

2SC5544

Silicon NPN Epitaxial
VHF / UHF wide band amplifier

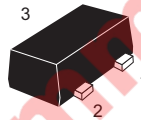
REJ03G0746-0200
(Previous ADE-208-691)
Rev.2.00
Aug.10.2005

Features

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

Outline

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



1. Emitter
2. Base
3. Collector

Note: Marking is "YZ-".

*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	$^\circ\text{C}$

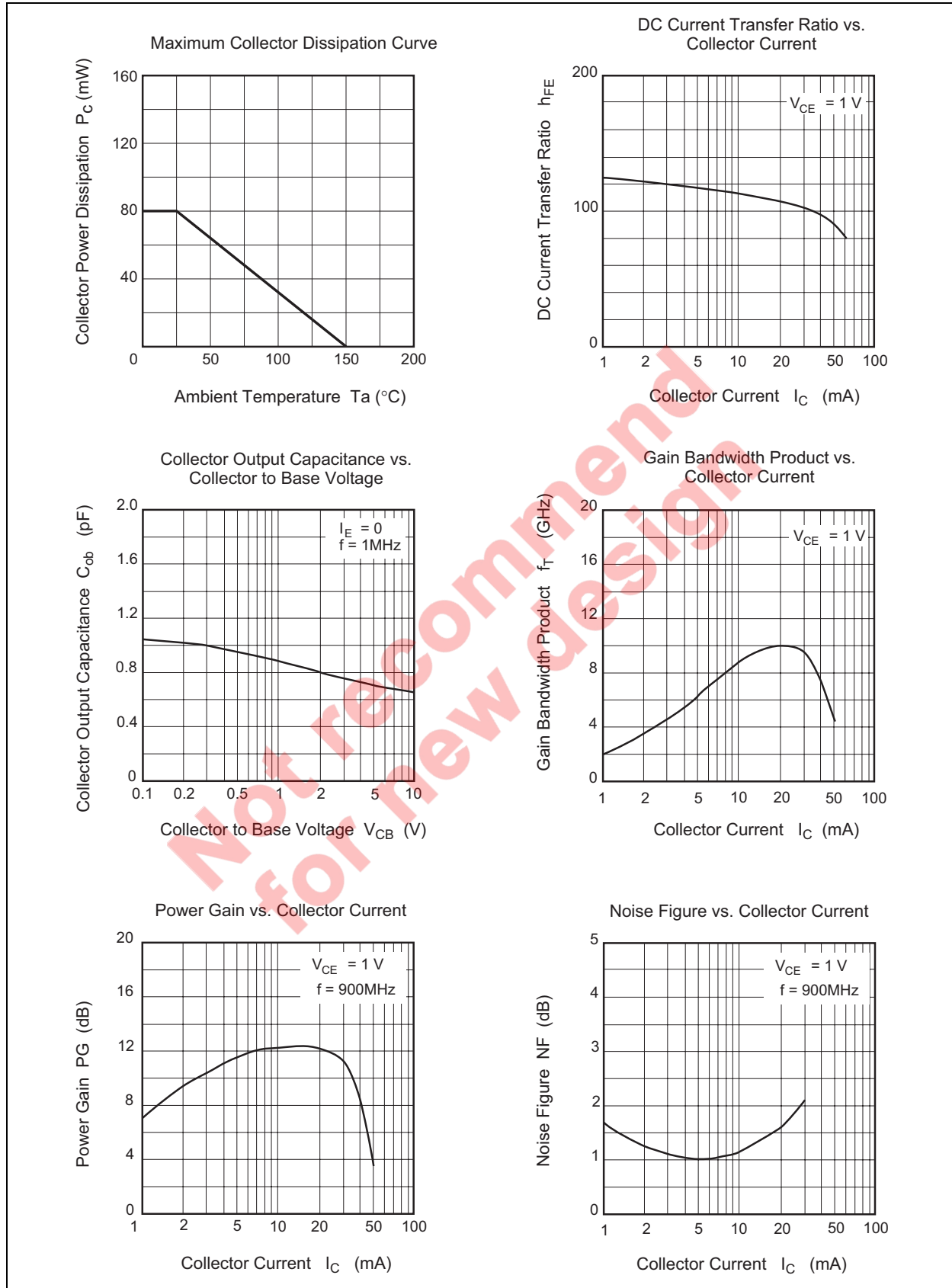
Electrical Characteristics

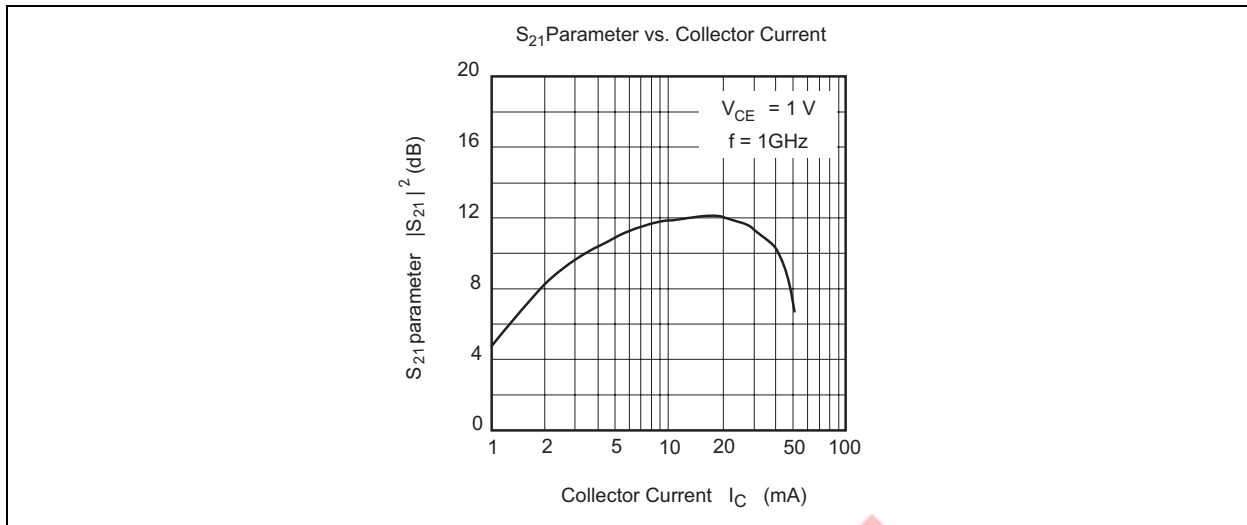
(Ta = 25°C)

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	$V_{CB} = 12V, I_E = 0$
Collector cutoff current	I_{CEO}	—	—	1	mA	$V_{CE} = 8V, R_{BE} = \infty$
Emitter cutoff current	I_{EBO}	—	—	10	μA	$V_{EB} = 1.5V, I_C = 0$
DC current transfer ratio	h_{FE}	100	—	150		$V_{CE} = 1V, I_C = 5mA$
Collector output capacitance	Cob	—	0.88	1.4	pF	$V_{CB} = 1V, I_E = 0$ $f = 1MHz$
Gain bandwidth product	f_T	3	6	—	GHz	$V_{CE} = 1V, I_C = 5mA$
Power gain	PG	8	11.6	—	dB	$V_{CE} = 1V, I_C = 5mA$ $f = 900MHz$
Noise figure	NF	—	1.0	2.0	dB	$V_{CE} = 1V, I_C = 5mA$ $f = 900MHz$

Not recommend
for new design

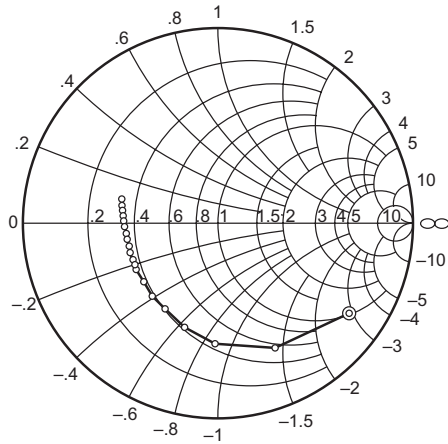
Main Characteristics





Not recommend
for new design

S11 Parameter vs. Frequency

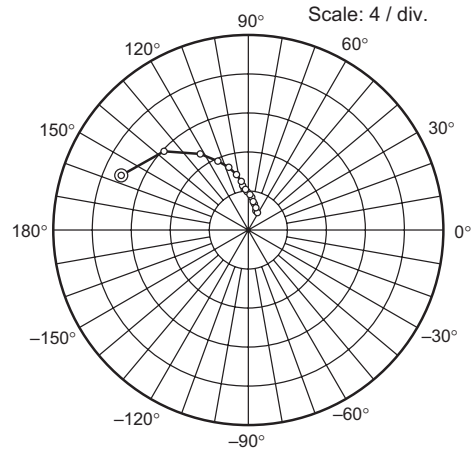


Condition : $V_{CE} = 1\text{ V}$, $I_C = 5\text{ mA}$

100 to 2000 MHz (100 MHz step)



S21 Parameter vs. Frequency

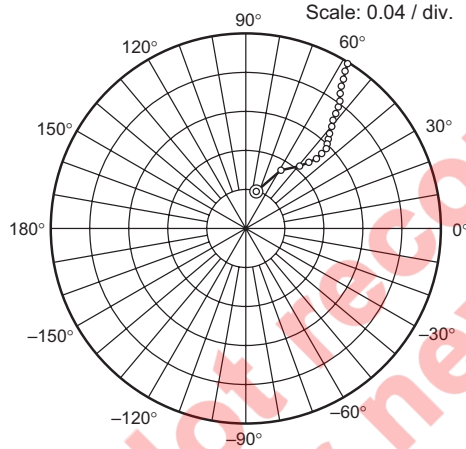


Condition : $V_{CE} = 1\text{ V}$, $I_C = 5\text{ mA}$

100 to 2000 MHz (100 MHz step)



S12 Parameter vs. Frequency

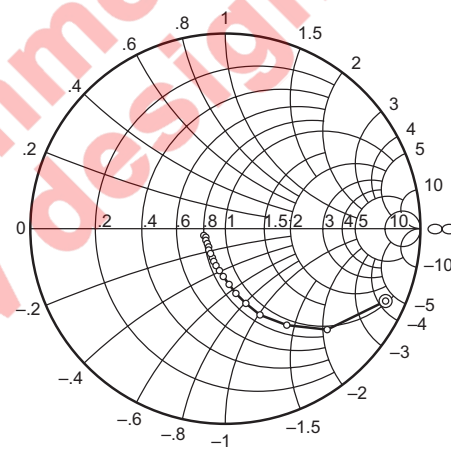


Condition : $V_{CE} = 1\text{ V}$, $I_C = 5\text{ mA}$

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)

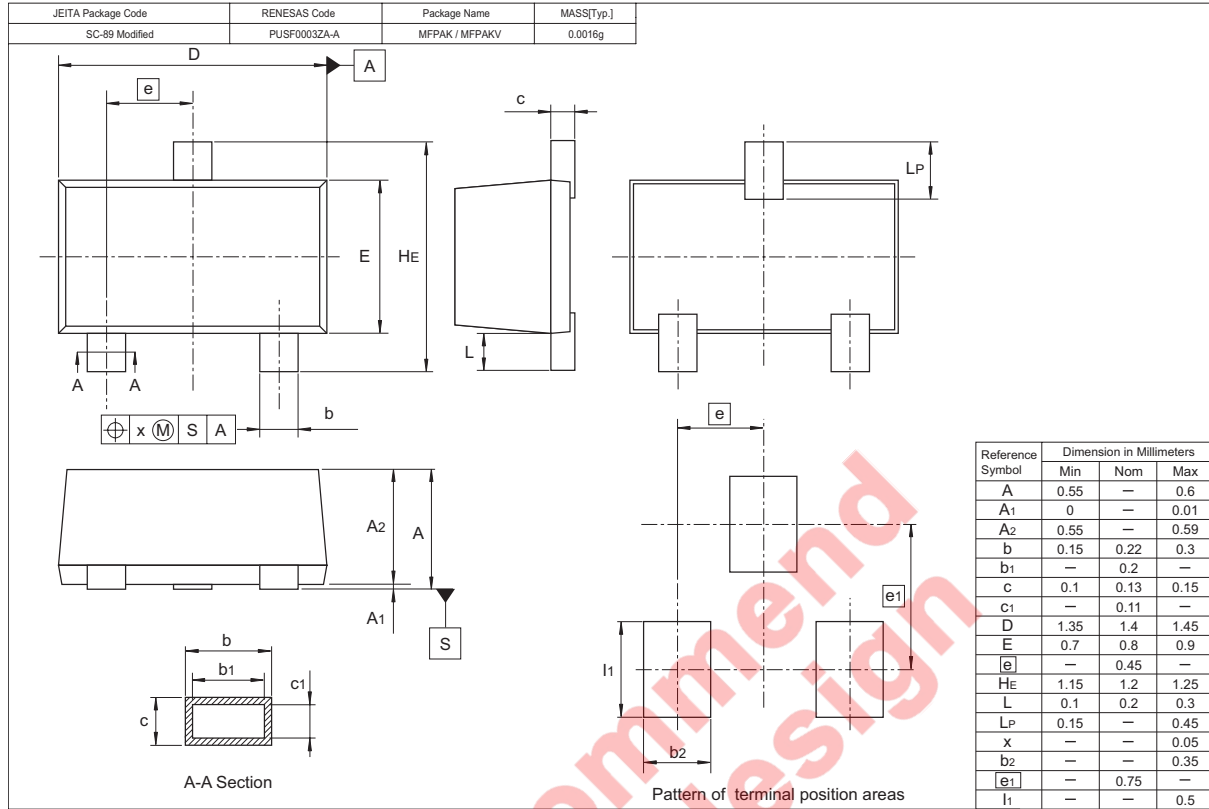


Sparameter

 $(V_{CE} = 1V, I_C = 5mA, Z_o = 50\Omega)$

f (MHz)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
100	0.806	-34.7	14.09	156.3	0.0395	71.3	0.905	-24.2
200	0.706	-66.0	11.64	136.7	0.0691	57.5	0.739	-44.3
300	0.617	-90.3	9.35	122.8	0.0860	49.4	0.586	-58.1
400	0.562	-108.0	7.66	113.8	0.0965	45.8	0.474	-67.6
500	0.527	-121.9	6.40	106.7	0.104	44.3	0.392	-74.9
600	0.500	-133.0	5.47	101.7	0.110	43.9	0.331	-81.1
700	0.487	-142.3	4.78	97.0	0.115	44.5	0.284	-86.2
800	0.480	-149.3	4.24	93.7	0.121	45.4	0.247	-91.2
900	0.481	-155.4	3.81	90.5	0.127	46.3	0.217	-96.2
1000	0.472	-161.4	3.46	87.8	0.132	47.7	0.193	-100.8
1100	0.473	-166.6	3.18	85.1	0.138	48.9	0.174	-106.2
1200	0.475	-170.5	2.94	82.8	0.144	50.3	0.157	-111.2
1300	0.478	-174.4	2.73	80.6	0.150	51.7	0.145	-115.7
1400	0.482	-178.1	2.56	78.6	0.157	52.8	0.135	-122.6
1500	0.488	-178.4	2.41	76.6	0.163	53.7	0.125	-128.1
1600	0.494	-175.9	2.28	74.9	0.171	55.0	0.119	-134.2
1700	0.503	-172.5	2.16	73.2	0.177	55.9	0.116	-140.3
1800	0.509	-169.9	2.06	71.4	0.185	56.9	0.114	-147.1
1900	0.515	-167.7	1.97	69.8	0.191	57.5	0.114	-153.3
2000	0.520	-165.8	1.89	68.4	0.199	58.3	0.115	-159.4

Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
2SC5544YZ-TR-E	9000	φ 178 mm Reel, 8 mm Emboss Taping
2SC5544YZ-TL-E	9000	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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Renesas Technology America, Inc.

450 Holger Way, San Jose, CA 95134-1368, U.S.A
Tel: <1> (408) 382-7500, Fax: <1> (408) 382-7501

Renesas Technology Europe Limited

Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K.
Tel: <44> (1628) 585-100, Fax: <44> (1628) 585-900

Renesas Technology Hong Kong Ltd.

7th Floor, North Tower, World Finance Centre, Harbour City, 1 Canton Road, Tsimshatsui, Kowloon, Hong Kong
Tel: <852> 2265-6688, Fax: <852> 2730-6071

Renesas Technology Taiwan Co., Ltd.

10th Floor, No.99, Fushing North Road, Taipei, Taiwan
Tel: <886> (2) 2715-2888, Fax: <886> (2) 2713-2999

Renesas Technology (Shanghai) Co., Ltd.

Unit2607 Ruijing Building, No.205 Maoming Road (S), Shanghai 200020, China
Tel: <86> (21) 6472-1001, Fax: <86> (21) 6415-2952

Renesas Technology Singapore Pte. Ltd.

1 Harbour Front Avenue, #06-10, Keppel Bay Tower, Singapore 098632
Tel: <65> 6213-0200, Fax: <65> 6278-8001

Renesas Technology Korea Co., Ltd.

Kukje Center Bldg. 18th Fl., 191, 2-ka, Hangang-ro, Yongsan-ku, Seoul 140-702, Korea
Tel: <82> 2-796-3115, Fax: <82> 2-796-2145

Renesas Technology Malaysia Sdn. Bhd.

Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No.18, Jalan Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: <603> 7955-9390, Fax: <603> 7955-9510