

# 2SC5555

Silicon NPN Epitaxial  
VHF / UHF wide band amplifier

# HITACHI

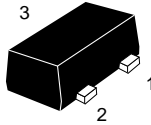
ADE-208-693 (Z)  
1st. Edition  
Nov. 1998

## Features

- Super compact package;  
(1.4 × 0.8 × 0.59mm)
- Capable low voltage operation ;  
( $V_{CE} = 1V$ )

## Outline

MFPAK



1. Emitter
2. Base
3. Collector

Note: Marking is "ZD-".

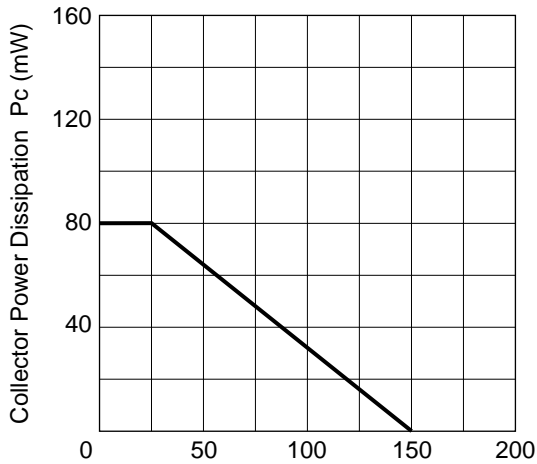
**Absolute Maximum Ratings** ( $T_a = 25^\circ\text{C}$ )

Item	Symbol	Ratings	Unit
Collector to base voltage	$V_{CBO}$	15	V
Collector to emitter voltage	$V_{CEO}$	8	V
Emitter to base voltage	$V_{EBO}$	1.5	V
Collector current	$I_C$	50	mA
Collector power dissipation	$P_c$	80	mW
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

**Electrical Characteristics** ( $T_a = 25^\circ\text{C}$ )

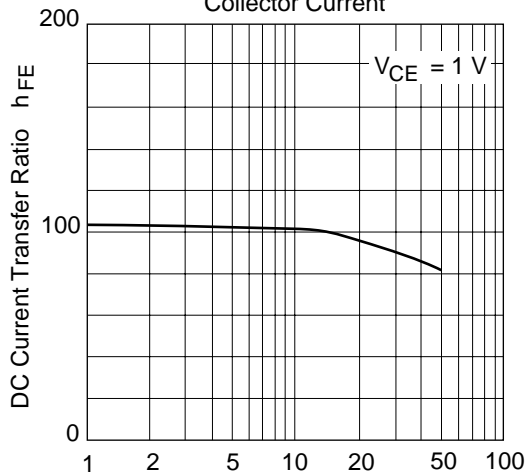
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	15	—	—	V	$I_C = 10\mu\text{A}$ , $I_E = 0$
Collector cutoff current	$I_{CBO}$	—	—	1	$\mu\text{A}$	$V_{CB} = 12\text{V}$ , $I_E = 0$
Collector cutoff current	$I_{CEO}$	—	—	1	mA	$V_{CE} = 8\text{V}$ , $R_{BE} = \text{---}$
Emitter cutoff current	$I_{EBO}$	—	—	10	$\mu\text{A}$	$V_{EB} = 1.5\text{V}$ , $I_C = 0$
DC current transfer ratio	$h_{FE}$	50	100	160	V	$V_{CE} = 1\text{V}$ , $I_C = 5\text{mA}$
Collector output capacitance	$C_{ob}$	—	0.55	0.85	pF	$V_{CB} = 1\text{V}$ , $I_E = 0$ $f = 1\text{MHz}$
Gain bandwidth product	$f_T$	6	9	—	GHz	$V_{CE} = 1\text{V}$ , $I_C = 5\text{mA}$
Power gain	PG	11	14	—	dB	$V_{CE} = 1\text{V}$ , $I_C = 5\text{mA}$ $f = 900\text{MHz}$
Noise figure	NF	—	1.1	2.0	dB	$V_{CE} = 1\text{V}$ , $I_C = 5\text{mA}$ $f = 900\text{MHz}$

Maximum Collector Dissipation Curve



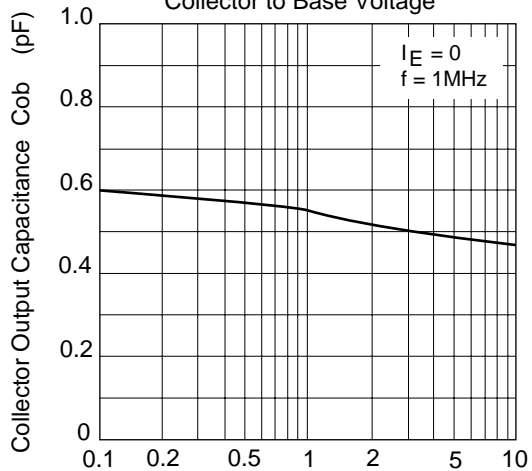
Ambient Temperature  $T_a$  (°C)

DC Current Transfer Ratio vs. Collector Current



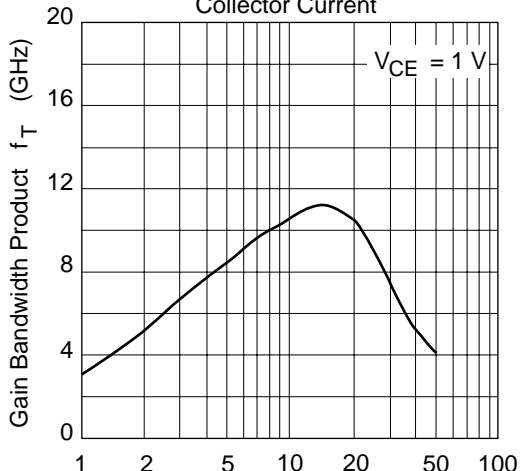
Collector Current  $I_C$  (mA)

Collector Output Capacitance vs. Collector to Base Voltage

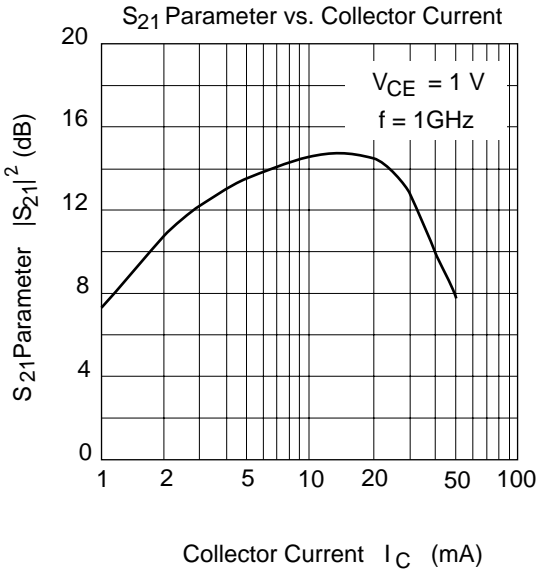
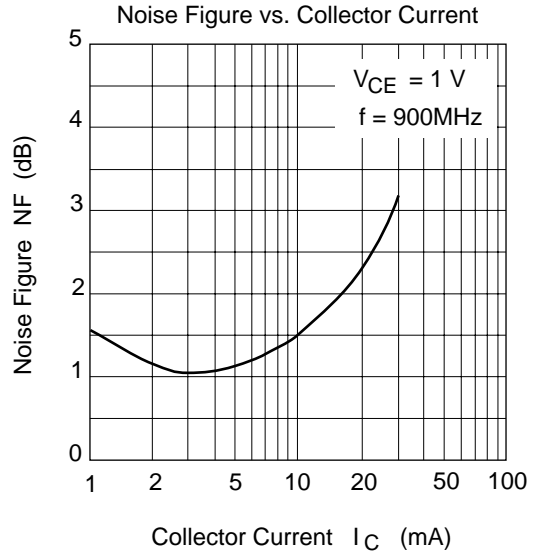
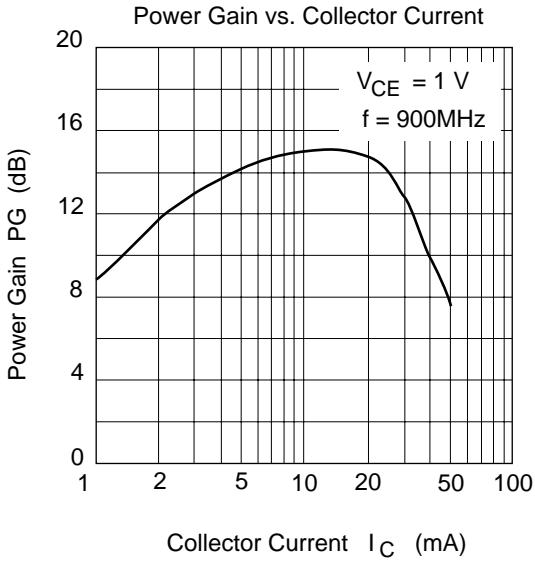


Collector to Base Voltage  $V_{CB}$  (V)

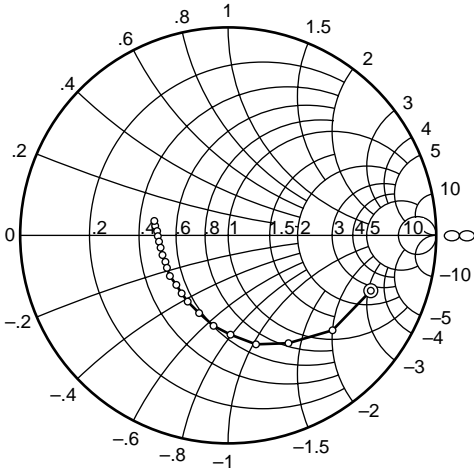
Gain Bandwidth Product vs. Collector Current



Collector Current  $I_C$  (mA)



S11 Parameter vs. Frequency

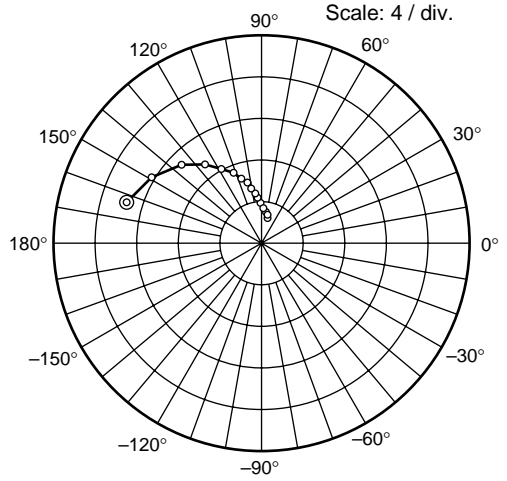


Condition :  $V_{CE} = 1 V, I_C = 5mA$

100 to 2000 MHz (100 MHz step)

⊙—○

S21 Parameter vs. Frequency

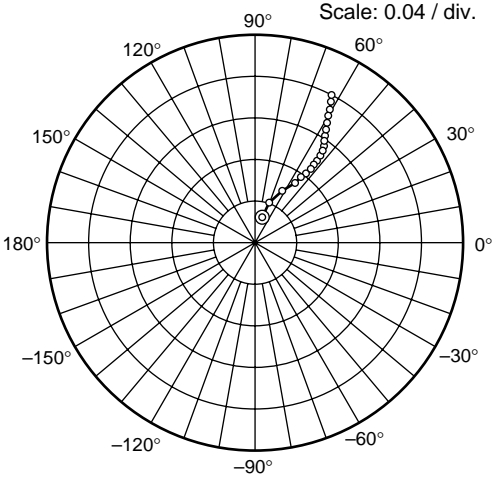


Condition :  $V_{CE} = 1 V, I_C = 5mA$

100 to 2000 MHz (100 MHz step)

⊙—○

S12 Parameter vs. Frequency

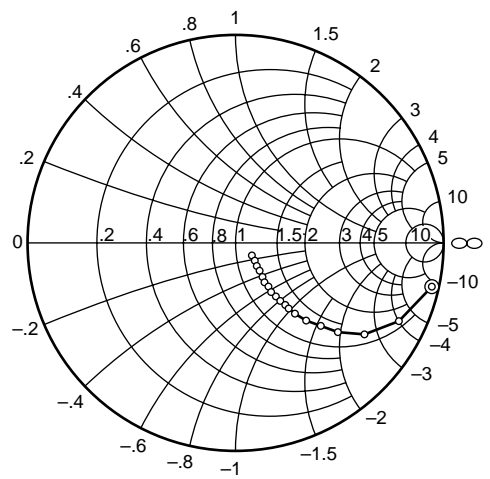


Condition :  $V_{CE} = 1 V, I_C = 5mA$

100 to 2000 MHz (100 MHz step)

⊙—○

S22 Parameter vs. Frequency



Condition :  $V_{CE} = 1 V, I_C = 5mA$

100 to 2000 MHz (100 MHz step)

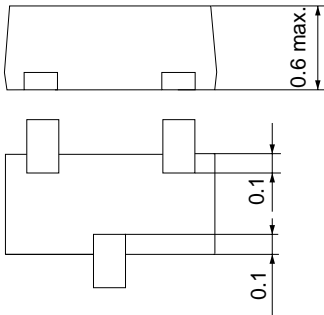
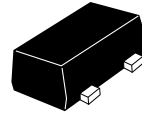
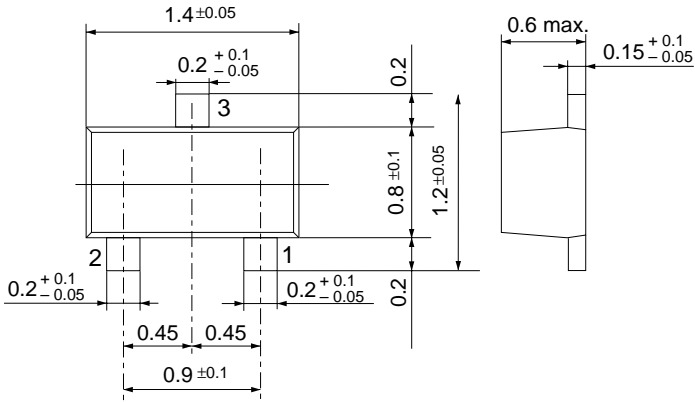
⊙—○

**Sparameter** ( $V_{CE} = 1V$ ,  $I_C = 5mA$ ,  $Z_o = 50\Omega$ )

f (MHz)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
100	0.734	-21.4	13.62	163.7	0.0220	78.7	0.956	-13.4
200	0.676	-41.9	12.34	148.7	0.0421	69.3	0.865	-25.5
300	0.598	-59.8	10.79	136.0	0.0572	61.9	0.753	-34.7
400	0.530	-75.6	9.38	126.5	0.0678	57.2	0.652	-41.0
500	0.471	-88.8	8.18	118.9	0.0756	55.0	0.568	-45.4
600	0.429	-100.8	7.19	112.9	0.0821	53.9	0.498	-48.3
700	0.395	-110.8	6.40	107.8	0.0881	53.4	0.442	-50.2
800	0.370	-120.6	5.74	103.5	0.0940	53.4	0.395	-51.7
900	0.349	-130.0	5.20	100.1	0.0990	54.0	0.355	-52.3
1000	0.336	-136.4	4.74	96.9	0.104	54.6	0.323	-52.7
1100	0.332	-144.1	4.39	93.9	0.109	55.5	0.294	-52.9
1200	0.327	-151.6	4.05	91.4	0.115	56.4	0.270	-52.8
1300	0.322	-157.0	3.77	89.1	0.120	57.4	0.250	-52.2
1400	0.325	-162.9	3.54	86.9	0.125	58.0	0.230	-52.6
1500	0.322	-168.0	3.32	84.9	0.130	58.8	0.215	-52.0
1600	0.331	-172.6	3.14	82.7	0.138	59.8	0.200	-51.5
1700	0.338	-177.0	2.97	80.9	0.143	60.3	0.185	-51.5
1800	0.337	179.0	2.84	79.4	0.149	61.5	0.171	-51.2
1900	0.341	175.4	2.71	77.9	0.154	61.7	0.158	-51.1
2000	0.358	170.8	2.59	76.0	0.161	62.4	0.147	-50.9

Package Dimensions

Unit: mm



Hitachi Code	MFPK
EIAJ	—
JEDEC	—

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## Hitachi, Ltd.

Semiconductor & Integrated Circuits.  
Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan  
Tel: Tokyo (03) 3270-2111 Fax: (03) 3270-5109

URL      North America      : <http://semiconductor.hitachi.com/>  
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## For further information write to:

Hitachi Semiconductor  
(America) Inc.  
179 East Tasman Drive,  
San Jose, CA 95134  
Tel: <1> (408) 433-1990  
Fax: <1>(408) 433-0223

Hitachi Europe GmbH  
Electronic components Group  
Dornacher Straße 3  
D-85622 Feldkirchen, Munich  
Germany  
Tel: <49> (89) 9 9180-0  
Fax: <49> (89) 9 29 30 00

Hitachi Europe Ltd.  
Electronic Components Group.  
Whitebrook Park  
Lower Cookham Road  
Maidenhead  
Berkshire SL6 8YA, United Kingdom  
Tel: <44> (1628) 585000  
Fax: <44> (1628) 778322

Hitachi Asia Pte. Ltd.  
16 Collyer Quay #20-00  
Hitachi Tower  
Singapore 049318  
Tel: 535-2100  
Fax: 535-1533

Hitachi Asia Ltd.  
Taipei Branch Office  
3F, Hung Kuo Building, No.167,  
Tun-Hwa North Road, Taipei (105)  
Tel: <886> (2) 2718-3666  
Fax: <886> (2) 2718-8180

Hitachi Asia (Hong Kong) Ltd.  
Group III (Electronic Components)  
7/F., North Tower, World Finance Centre,  
Harbour City, Canton Road, Tsim Sha Tsui,  
Kowloon, Hong Kong  
Tel: <852> (2) 735 9218  
Fax: <852> (2) 730 0281  
Telex: 40815 HITEC HX

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