
2SC5544

Silicon NPN Epitaxial
VHF / UHF wide band amplifier

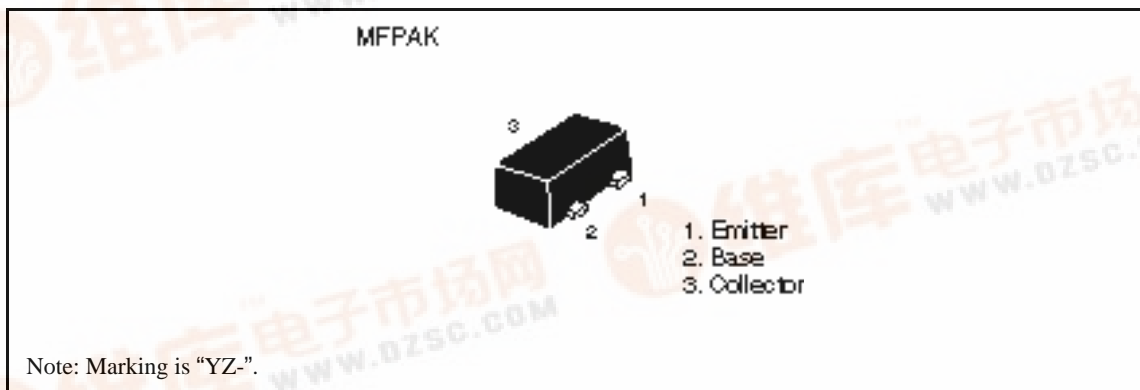
HITACHI

ADE-208-691 (Z)
1st. Edition
Nov. 1998

Features

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

Outline



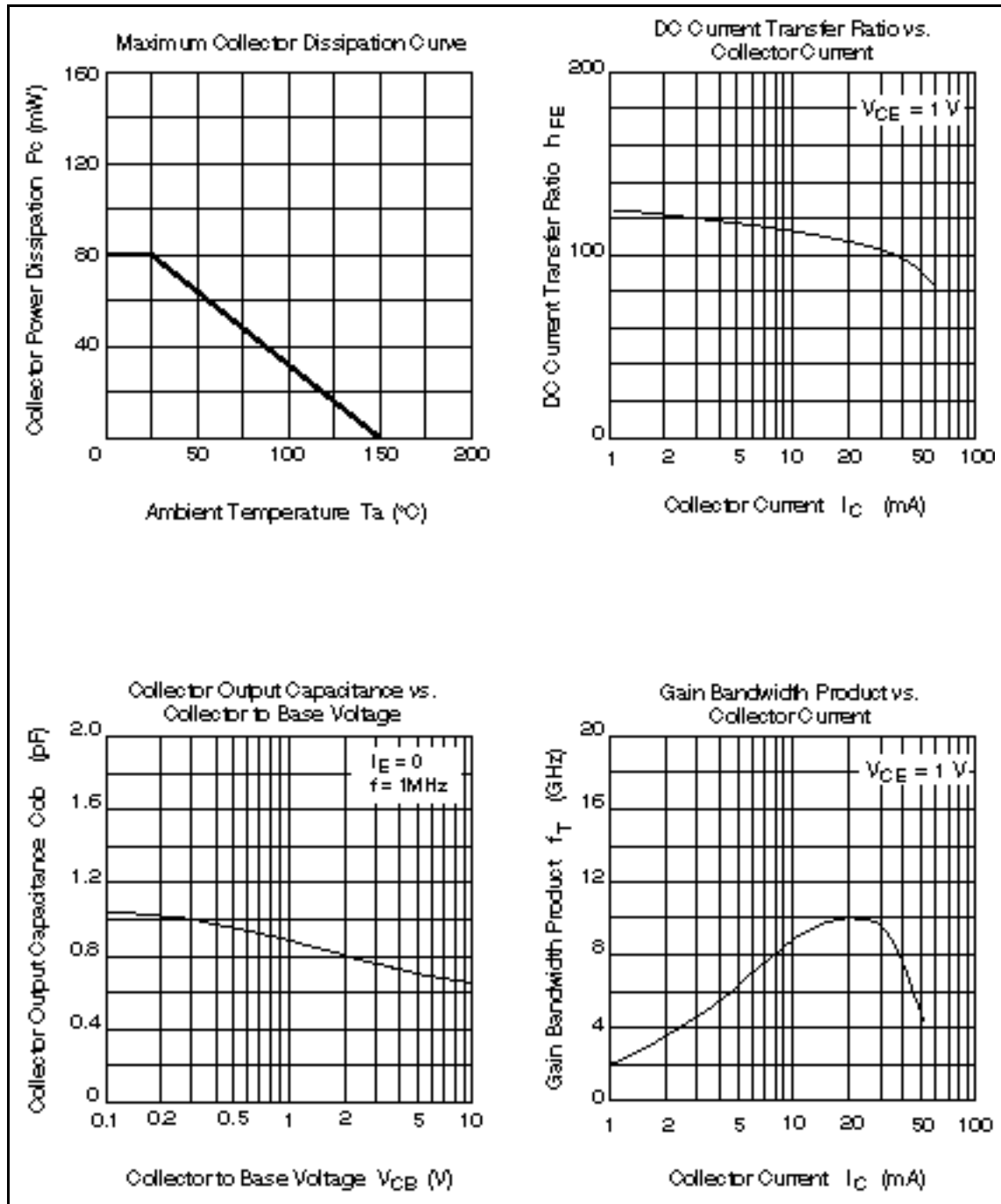
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Absolute Maximum Ratings (Ta = 25°C)

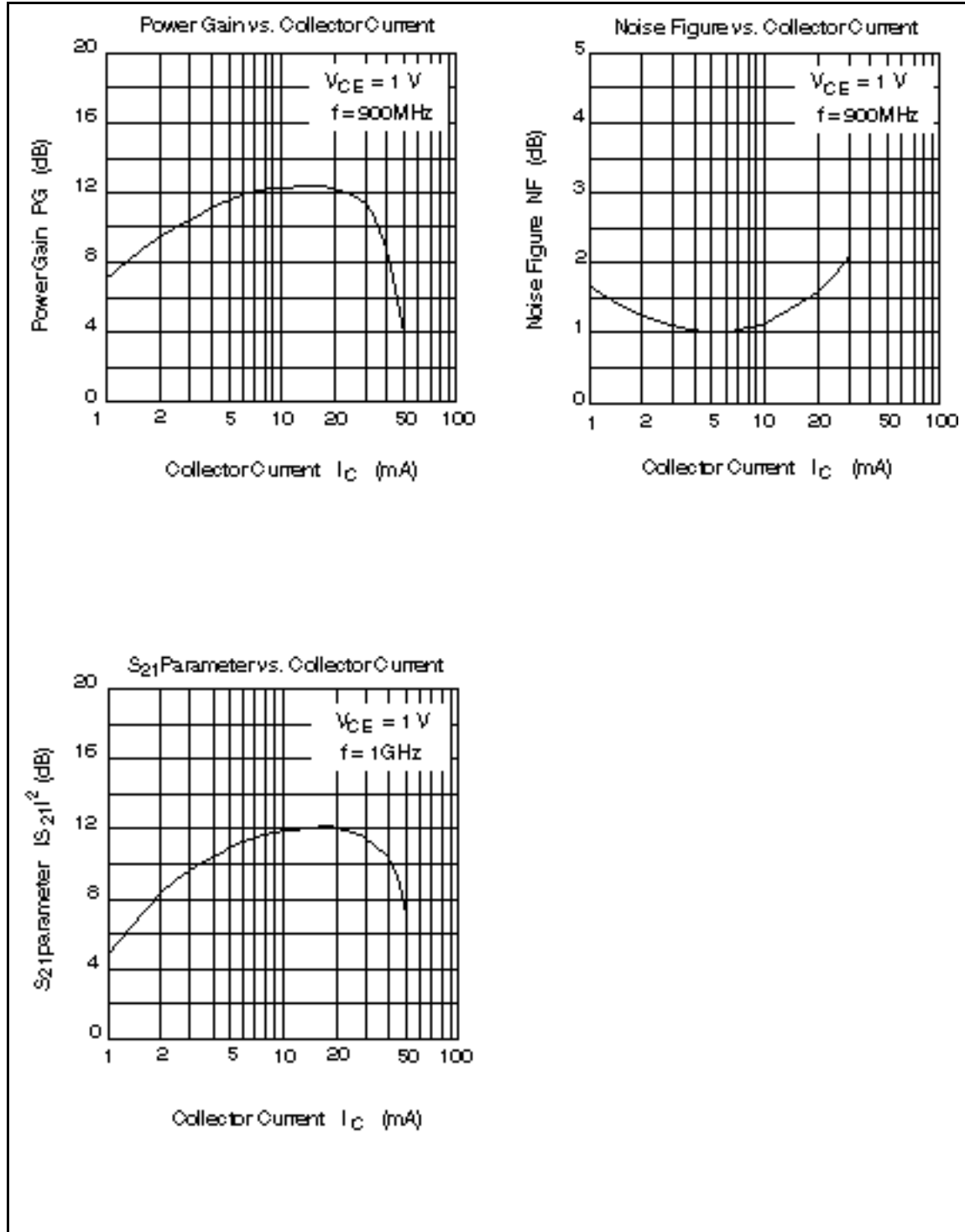
Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	15	V
Collector to emitter voltage	V_{CEO}	8	V
Emitter to base voltage	V_{EBO}	1.5	V
Collector current	I_C	50	mA
Collector power dissipation	Pc	80	mW
Junction temperature	Tj	150	°C
Storage temperature	Tstg	-55 to +150	°C

Electrical Characteristics (Ta = 25°C)

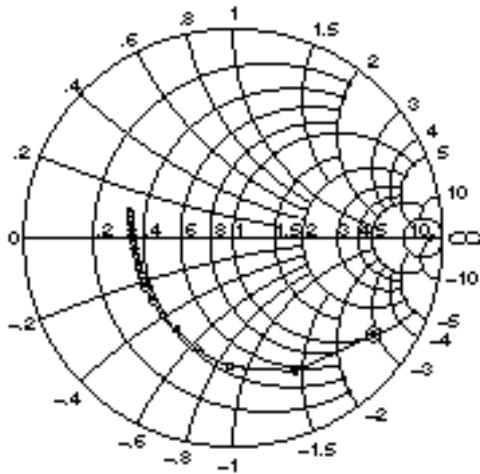
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	15	—	—	V	$I_C = 10\mu A, I_E = 0$
Collector cutoff current	I_{CBO}	—	—	1	μA	$V_{CB} = 12V, I_E = 0$
Collector cutoff current	I_{CEO}	—	—	1	mA	$V_{CE} = 8V, R_{BE} =$
Emitter cutoff current	I_{EBO}	—	—	10	μA	$V_{EB} = 1.5V, I_C = 0$
DC current transfer ratio	h_{FE}	85	—	170	V	$V_{CE} = 1V, I_C = 5mA$
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	$V_{CE} = 1V, I_C = 5mA$ $f = 900MHz$



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S11 Parameters vs. Frequency

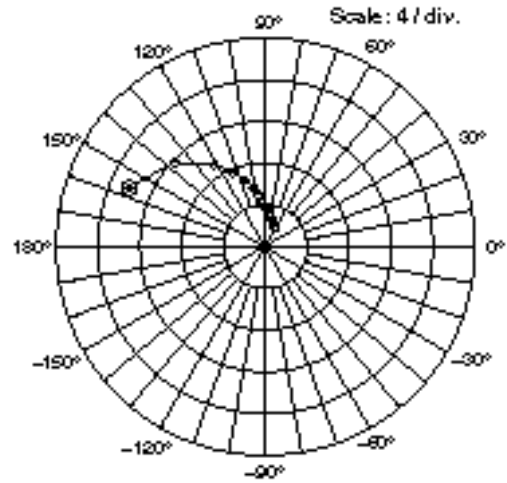


Condition : $V_{CE} = 1\text{ V}$, $I_C = 5\text{ mA}$

100 to 200 MHz (100 MHz step)



S21 Parameters vs. Frequency

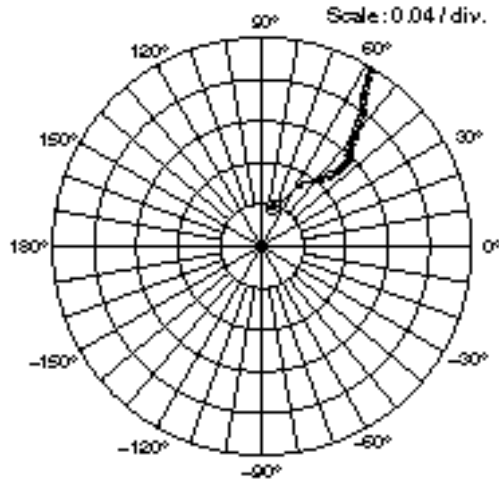


Condition : $V_{CE} = 1\text{ V}$, $I_C = 5\text{ mA}$

100 to 200 MHz (100 MHz step)



S12 Parameters vs. Frequency

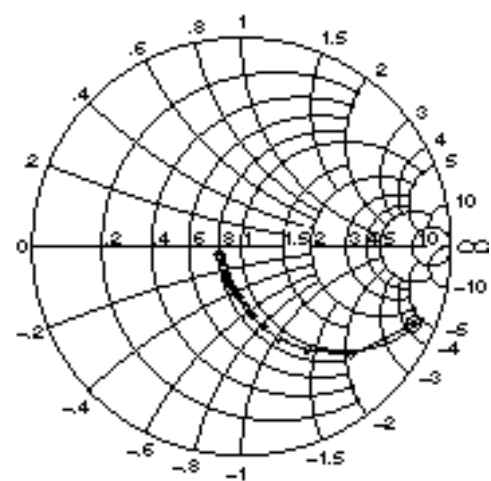


Condition : $V_{CE} = 1\text{ V}$, $I_C = 5\text{ mA}$

100 to 200 MHz (100 MHz step)



S22 Parameters vs. Frequency



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

100 to 200 MHz (100 MHz step)



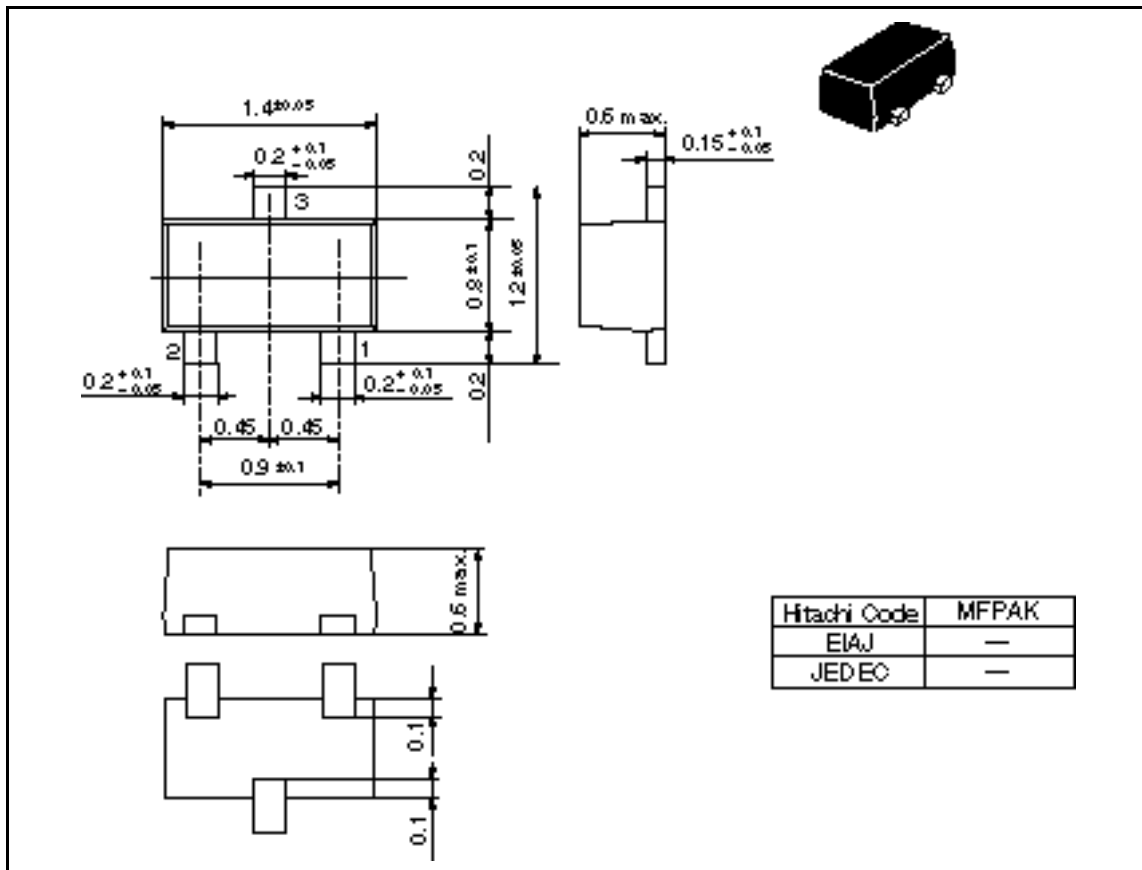
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Sparameter ($V_{CE} = 1V, I_C = 5mA, Z_o = 50 \Omega$)

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

Unit: mm



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