
2SC5554

Silicon NPN Epitaxial
VHF / UHF wide band amplifier

HITACHI

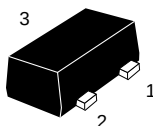
ADE-208-692 (Z)
1st. Edition
Oct. 1998

Features

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

Outline

MFPAK



1. Emitter
2. Base
3. Collector

Note: Marking is "YH-".

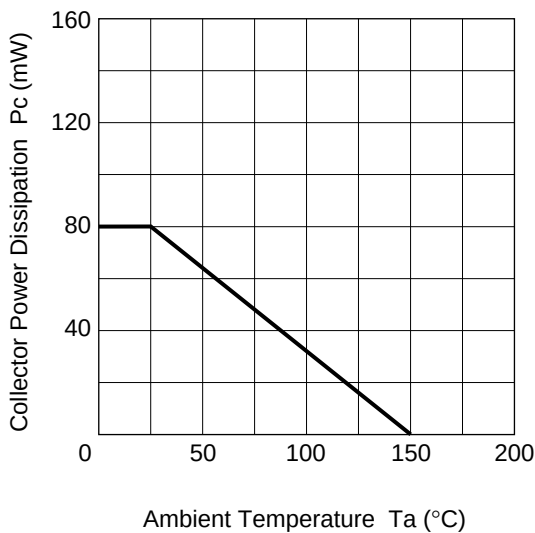
Absolute Maximum Ratings ($T_a = 25^{\circ}\text{C}$)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	15	V
Collector to emitter voltage	V_{CEO}	9	V
Emitter to base voltage	V_{EBO}	1.5	V
Collector current	I_{C}	20	mA
Collector power dissipation	P_{c}	80	mW
Junction temperature	T_{j}	150	$^{\circ}\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^{\circ}\text{C}$

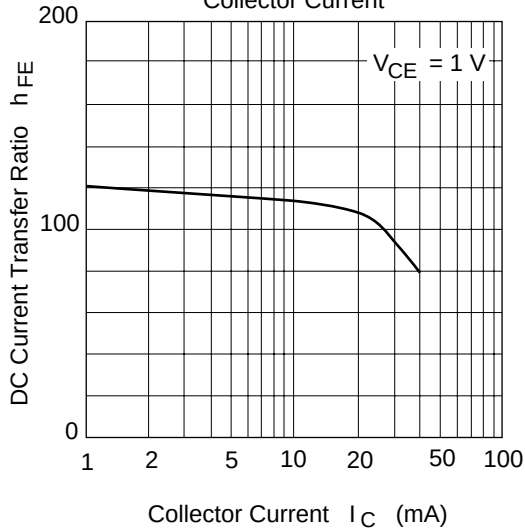
Electrical Characteristics ($T_a = 25^{\circ}\text{C}$)

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

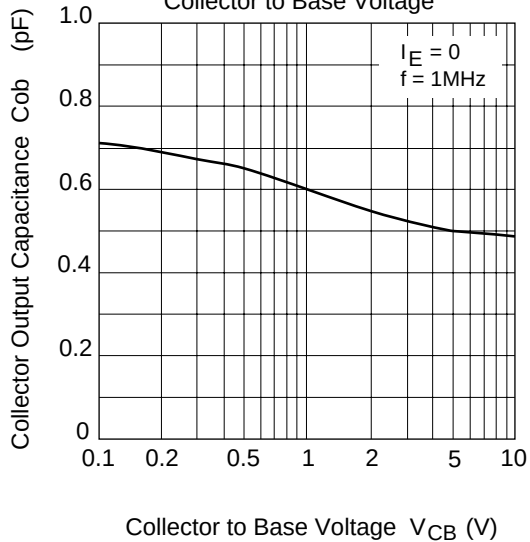
Maximum Collector Dissipation Curve



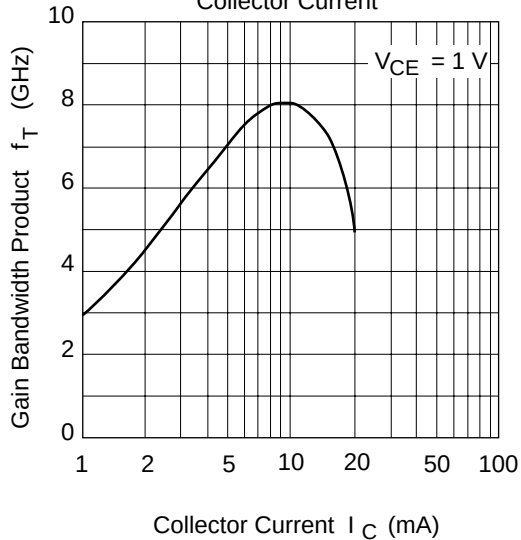
DC Current Transfer Ratio vs. Collector Current

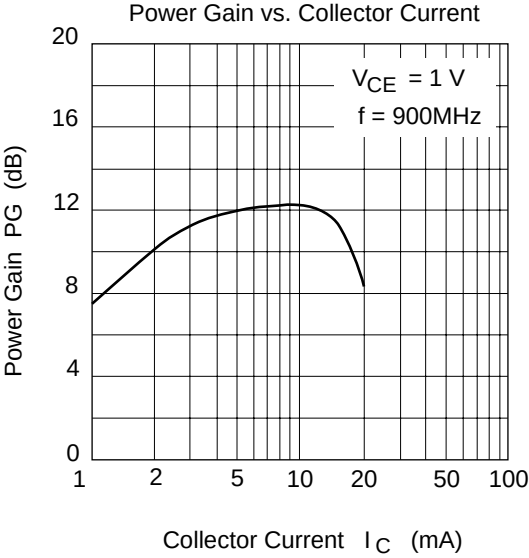
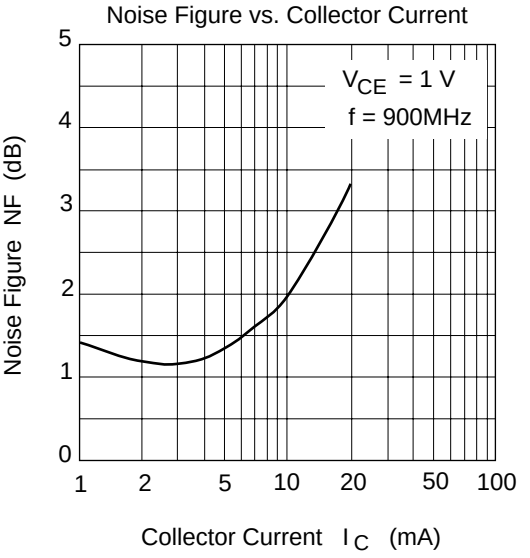
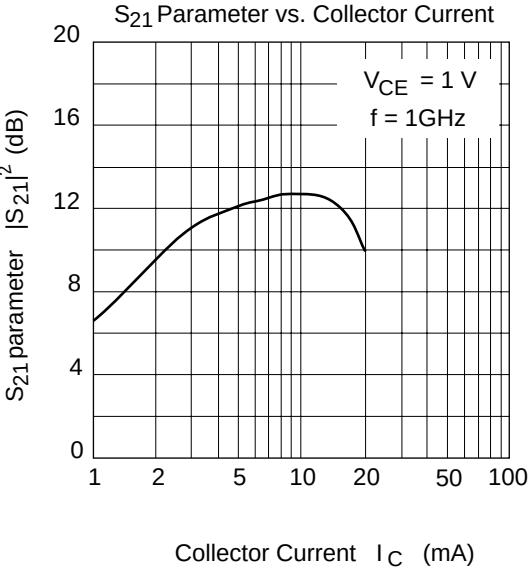


Collector Output Capacitance vs. Collector to Base Voltage

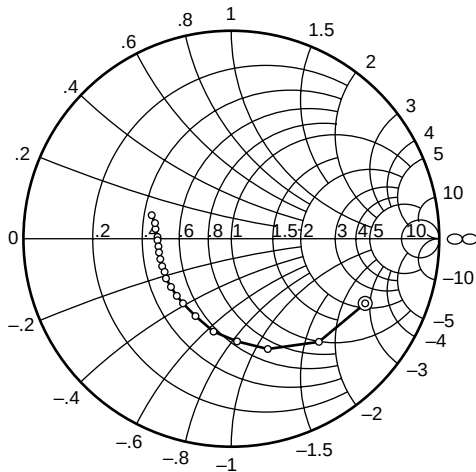


Gain Bandwidth Product vs. Collector Current





S11 Parameter vs. Frequency

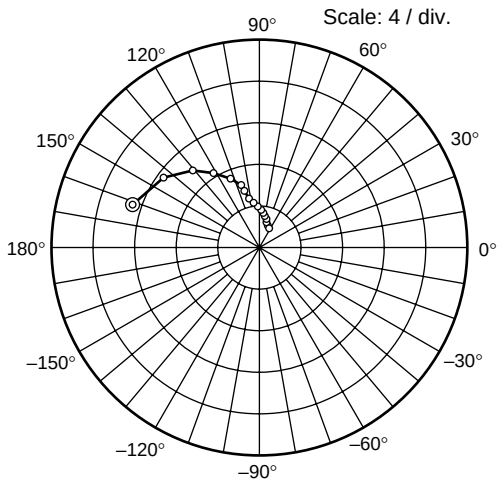


Condition : $V_{CE} = 1\text{ V}$, $I_C = 5\text{ mA}$

100 to 2000 MHz (100 MHz step)

①—○

S21 Parameter vs. Frequency

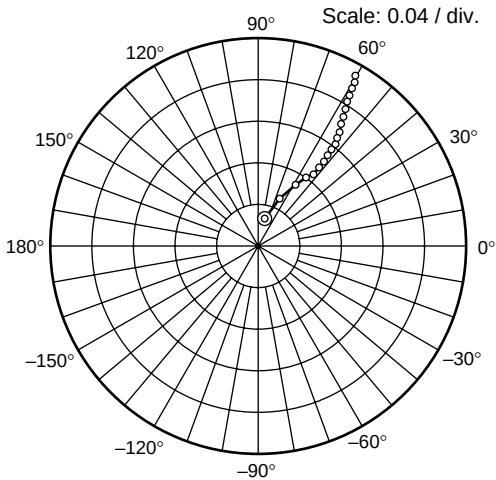


Condition : $V_{CE} = 1\text{ V}$, $I_C = 5\text{ mA}$

100 to 2000 MHz (100 MHz step)

①—○

S12 Parameter vs. Frequency

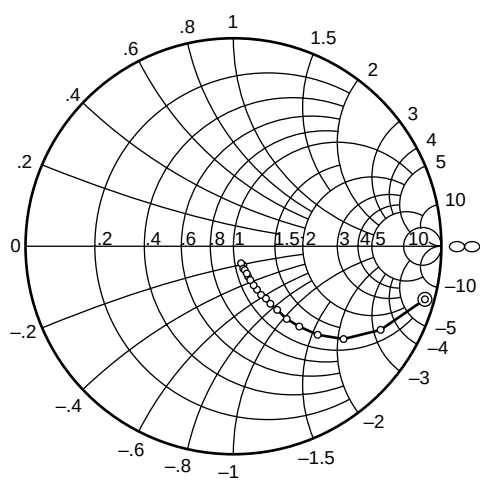


Condition : $V_{CE} = 1\text{ V}$, $I_C = 5\text{ mA}$

100 to 2000 MHz (100 MHz step)

①—○

S22 Parameter vs. Frequency



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

100 to 2000 MHz (100 MHz step)

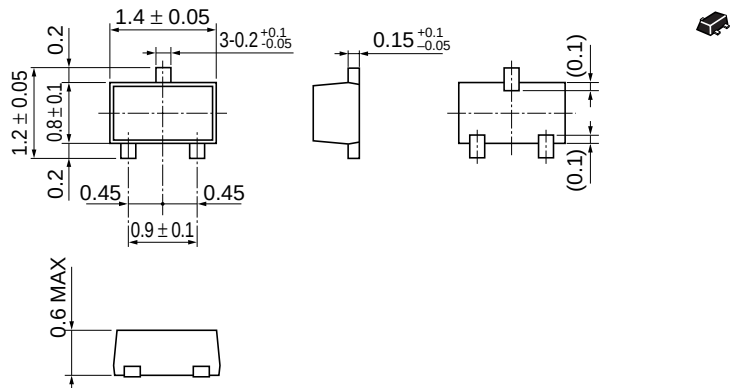
①—○

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

f (MHz)	S11		S21		S12		S22	
	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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