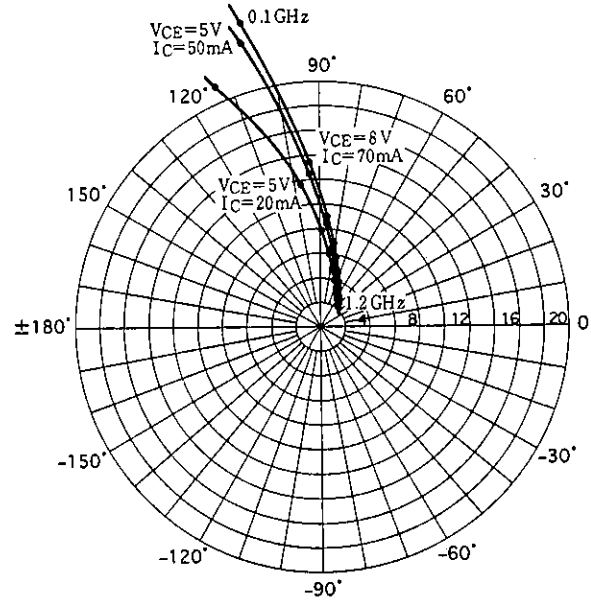
S11e

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



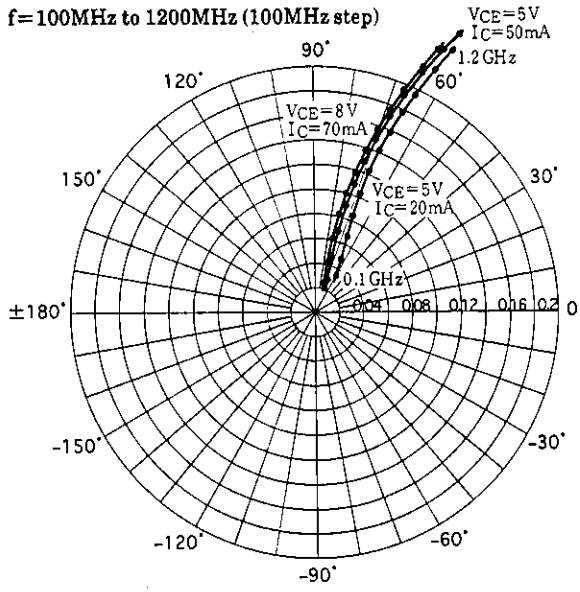
S21e

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



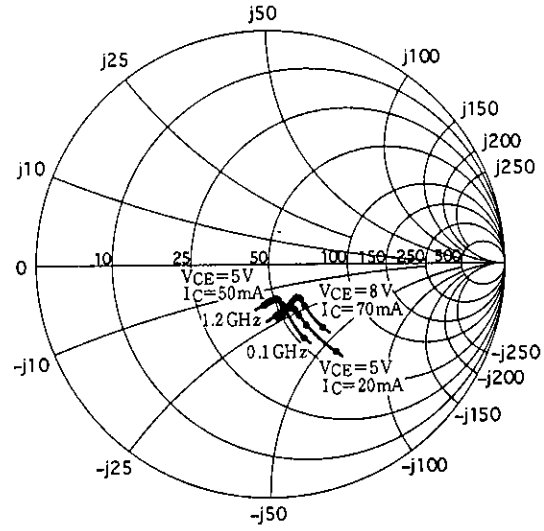
S12e

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



S22e

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



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