

2SC5555

Silicon NPN Epitaxial
VHF / UHF wide band amplifier

HITACHI

ADE-208-693 (Z)

1st. Edition

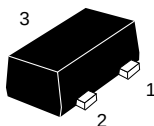
Nov. 1998

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 "ZD-".

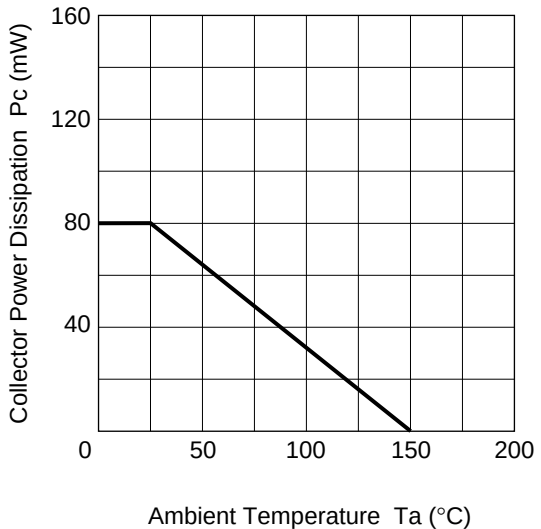
Absolute Maximum Ratings (Ta = 25°C)

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	Pc	80	mW
Junction temperature	Tj	150	°C
Storage temperature	Tstg	−55 to +150	°C

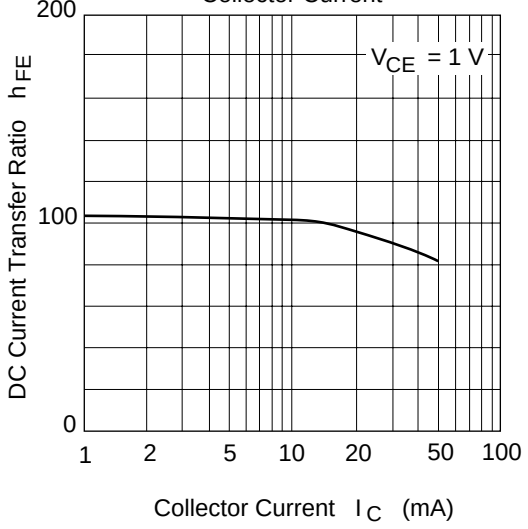
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Collector to base breakdown voltage	V _{(BR)CBO}	15	—	—	V	I _C = 10μA , I _E = 0
Collector cutoff current	I _{CBO}	—	—	1	μA	V _{CB} = 12V , I _E = 0
Collector cutoff current	I _{CEO}	—	—	1	mA	V _{CE} = 8V , R _{BE} = ∞
Emitter cutoff current	I _{EBO}	—	—	10	μA	V _{EB} = 1.5V , I _C = 0
DC current transfer ratio	h _{FE}	50	100	160	V	V _{CE} = 1V , I _C = 5mA
Collector output capacitance	Cob	—	0.55	0.85	pF	V _{CB} = 1V , I _E = 0 f = 1MHz
Gain bandwidth product	f _T	6	9	—	GHz	V _{CE} = 1V , I _C = 5mA
Power gain	PG	11	14	—	dB	V _{CE} = 1V , I _C = 5mA f = 900MHz
Noise figure	NF	—	1.1	2.0	dB	V _{CE} = 1V , I _C = 5mA f = 900MHz

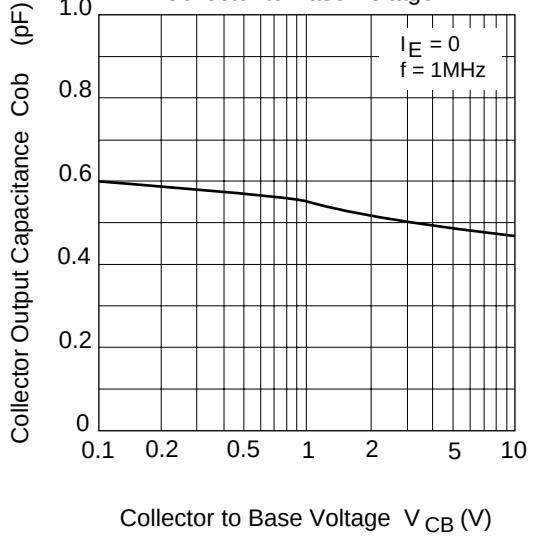
Maximum Collector Dissipation Curve



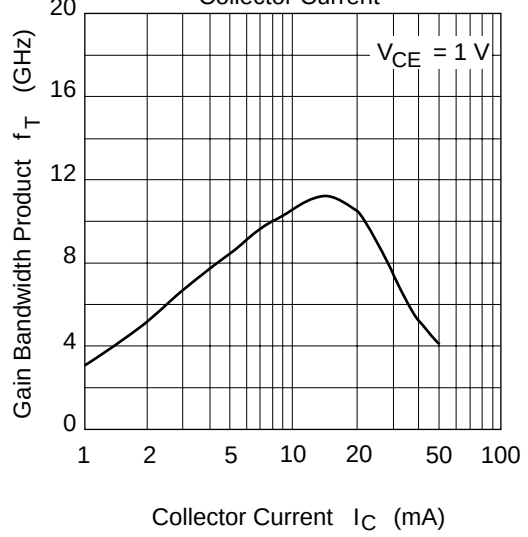
DC Current Transfer Ratio vs. Collector Current

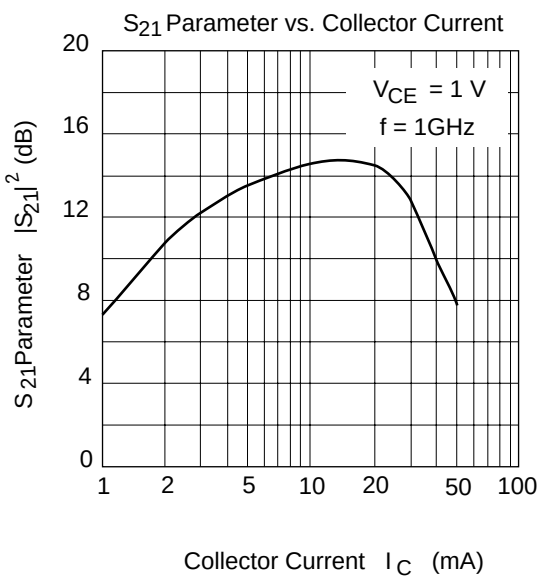
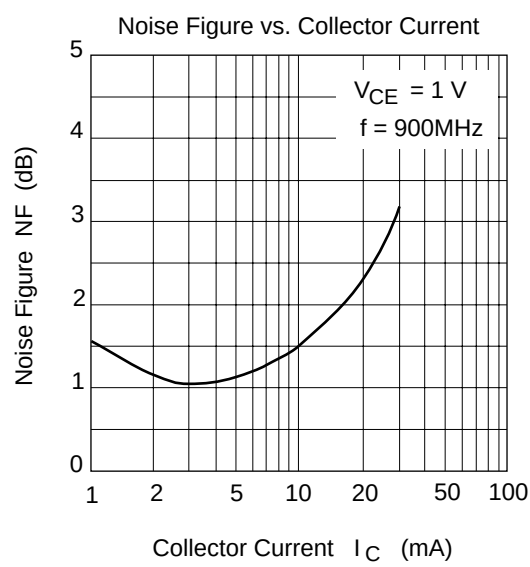
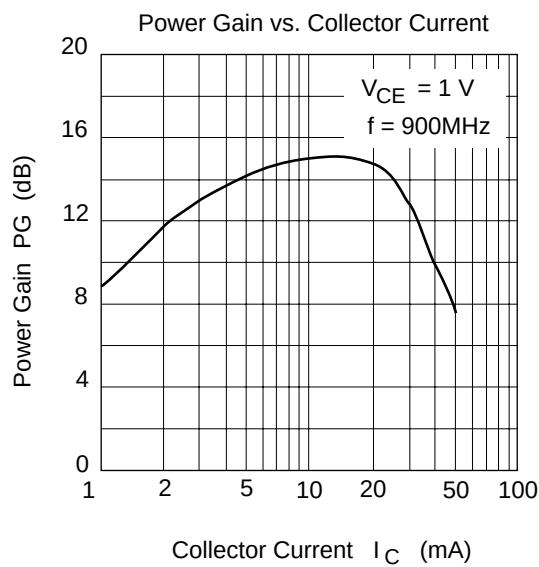


Collector Output Capacitance vs. Collector to Base Voltage

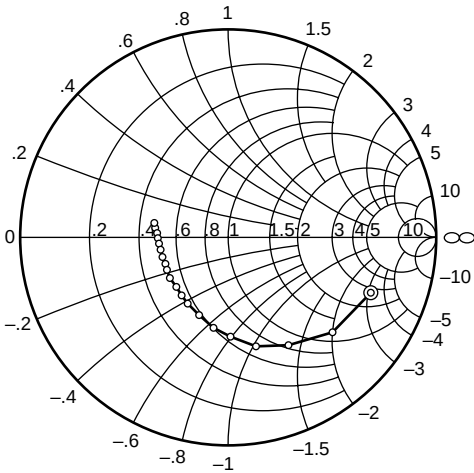


Gain Bandwidth Product vs. Collector Current





S11 Parameter vs. Frequency

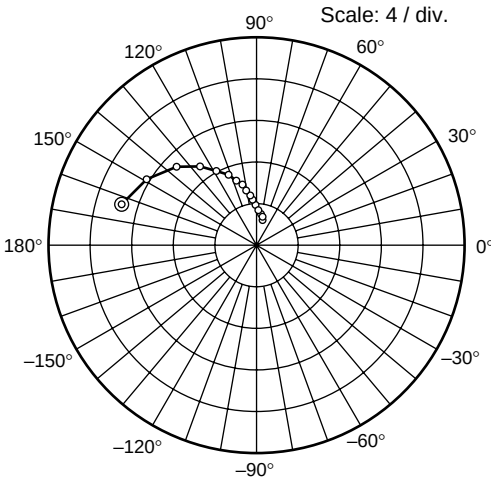


Condition : $V_{CE} = 1\text{ V}$, $I_C = 5\text{ mA}$

100 to 2000 MHz (100 MHz step)



S21 Parameter vs. Frequency

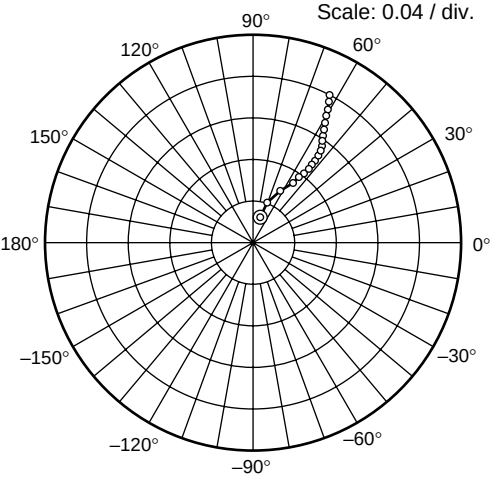


Condition : $V_{CE} = 1\text{ V}$, $I_C = 5\text{ mA}$

100 to 2000 MHz (100 MHz step)



S12 Parameter vs. Frequency

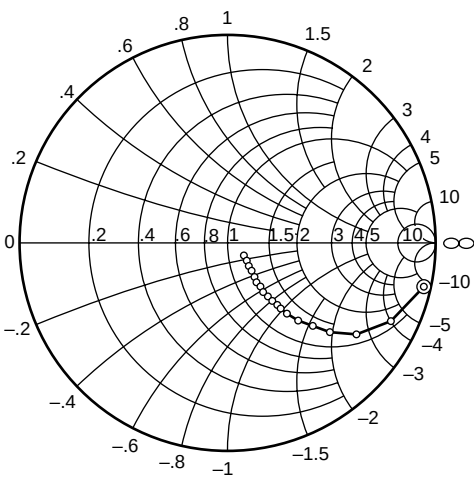


Condition : $V_{CE} = 1\text{ V}$, $I_C = 5\text{ mA}$

100 to 2000 MHz (100 MHz step)



S22 Parameter vs. Frequency



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

100 to 2000 MHz (100 MHz step)



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

f (MHz)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
100	0.734	−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

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