



SANYO Semiconductors

DATA SHEET

2SC5347

NPN Epitaxial Planar Silicon Transistor

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 ($f=1GHz$).
: $|S_{21e}|^2=8dB$ typ ($f=1GHz$).
: $NF=1.8dB$ typ ($f=1GHz$).

Specifications

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

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 (900mm ² ×0.8mm)	1.3	W
Junction Temperature	T_J		150	°C
Storage Temperature	T_{stg}		-55 to +150	°C

Electrical Characteristics at $T_a=25^\circ C$

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	C_{ob}	$V_{CB}=10V$, $f=1MHz$		1.3	2.0	pF
Reverse Transfer Capacitance	C_{re}	$V_{CB}=10V$, $f=1MHz$		0.9		pF
Forward Transfer Gain	$ S_{21e} ^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

■ Any and all SANYO Semiconductor products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your SANYO Semiconductor representative nearest you before using any SANYO Semiconductor products described or contained herein in such applications.

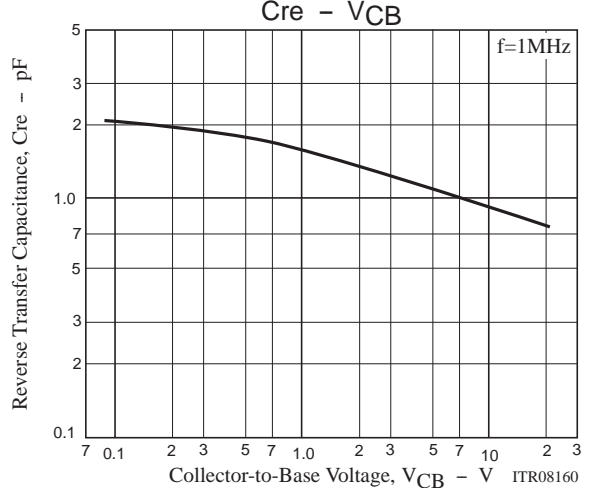
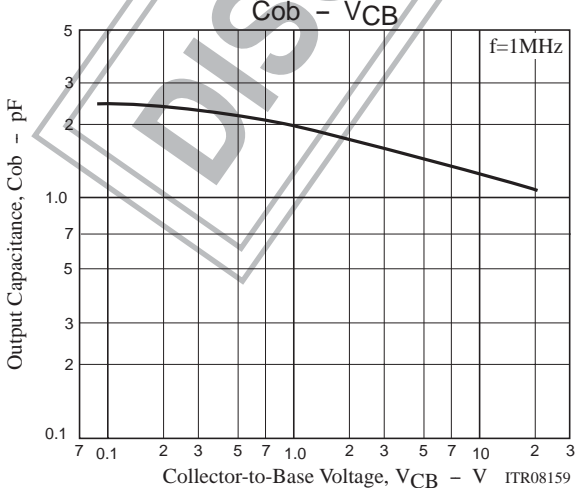
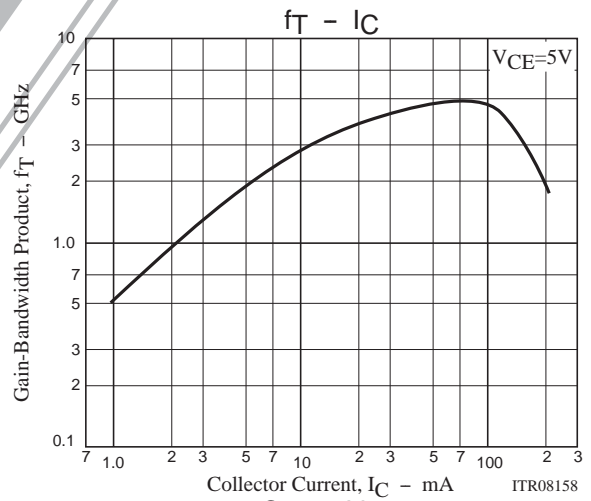
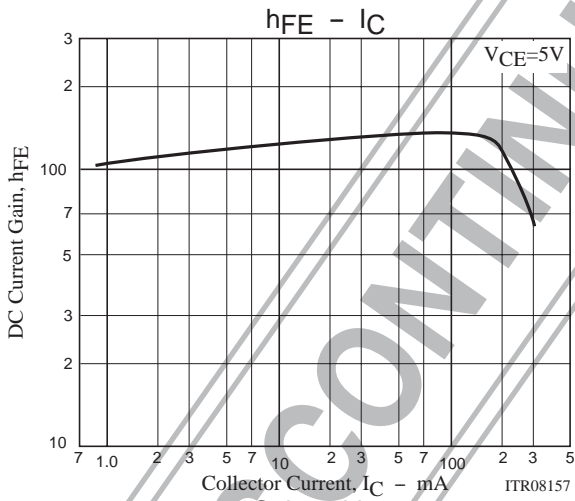
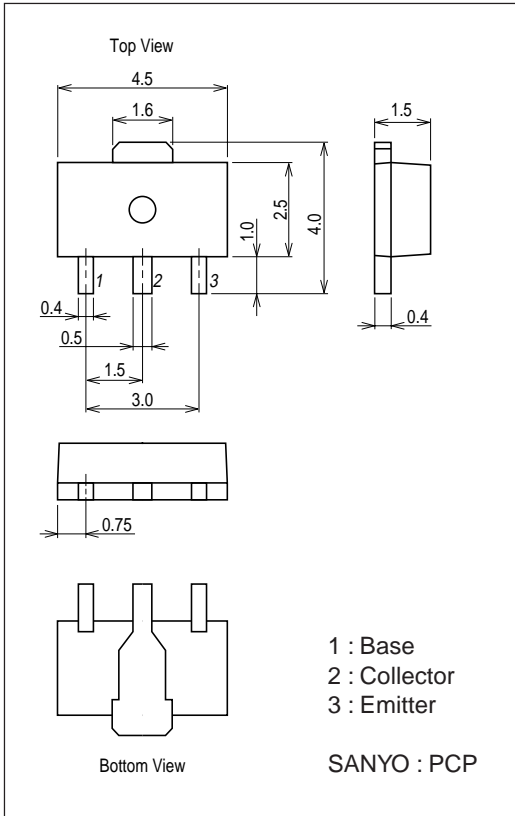
■ SANYO Semiconductor assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all SANYO Semiconductor products described or contained herein.

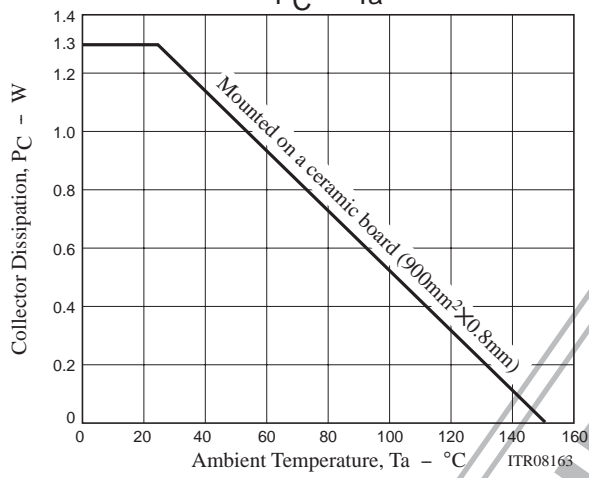
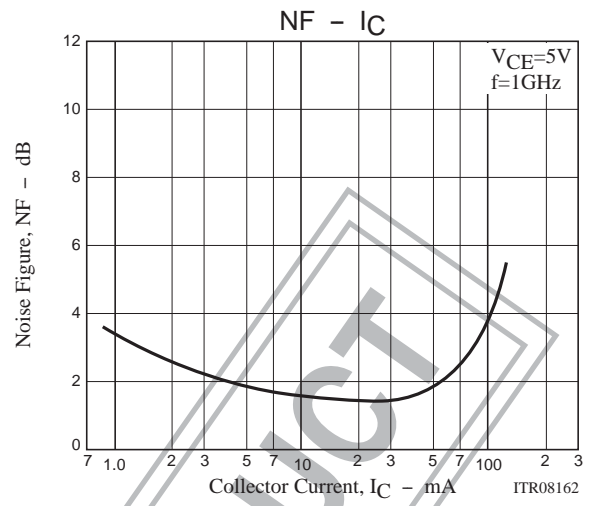
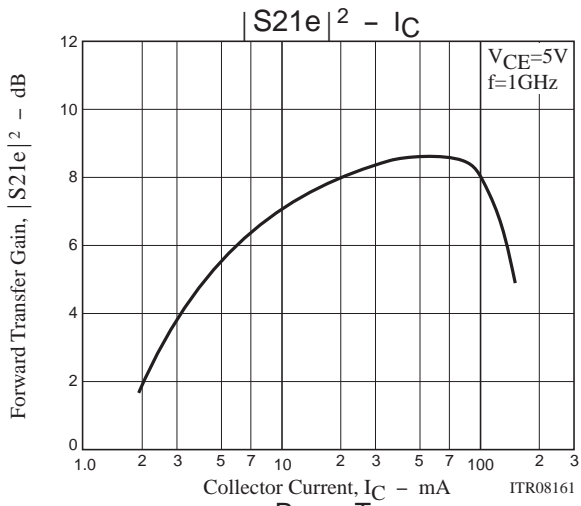
SANYO Semiconductor Co., Ltd.

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

Package Dimensions

unit : mm (typ)
7007A-004





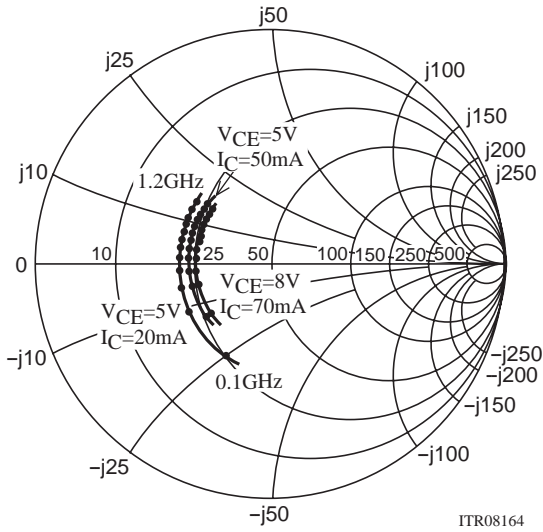
DISCONTINUED PRODUCT

2SC5347

S Parameter

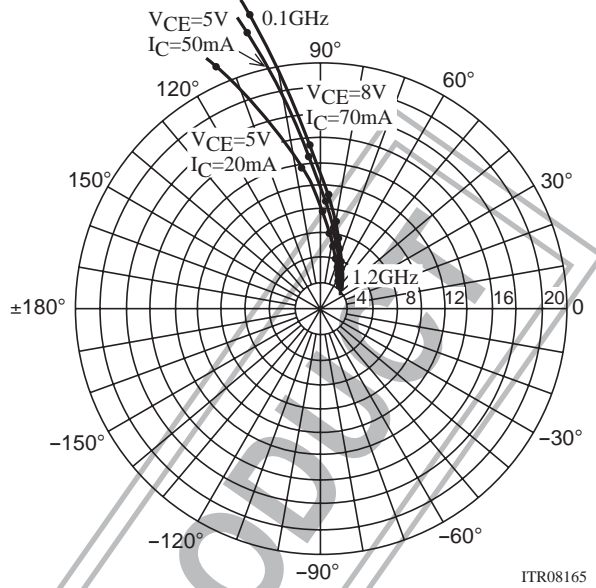
S11e

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



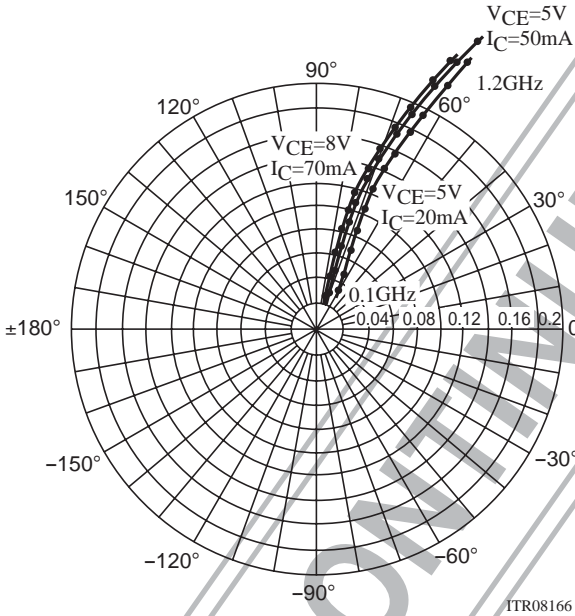
S21e

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



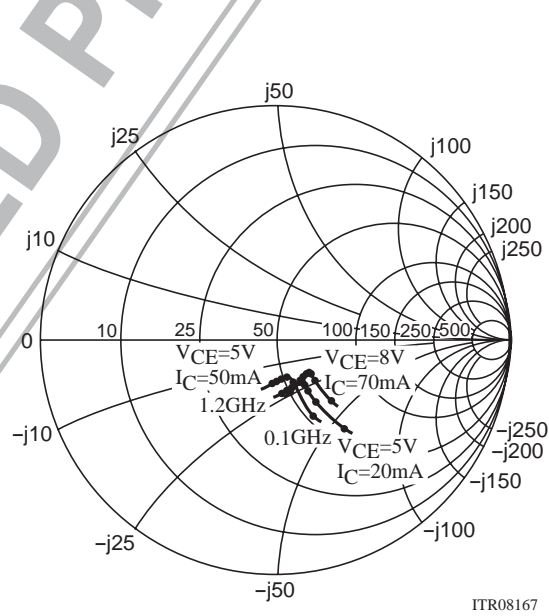
S12e

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



S22e

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



DISCONTINUED PRODUCT

2SC5347

S Parameters (Common emitter)

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

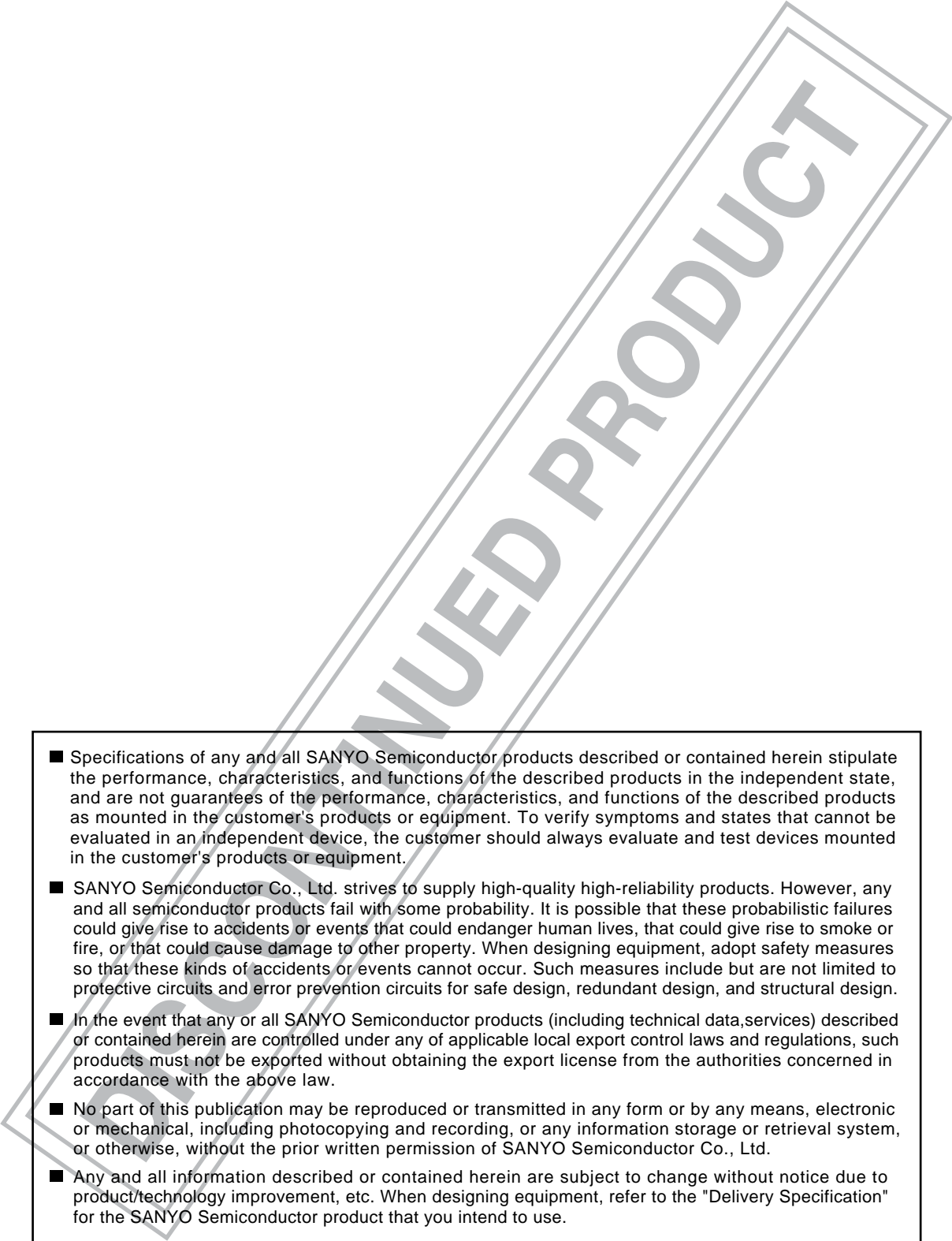
Freq(MHz)	$ S_{11} $	$\angle S_{11}$	$ S_{21} $	$\angle S_{21}$	$ S_{12} $	$\angle S_{12}$	$ S_{22} $	$\angle S_{22}$
100	0.358	-141.0	24.005	105.9	0.027	68.4	0.342	-63.0
200	0.354	-165.7	12.593	93.3	0.047	72.7	0.205	-68.4
300	0.355	-176.8	8.532	86.8	0.068	74.1	0.166	-69.7
400	0.359	174.9	6.428	81.9	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

- 
- Specifications of any and all SANYO Semiconductor products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.
 - SANYO Semiconductor Co., Ltd. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.
 - In the event that any or all SANYO Semiconductor products (including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.
 - No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of SANYO Semiconductor Co., Ltd.
 - Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the SANYO Semiconductor product that you intend to use.
 - Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. SANYO Semiconductor believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.

This catalog provides information as of August, 2006. Specifications and information herein are subject to change without notice.