〈Transistor〉

2SC5547

For High Frequency Amplify Application

Silicon NPN Epitaxial Type

DESCRIPTION

2SC5547 is SC-62(SOT-89) package resin sealed silicon NPN epitaxial transistor. It is designed for high frequency application.

FEATURE

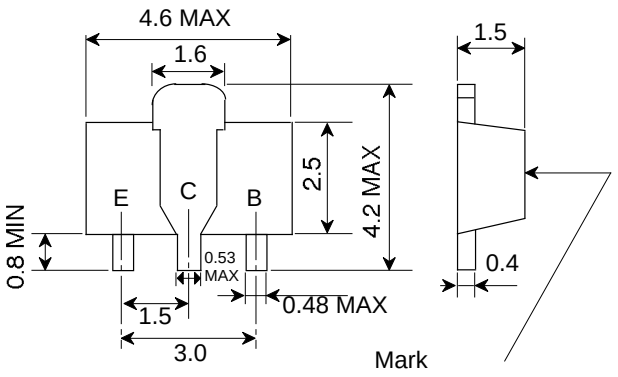
・High gain bandwidth product. fT=4.5GHz
・High gain,low noise
・Can operate at low voltage.
・SC-62(SOT-89)package easy mountaing

APPLICATION

For TV tuners,high frequency amplifier. celluar phone system.

OUTLINE DRAWING

UNIT:mm

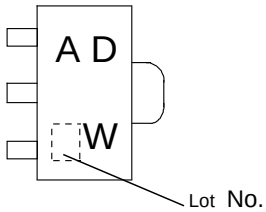


TERMINAL CONNECTOR

E : EMITTER
C : COLLECTOR
B : BASE

JEITA : SC-62
JEDEC : —

Marking



MAXIMUM RATINGS (Ta=25°C)

Symbol	Parameter	Ratings	unit
V_{CBO}	Collector to Base voltage	20	V
V_{EBO}	Emitter to Base voltage	3	V
V_{CEO}	Collector to Emitter voltage	15	V
I_C	Collector current	50	mA
P_C	Collector dissipation	400	mW
T_j	Janction temperture	+150	°C
T_{stg}	Storage temperture	-55～+150	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			unit
			min	typ	max	
$V_{(BR)CBO}$	C to B break down voltage	I_{CB}=10μA, I_E=0	20			V
$V_{(BR)CEO}$	C to E break down voltage	I_C=1mA, R_{BE}=∞	15			V
I_{CBO}	Collector cut off curent	V_{CB}=15V, I_E=0			0.5	μA
I_{EBO}	Emitter cut off curent	V_{EB}=3V, I_C=0			10	μA
h_{FE}	DC forward current gain	V_{CE}=5V, I_C=20mA	30	90	200	—
C_{ob}	Collector output capacitance	V_{CB}=5V, I_E=0, f=1MHz		1.0	1.5	pF
f_T	Gain bandwidth product	V_{CE}=5V, I_E=-20mA	3.5	4.5		GHz
$\|S_{21}\|^2$	Insertion power gain	V_{CB}=5V, I_C=20mA, f=1.8GHz		9.0		dB
NF	Noise figure	V_{CE}=5V, I_C=5mA, f=1.0GHz		1.5		dB

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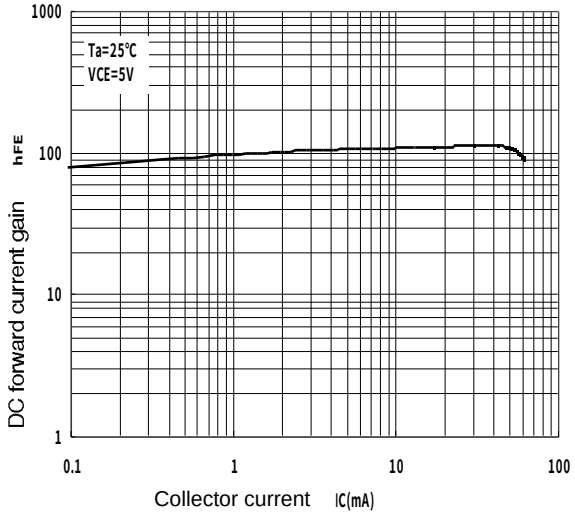
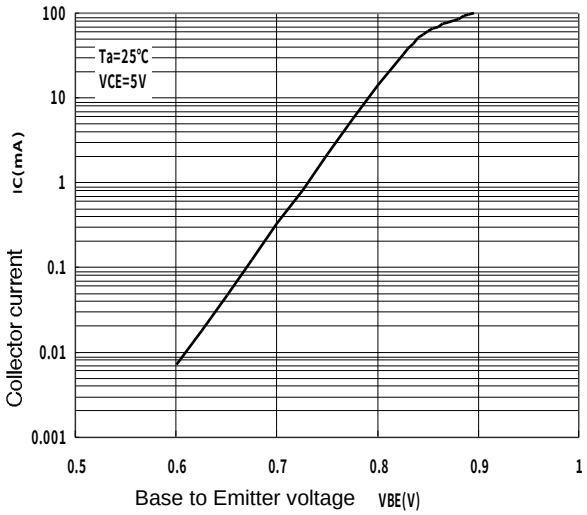
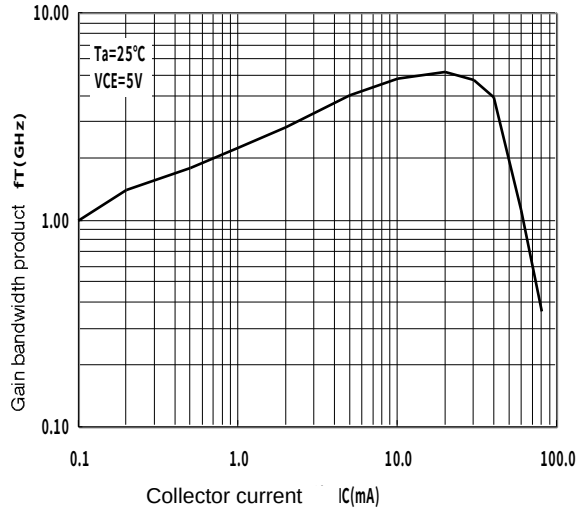
DC forward current gain
VS. Collector current



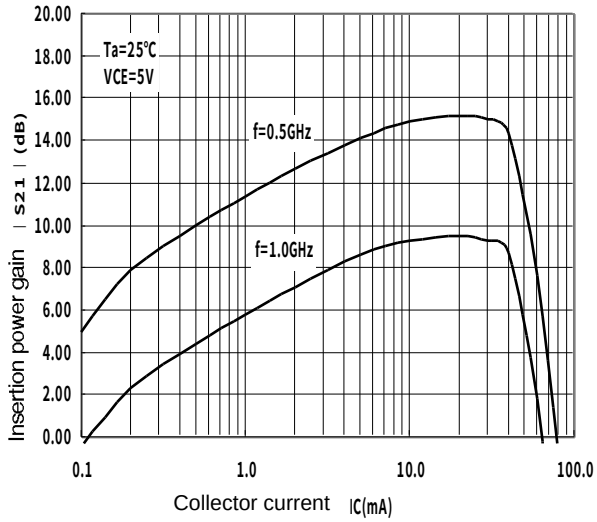
Common Emitter Transfer



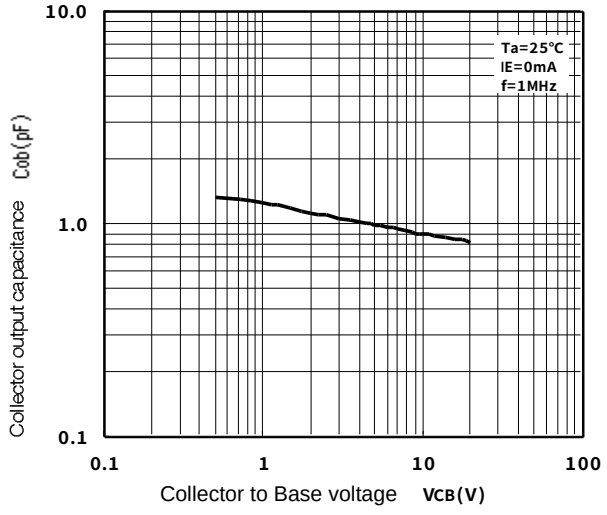
Gain bandwidth product
VS.Collector current



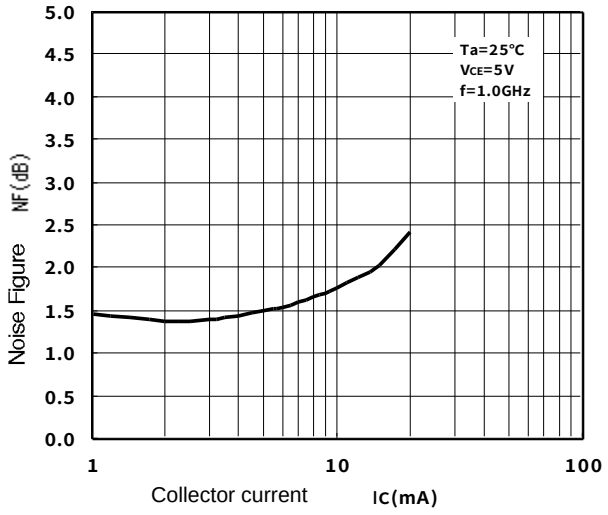
Insertion power gain
VS. Collector current



Collector output capacitance
VS. Collector to Base voltage



Noise Figure VS. Collector current



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S parameter

VCE=5V,IC=5mA

FREQUENCY	S_{11}		S_{21}		S_{12}		S_{22}	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500.00	0.334	-143.8	0.098	50.7	5.077	86.1	0.433	-56.6
600.00	0.321	-154.7	0.108	51.8	4.301	80.3	0.409	-59.8
700.00	0.312	-164.0	0.119	52.4	3.721	75.2	0.400	-62.7
800.00	0.305	-172.2	0.130	52.9	3.281	70.4	0.397	-65.6
900.00	0.301	-179.5	0.141	52.9	2.948	65.7	0.405	-68.4
1000.00	0.293	173.3	0.153	52.8	2.675	61.3	0.409	-71.1
1100.00	0.285	166.3	0.165	53.0	2.441	57.3	0.413	-73.7
1200.00	0.281	160.5	0.177	52.6	2.258	53.4	0.424	-76.0
1300.00	0.277	154.1	0.189	52.0	2.099	49.6	0.432	-78.5
1400.00	0.273	147.5	0.200	51.4	1.957	46.1	0.443	-80.6
1500.00	0.271	141.7	0.213	50.9	1.843	42.6	0.454	-83.2
1600.00	0.270	135.7	0.227	49.9	1.741	39.2	0.462	-85.5
1700.00	0.268	129.5	0.238	49.0	1.650	35.9	0.473	-87.3
1800.00	0.268	123.1	0.250	48.1	1.572	32.9	0.484	-89.5
1900.00	0.269	118.1	0.264	47.1	1.502	29.8	0.495	-91.8
2000.00	0.270	112.8	0.276	45.9	1.434	26.9	0.507	-93.9

VCE=5V,IC=2mA

FREQUENCY	S_{11}		S_{21}		S_{12}		S_{22}	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500.00	0.410	-117.8	0.131	38.9	4.272	91.5	0.639	-50.9
600.00	0.399	-128.3	0.134	36.7	3.612	85.5	0.599	-55.9
700.00	0.389	-138.5	0.139	35.3	3.142	79.9	0.577	-60.0
800.00	0.382	-147.4	0.142	34.7	2.749	74.9	0.559	-63.7
900.00	0.377	-156.1	0.144	34.6	2.471	69.7	0.554	-67.2
1000.00	0.366	-163.9	0.148	35.8	2.240	64.6	0.547	-70.3
1100.00	0.359	-170.1	0.152	36.9	2.034	59.9	0.546	-73.2
1200.00	0.356	-176.7	0.156	38.4	1.864	55.5	0.551	-75.9
1300.00	0.354	176.6	0.162	39.8	1.730	51.4	0.554	-78.2
1400.00	0.350	169.9	0.168	41.2	1.610	47.6	0.561	-81.1
1500.00	0.349	163.5	0.176	42.6	1.515	43.8	0.567	-83.6
1600.00	0.346	156.4	0.185	43.9	1.425	40.0	0.573	-86.1
1700.00	0.343	149.7	0.194	44.9	1.347	36.5	0.582	-88.2
1800.00	0.343	143.8	0.205	45.4	1.282	33.0	0.589	-90.4
1900.00	0.343	137.2	0.216	46.0	1.226	29.8	0.597	-92.7
2000.00	0.350	132.4	0.228	46.4	1.153	26.5	0.609	-95.2

VCE=5V,IC=10mA

FREQUENCY	S_{11}		S_{21}		S_{12}		S_{22}	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500.00	0.300	-164.4	0.089	62.0	5.555	81.9	0.326	-55.8
600.00	0.292	-174.1	0.104	62.3	4.675	76.8	0.318	-58.3
700.00	0.285	177.1	0.118	61.7	4.056	72.0	0.324	-61.3
800.00	0.280	170.4	0.132	61.5	3.574	67.6	0.327	-64.4
900.00	0.277	163.6	0.147	60.5	3.208	63.4	0.337	-67.3
1000.00	0.272	156.7	0.161	59.6	2.902	59.4	0.346	-70.1
1100.00	0.266	150.8	0.176	58.6	2.657	55.7	0.355	-72.7
1200.00	0.263	145.5	0.190	57.6	2.454	52.2	0.367	-75.2
1300.00	0.259	139.6	0.203	56.0	2.281	48.6	0.377	-77.7
1400.00	0.256	133.4	0.216	54.8	2.129	45.3	0.390	-79.8
1500.00	0.254	128.1	0.231	53.6	2.006	42.0	0.404	-82.5
1600.00	0.253	122.1	0.244	52.1	1.898	38.7	0.416	-84.9
1700.00	0.252	116.8	0.258	50.5	1.792	35.6	0.423	-86.7
1800.00	0.251	111.4	0.270	48.9	1.706	32.7	0.439	-88.6
1900.00	0.251	105.7	0.283	47.4	1.631	29.8	0.450	-90.7
2000.00	0.253	100.7	0.295	46.1	1.561	27.0	0.465	-93.3

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