Ordering number : EN5512C

SANYO Semiconductors

DATA SHEET

NPN Epitaxial Planar Silicon Transistor

2SC5347 — High-Frequency Semi-Power Output Stage, Low-Noise Medium Output Amplifier Applications

Features

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

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	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 a ceramic board (900mm²×0.8mm)	1.3	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=10V, I_E=0A			1.0	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=1V, I_C=0A			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

Marking : CZ

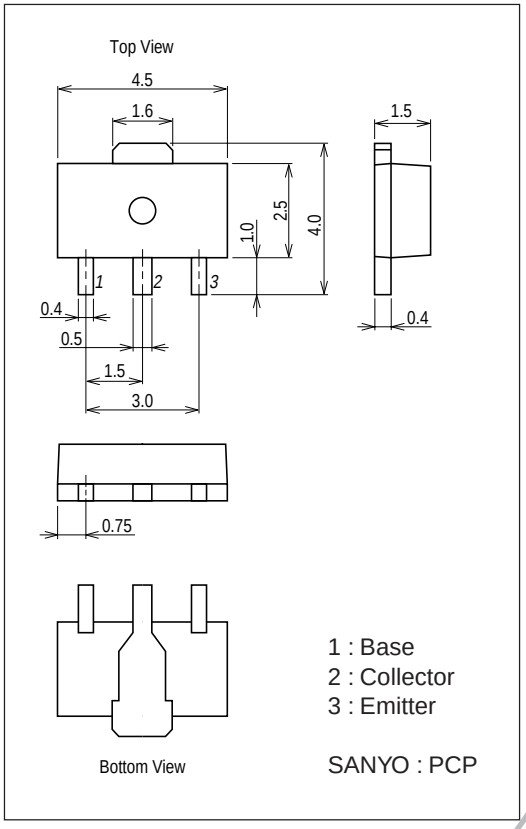
* : The 2SC5347 is classified by 50mA h_{FE} as follows :

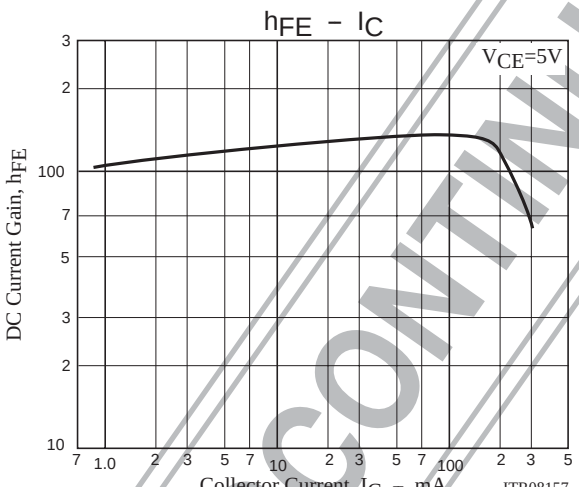
Rank	D	E	F
h_{FE}	60 to 120	90 to 180	135 to 270

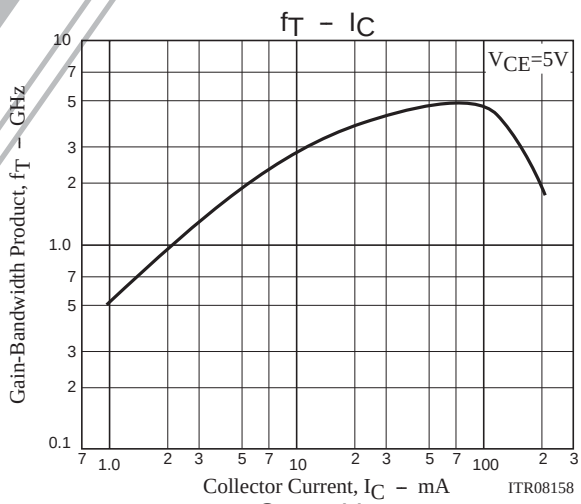
SANYO Semiconductor Co., Ltd.
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

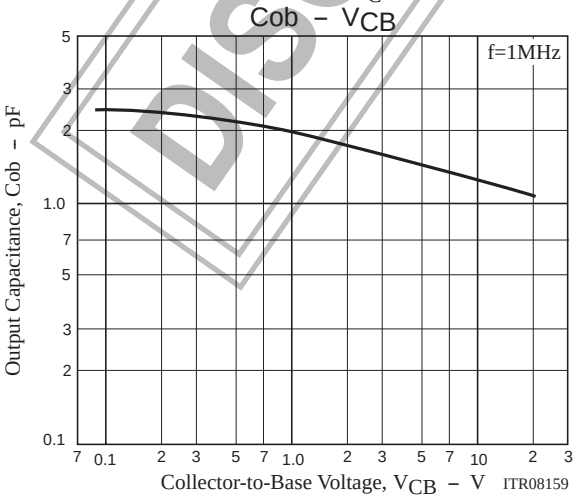
Package Dimensions

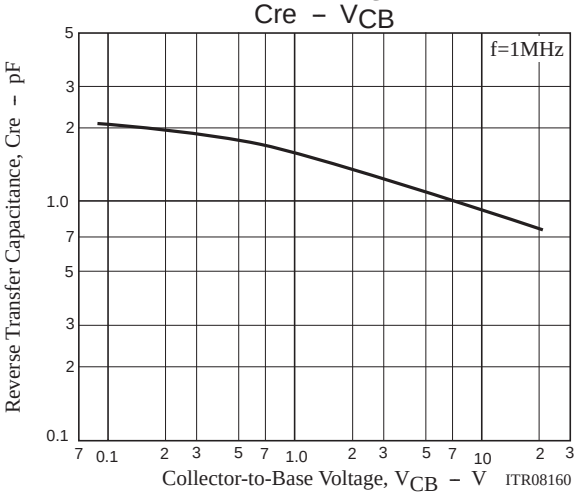
unit : mm (typ)
7007A-004

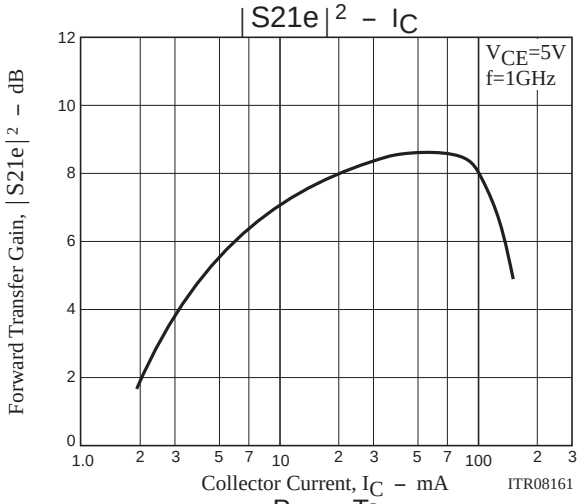


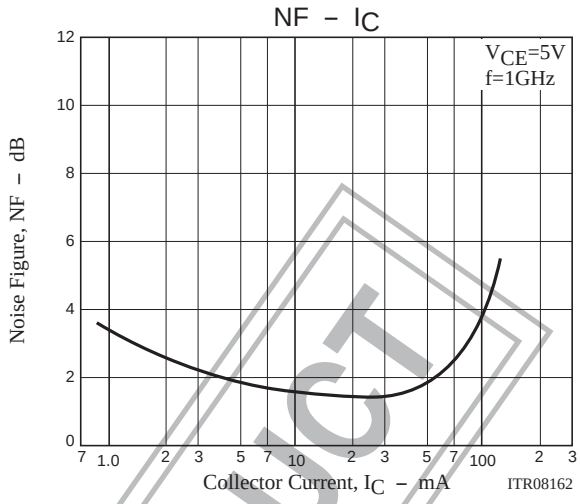


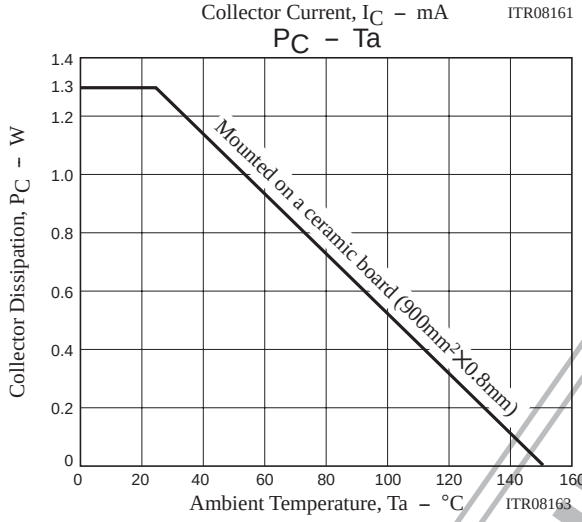








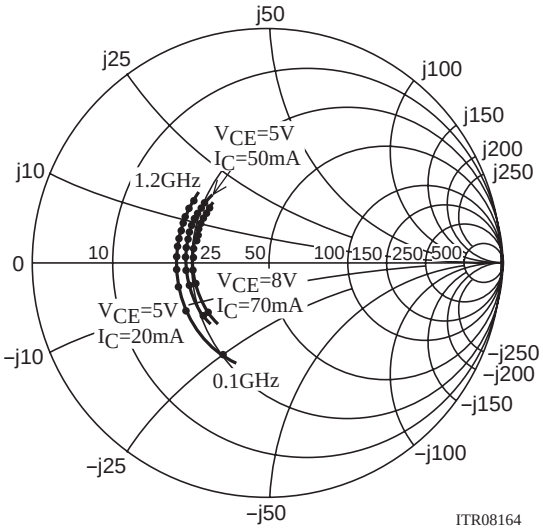




S Parameter

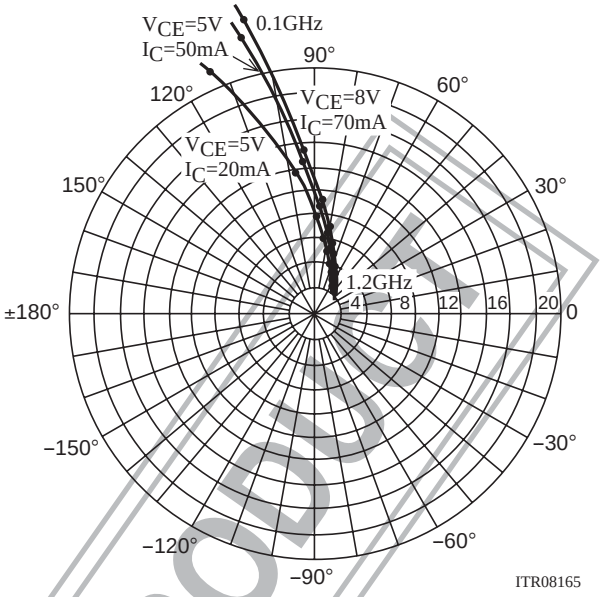
S11e

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



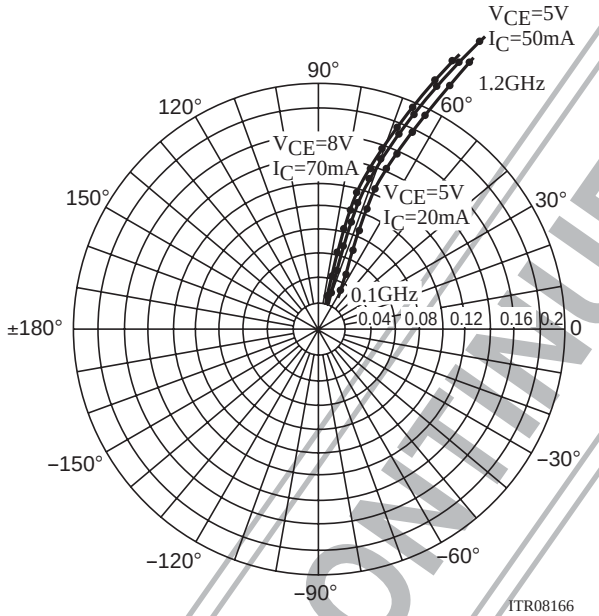
S21e

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



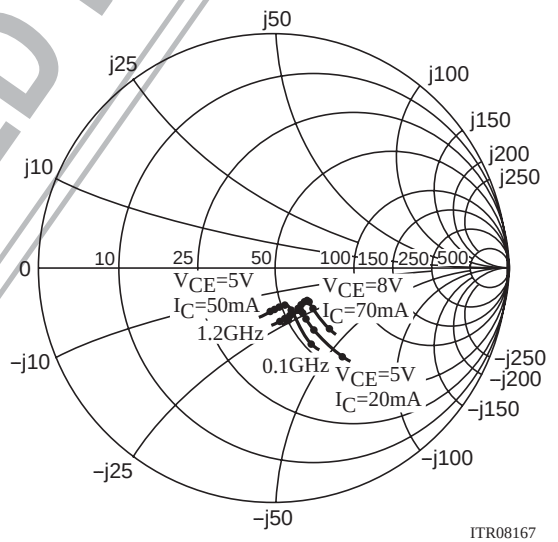
S12e

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=50Ω

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=50Ω

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=50Ω

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