2SC5554

Silicon NPN Epitaxial
VHF / UHF wide band amplifier

HITACHI

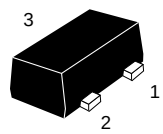
ADE-208-692 (Z)
1st. Edition
Oct. 1998

Features

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

Outline

MFPAK



1. Emitter
2. Base
3. Collector

Note: Marking is “YH-”.

Hitachi semiconductor

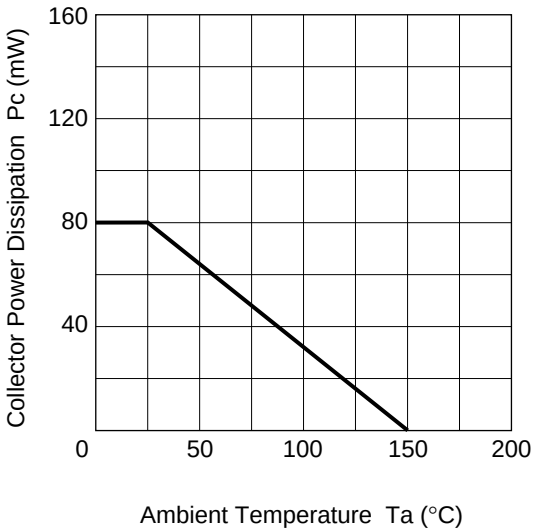
Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	15	V
Collector to emitter voltage	V_{CEO}	9	V
Emitter to base voltage	V_{EBO}	1.5	V
Collector current	I_C	20	mA
Collector power dissipation	Pc	80	mW
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

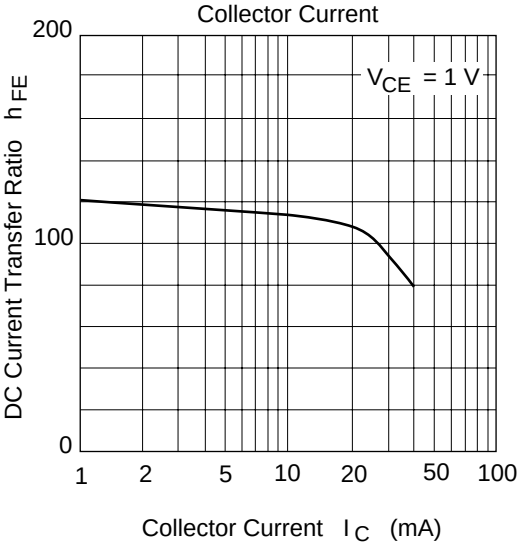
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Collector cutoff current	I_{CBO}	—	—	10	µA	V_{CB} = 15V , I_E = 0
Collector cutoff current	I_{CEO}	—	—	1	mA	V_{CE} = 9V , R_{BE} = ∞
Emitter cutoff current	I_{EBO}	—	—	10	µA	V_{EB} = 1.5V , I_C = 0
DC current transfer ratio	h_{FE}	50	120	250	V	V_{CE} = 1V , I_C = 5mA
Collector output capacitance	Cob	—	0.6	0.9	pF	V_{CB} = 1V , I_E = 0 f = 1MHz
Gain bandwidth product	f_T	3.5	7	—	GHz	V_{CE} = 1V , I_C = 5mA
Power gain	PG	9	12	—	dB	V_{CE} = 1V, I_C = 5mA f = 900MHz
Noise figure	NF	—	1.4	3	dB	V_{CE} = 1V, I_C = 5mA f = 900MHz

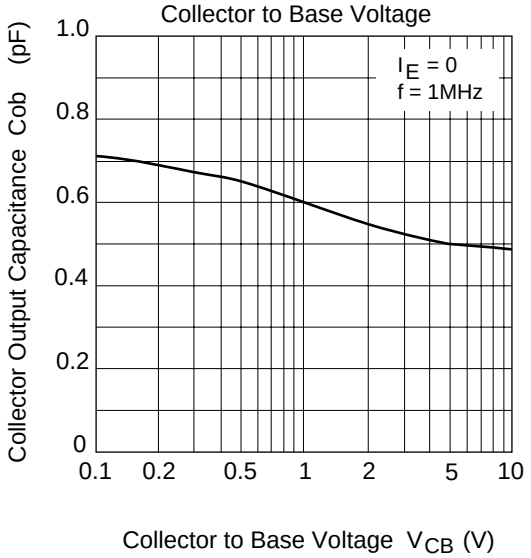
Maximum Collector Dissipation Curve



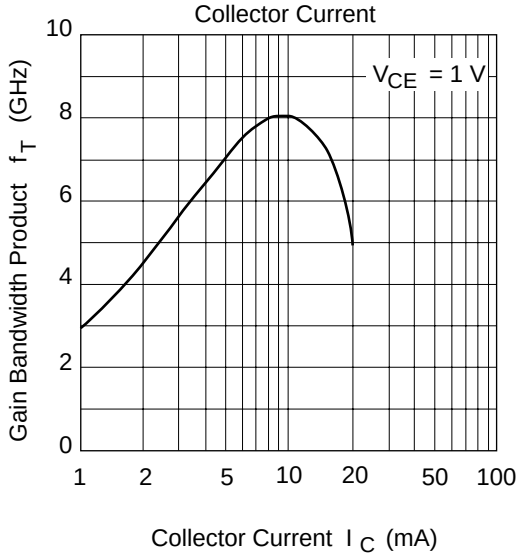
DC Current Transfer Ratio vs. Collector Current



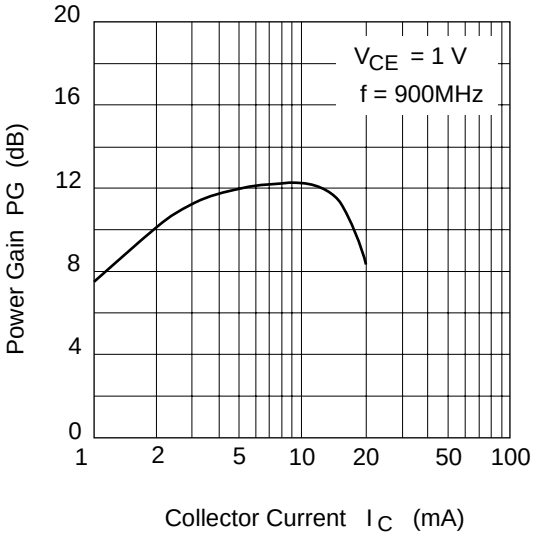
Collector Output Capacitance vs. Collector to Base Voltage



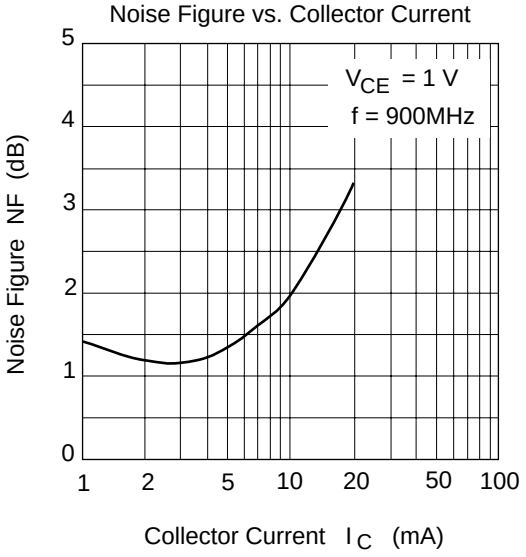
Gain Bandwidth Product vs. Collector Current



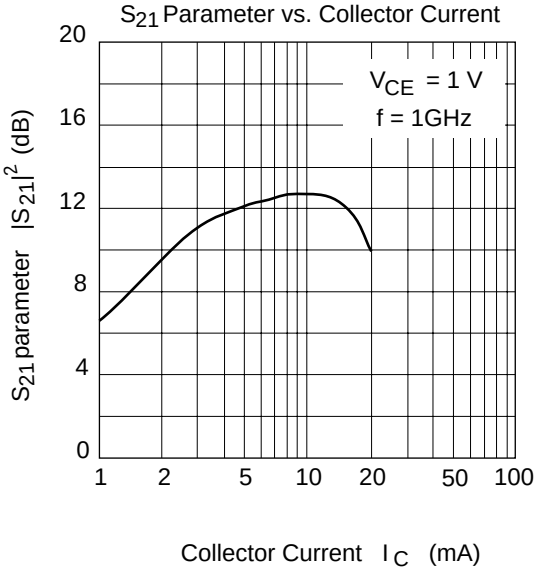
Power Gain vs. Collector Current



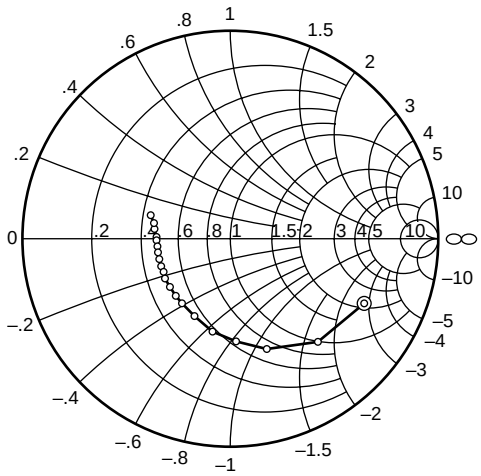
Noise Figure vs. Collector Current



S_{21} Parameter vs. Collector Current



S11 Parameter vs. Frequency

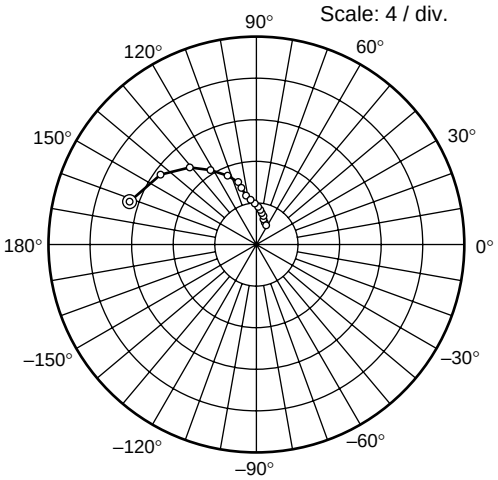


Condition : V_{CE} = 1 V , I_C = 5mA

100 to 2000 MHz (100 MHz step)

S21 Parameter vs. Frequency

Scale: 4 / div.

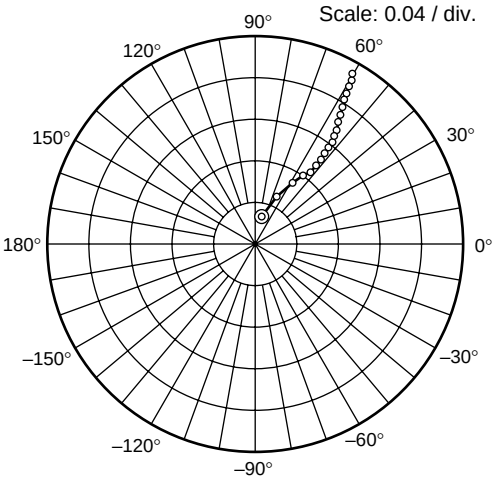


Condition : V_{CE} = 1 V , I_C = 5mA

100 to 2000 MHz (100 MHz step)

S12 Parameter vs. Frequency

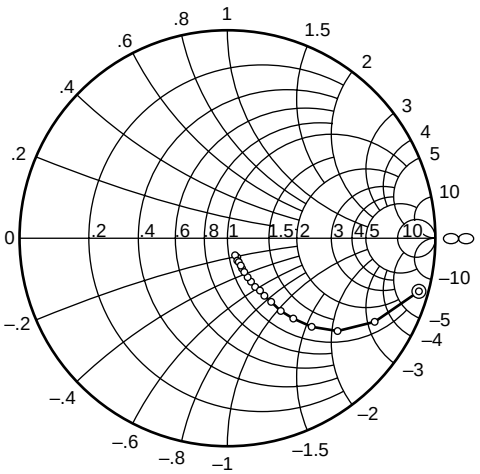
Scale: 0.04 / div.



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

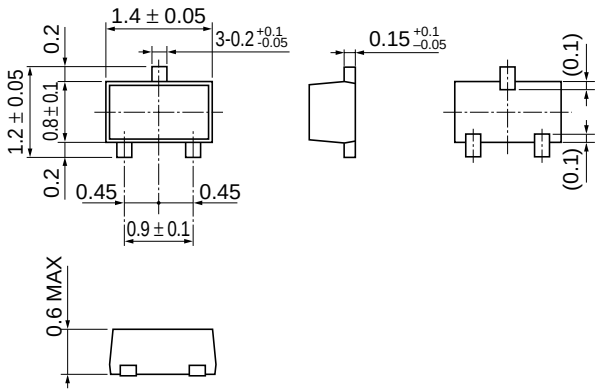
100 to 2000 MHz (100 MHz step)

Sparameter (V_{CE} = 1V, I_C = 5mA, Zo = 50Ω)

	S11		S21		S12		S22	
f (MHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
100	0.715	–25.4	13.06	161.3	0.0279	76.6	0.947	–16.1
200	0.647	–50.1	11.47	144.2	0.0517	65.6	0.828	–30.2
300	0.559	–71.5	9.74	131.0	0.0681	58.4	0.697	–40.4
400	0.501	–88.2	8.28	121.3	0.0798	54.6	0.587	–47.0
500	0.453	–102.5	7.08	113.7	0.0882	52.4	0.501	–51.3
600	0.416	–114.8	6.16	108.1	0.0955	51.8	0.433	–54.3
700	0.393	–125.4	5.43	103.1	0.102	51.7	0.378	–56.2
800	0.378	–134.4	4.84	99.3	0.109	52.1	0.333	–57.3
900	0.369	–142.8	4.37	95.7	0.115	52.7	0.295	–58.0
1000	0.357	–149.5	3.99	92.5	0.122	53.5	0.266	–58.4
1100	0.361	–156.6	3.66	89.7	0.128	54.2	0.240	–58.6
1200	0.358	–162.2	3.38	87.2	0.135	55.1	0.217	–58.5
1300	0.358	–167.5	3.15	84.9	0.141	56.0	0.199	–58.0
1400	0.362	–172.5	2.96	82.7	0.148	56.9	0.180	–58.0
1500	0.362	–177.3	2.78	80.9	0.155	57.2	0.166	–57.2
1600	0.369	178.8	2.64	78.6	0.163	58.1	0.151	–56.9
1700	0.373	174.7	2.50	77.2	0.169	58.8	0.137	–56.6
1800	0.377	171.1	2.38	75.1	0.177	59.2	0.126	–56.4
1900	0.388	168.3	2.28	73.3	0.183	59.6	0.113	–56.2
2000	0.395	165.3	2.18	71.8	0.191	60.1	0.102	–55.7

Package Dimensions

As of January, 2001
Unit: mm



Hitachi Code	MFPAK
JEDEC	—
EIAJ	—
Mass (reference value)	0.0016 g

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HITACHI

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
NorthAmerica : 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 Straβe 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) 585160

Hitachi Asia Ltd.
Hitachi Tower
16 Collyer Quay #20-00,
Singapore 049318
Tel : <65>-538-6533/538-8577
Fax : <65>-538-6933/538-3877
URL : http://www.hitachi.com.sg

Hitachi Asia Ltd.
(Taipei Branch Office)
4/F, No. 167, Tun Hwa North Road,
Hung-Kuo Building,
Taipei (105), Taiwan
Tel : <886>-(2)-2718-3666
Fax : <886>-(2)-2718-8180
Telex : 23222 HAS-TP
URL : http://www.hitachi.com.tw

Hitachi Asia (Hong Kong) Ltd.
Group III (Electronic Components)
7/F., North Tower,
World Finance Centre,
Harbour City, Canton Road
Tsim Sha Tsui, Kowloon,
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