

2SC5555

Silicon NPN Epitaxial
VHF / UHF wide band amplifier

REJ03G0748-0300

Rev.3.00

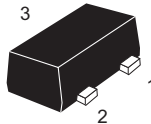
Nov 14, 2006

Features

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

Outline

RENESAS Package code: PUSF0003ZA-A
(Package name: MFPAK[®])



1. Emitter
2. Base
3. Collector

Note: Marking is "ZD-".

*MFPAK is a trademark of Renesas Technology Corp.

Absolute Maximum Ratings

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

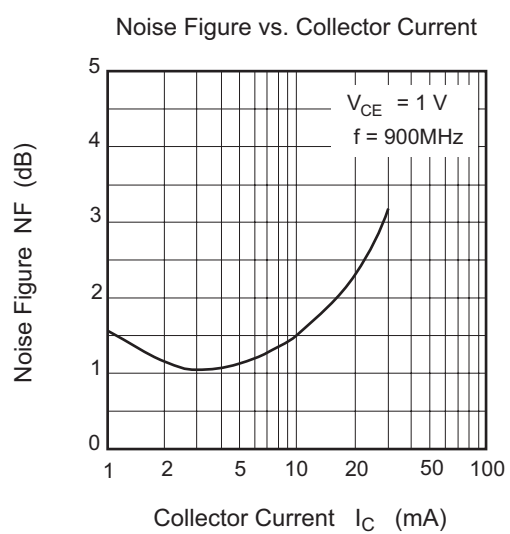
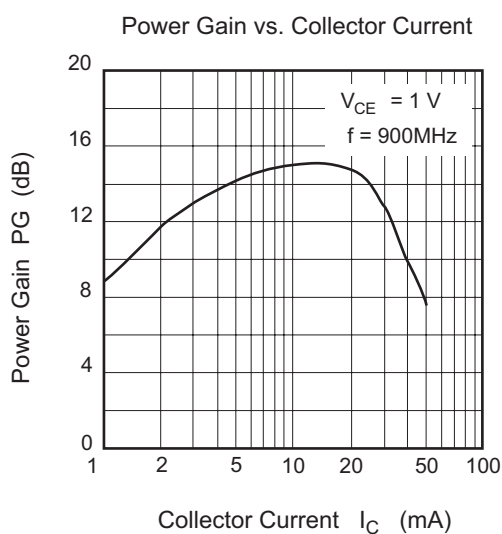
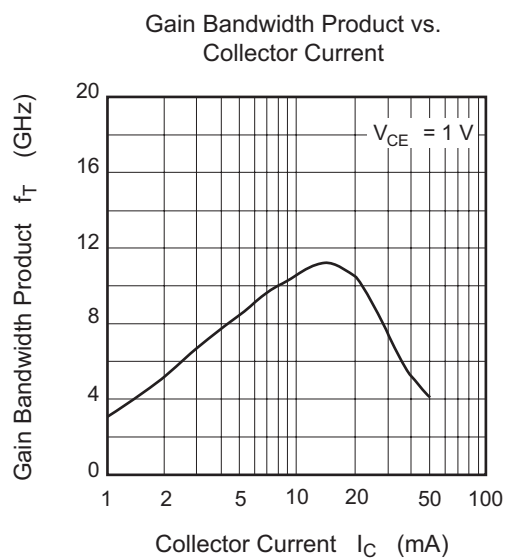
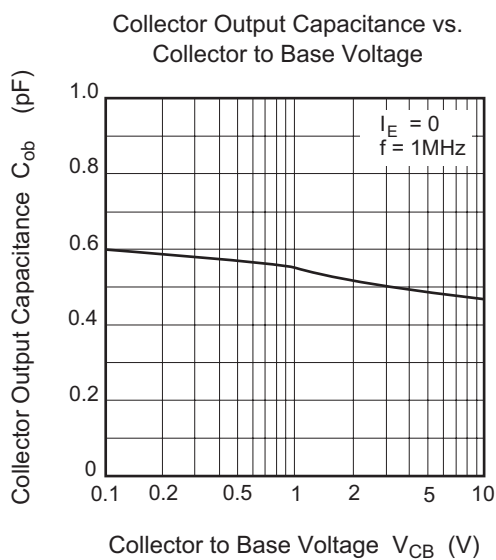
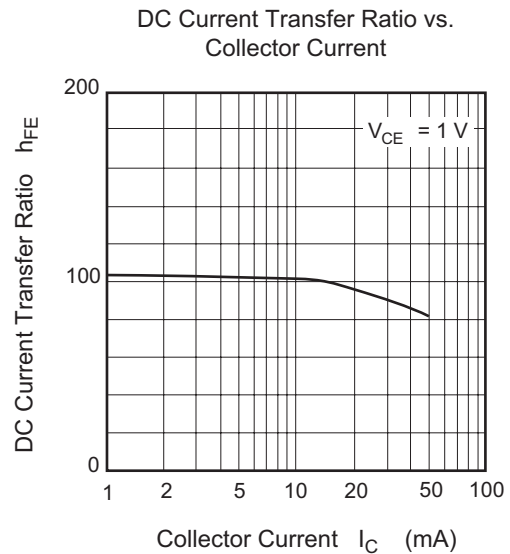
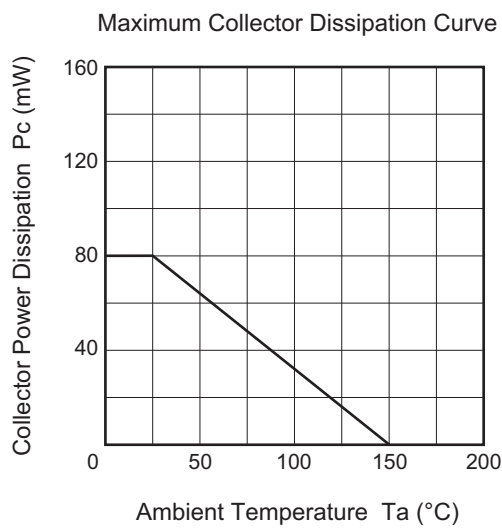
Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	15	V
Collector to emitter voltage	V_{CEO}	8	V
Emitter to base voltage	V_{EBO}	1.5	V
Collector current	I_C	50	mA
Collector power dissipation	P_C	80	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

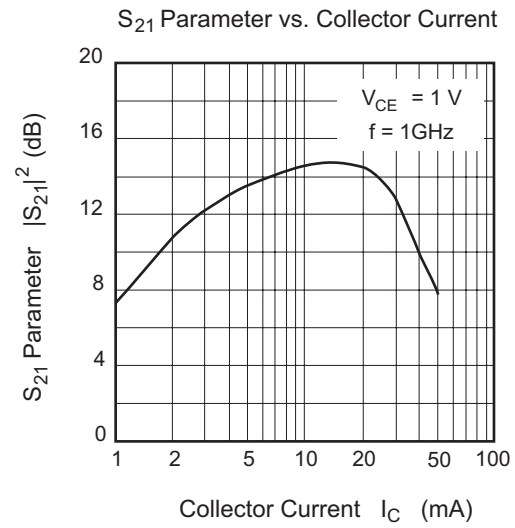
Electrical Characteristics

(Ta = 25°C)

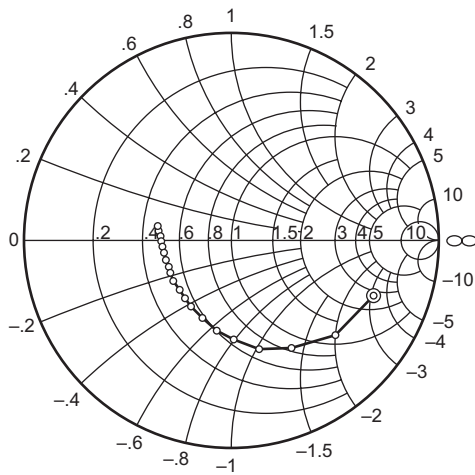
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	15	—	—	V	$I_C = 10\ \mu A, I_E = 0$
Collector cutoff current	I_{CBO}	—	—	1	μA	$V_{CB} = 12\ V, I_E = 0$
Collector cutoff current	I_{CEO}	—	—	1	mA	$V_{CE} = 8\ V, R_{BE} = \infty$
Emitter cutoff current	I_{EBO}	—	—	0.35	μA	$V_{EB} = 1.5\ V, I_C = 0$
DC current transfer ratio	h_{FE}	50	100	160		$V_{CE} = 1\ V, I_C = 5\ mA$
Collector output capacitance	C_{ob}	—	0.55	0.75	pF	$V_{CB} = 1\ V, I_E = 0, f = 1\ MHz$
Gain bandwidth product	f_T	6.5	9	—	GHz	$V_{CE} = 1\ V, I_C = 5\ mA$
Power gain	PG	11	14	—	dB	$V_{CE} = 1\ V, I_C = 5\ mA$ $f = 900\ MHz$
Noise figure	NF	—	1.1	1.7	dB	$V_{CE} = 1\ V, I_C = 5\ mA$ $f = 900\ MHz$

Main Characteristics





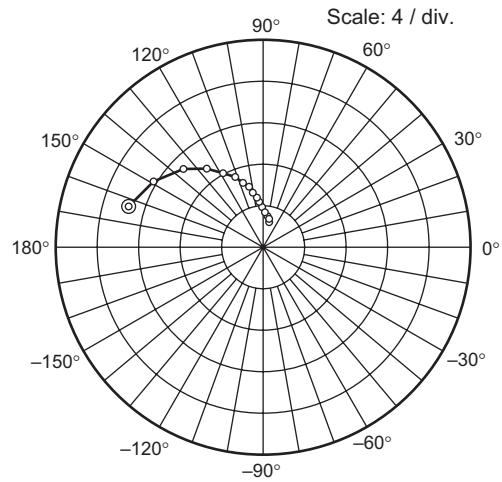
S11 Parameter vs. Frequency

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

100 to 2000 MHz (100 MHz step)



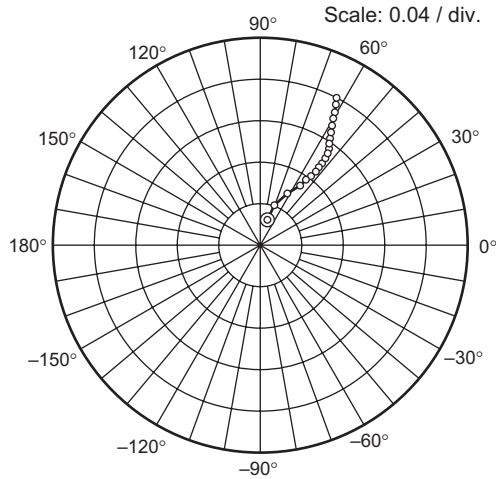
S21 Parameter vs. Frequency

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

100 to 2000 MHz (100 MHz step)



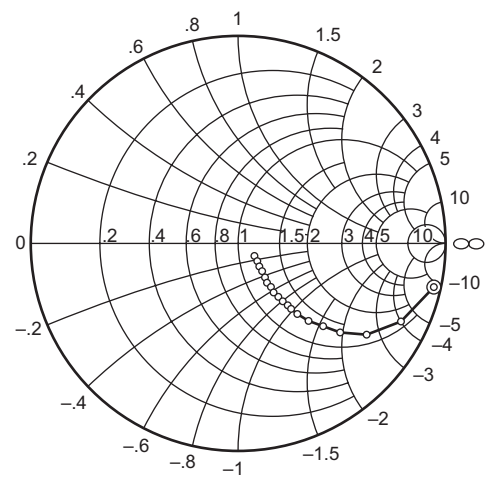
S12 Parameter vs. Frequency

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)

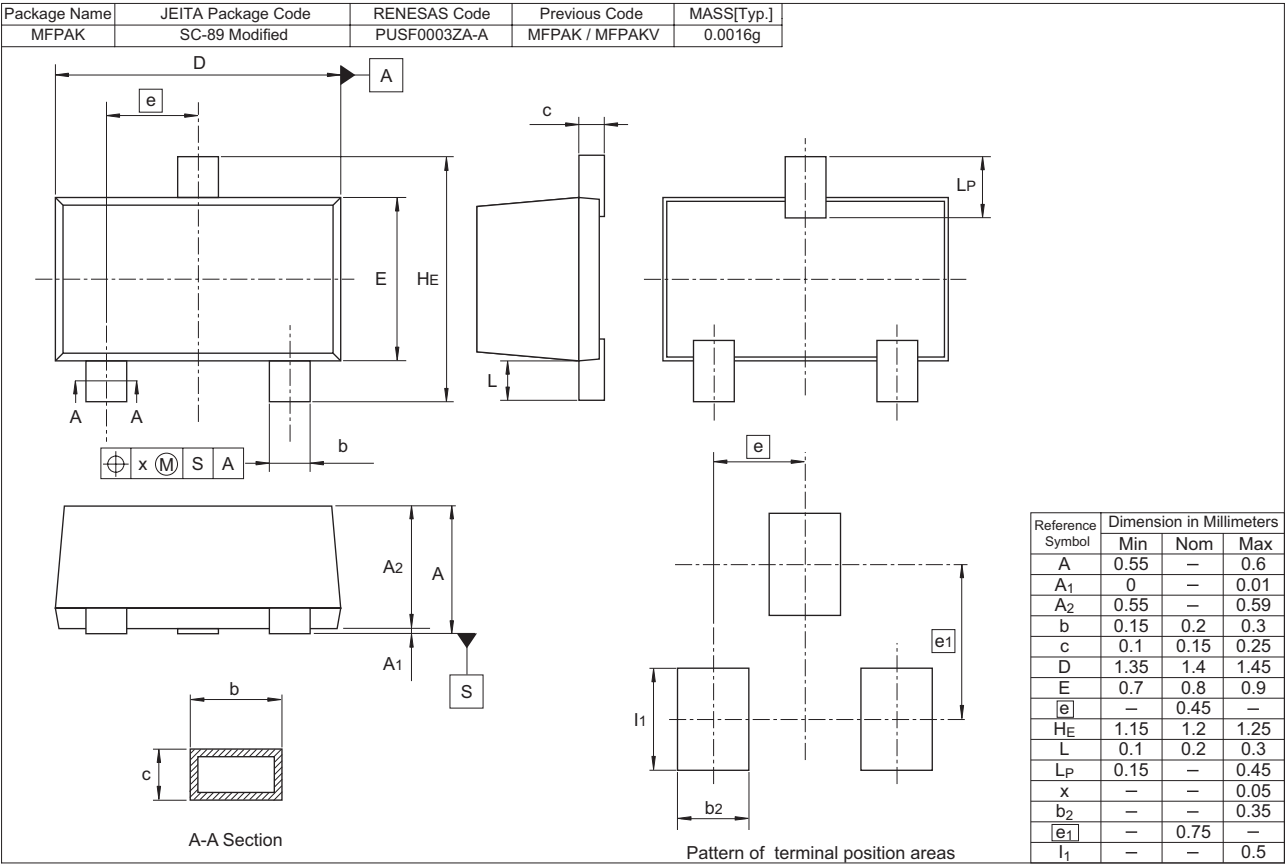


Sparameter

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

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



Ordering Information

Part Name	Quantity	Shipping Container
2SC5555ZD-TR-E	9000 pcs.	φ 178 mm Reel, 8 mm Emboss Taping

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

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