To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

Renesas Electronics website: http://www.renesas.com

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (http://www.renesas.com)

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2SC5555

Silicon NPN Epitaxial
VHF / UHF wide band amplifier

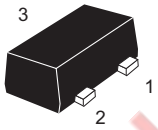
REJ03G0748-0300
Rev.3.00
Nov 14, 2006

Features

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

(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

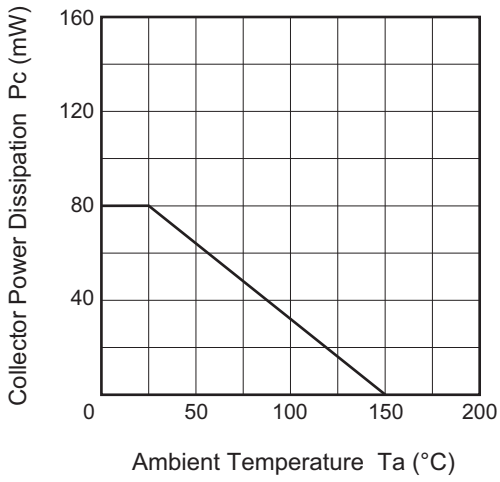
Electrical Characteristics

(Ta = 25°C)

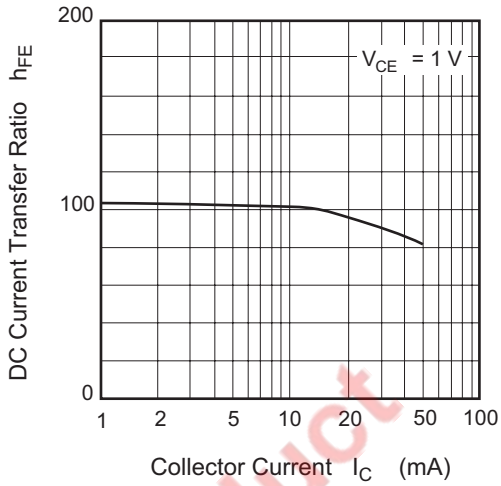
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	15	—	—	V	I_C = 10 µA, I_E = 0
Collector cutoff current	I_{CBO}	—	—	1	µA	V_{CB} = 12 V, I_E = 0
Collector cutoff current	I_{CEO}	—	—	1	mA	V_{CE} = 8 V, R_{BE} = ∞
Emitter cutoff current	I_{EBO}	—	—	0.35	µA	V_{EB} = 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	Cob	—	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

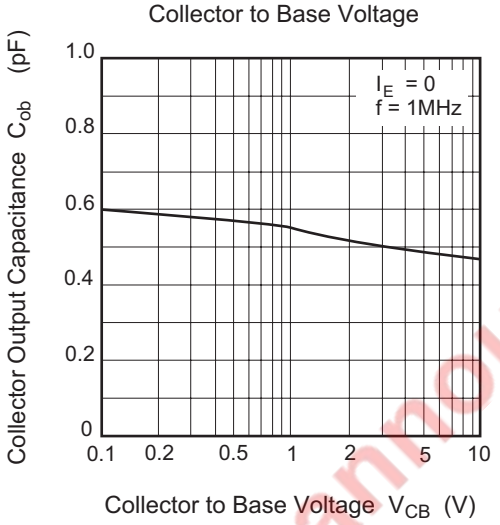
Maximum Collector Dissipation Curve



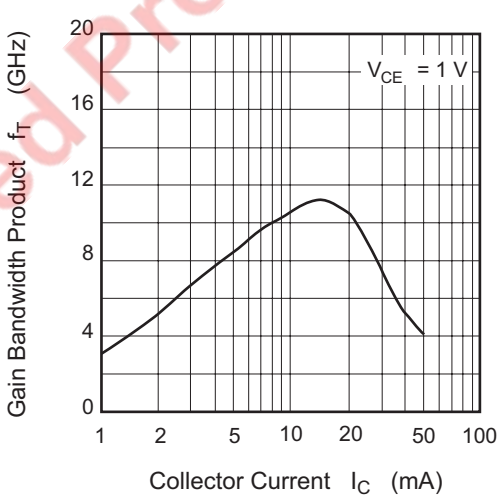
DC Current Transfer Ratio vs. Collector Current



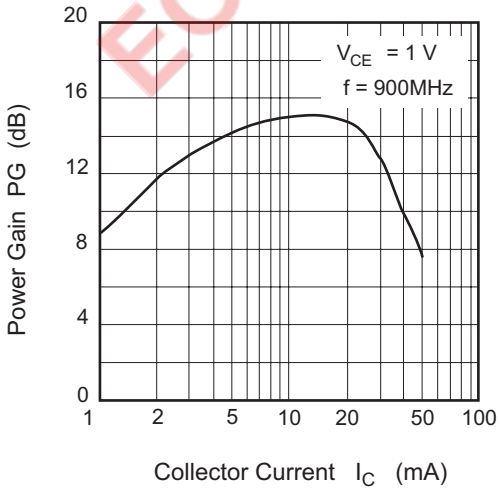
Collector Output Capacitance vs. Collector to Base Voltage



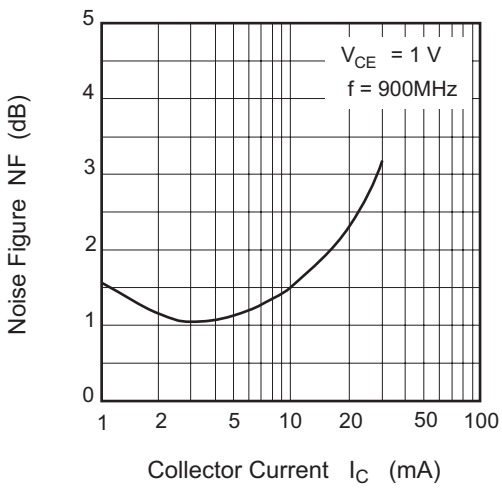
Gain Bandwidth Product vs. Collector Current

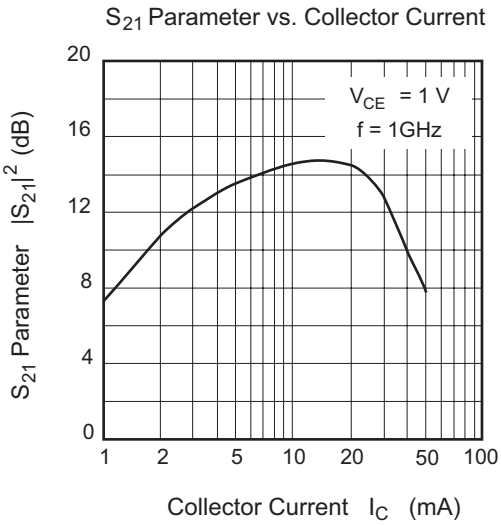


Power Gain vs. Collector Current

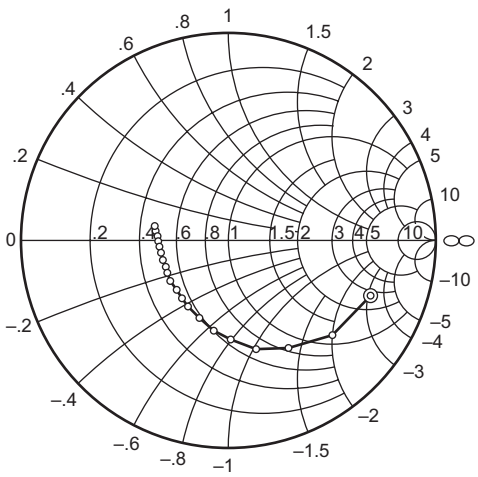


Noise Figure vs. Collector Current





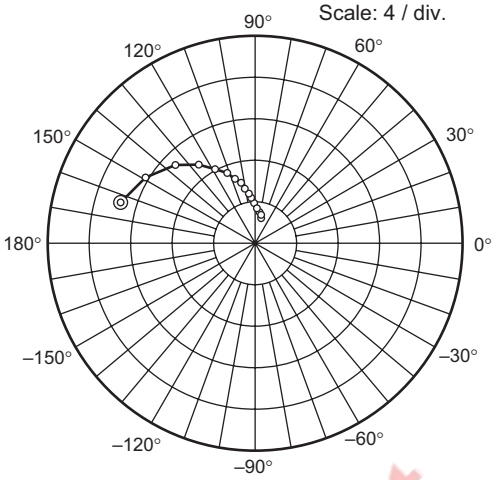
S11 Parameter vs. Frequency



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

100 to 2000 MHz (100 MHz step)

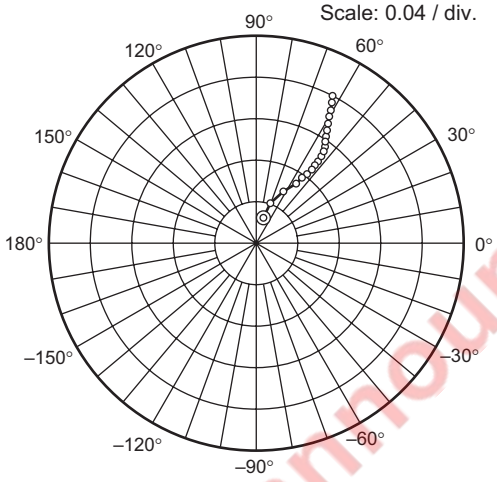
S21 Parameter vs. Frequency



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

100 to 2000 MHz (100 MHz step)

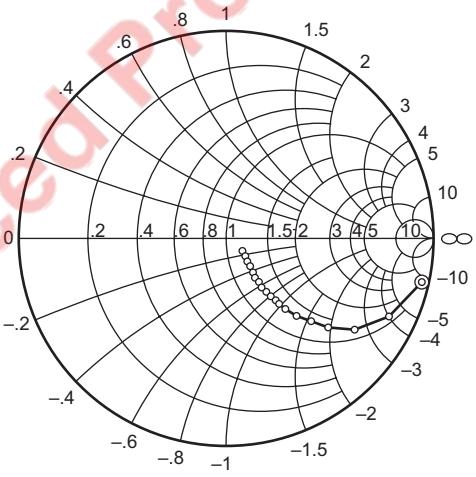
S12 Parameter vs. Frequency



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)

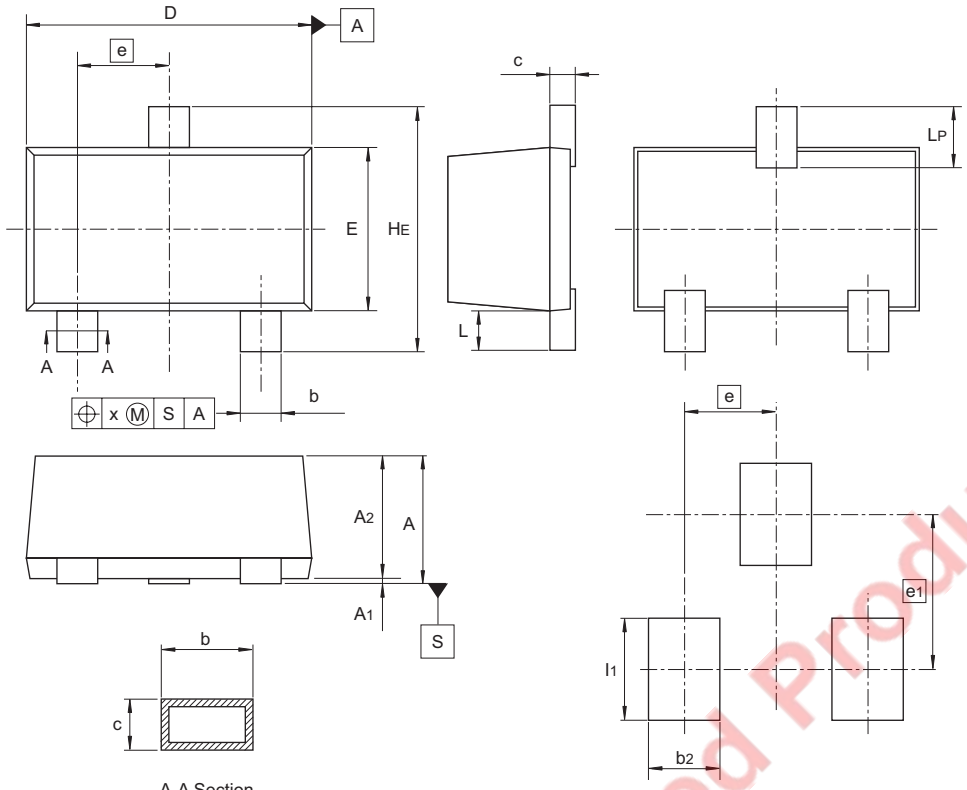
Sparameter

(V_{CE} = 1 V, I_C = 5 mA, Zo = 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

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
MFPAK	SC-89 Modified	PUSF0003ZA-A	MFPAK / MFPAKV	0.0016g



Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
A	0.55	–	0.6
A_1	0	–	0.01
A_2	0.55	–	0.59
b	0.15	0.2	0.3
c	0.1	0.15	0.25
D	1.35	1.4	1.45
E	0.7	0.8	0.9
e	–	0.45	–
H_E	1.15	1.2	1.25
L	0.1	0.2	0.3
L_P	0.15	–	0.45
x	–	–	0.05
b_2	–	–	0.35
e_1	–	0.75	–
l_1	–	–	0.5

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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http://www.renesas.com

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Colophon .7.0