

# 2SC5547

High Frequency Amplify Application  
Silicon NPN Epitaxial Type

## DESCRIPTION

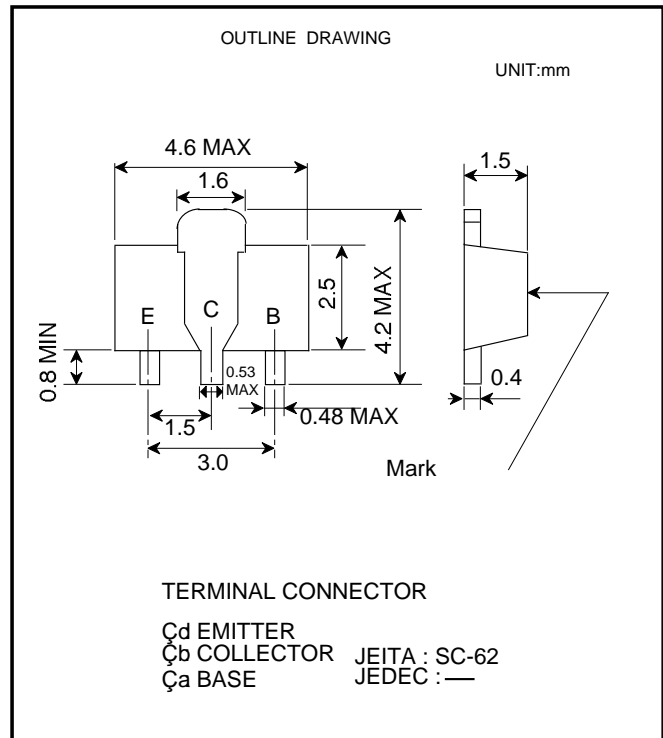
2SC5547 is SC-62(SOT-89) package resin sealed silicon NPN epitaxial transistor. It is designed for high frequency application.

## FEATURE

- High gain bandwidth product.  $f_T=4.5\text{GHz}$
- High gain, low noise
- Can operate at low voltage.
- SC-62(SOT-89)package easy mounting

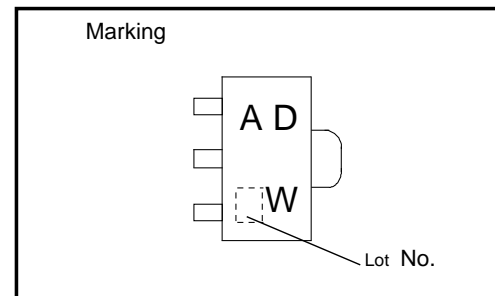
## APPLICATION

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



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

Symbol	Parameter	Ratings	unit
V <sub>CB0</sub>	Collector to Base voltage	20	V
V <sub>EB0</sub>	Emitter to Base voltage	3	V
V <sub>CEO</sub>	Collector to Emitter voltage	15	V
I <sub>C</sub>	Collector current	50	mA
P <sub>C</sub>	Collector dissipation	400	mW
T <sub>j</sub>	Junction temperature	+150	°C
T <sub>stg</sub>	Storage temperature	-55~+150	°C



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

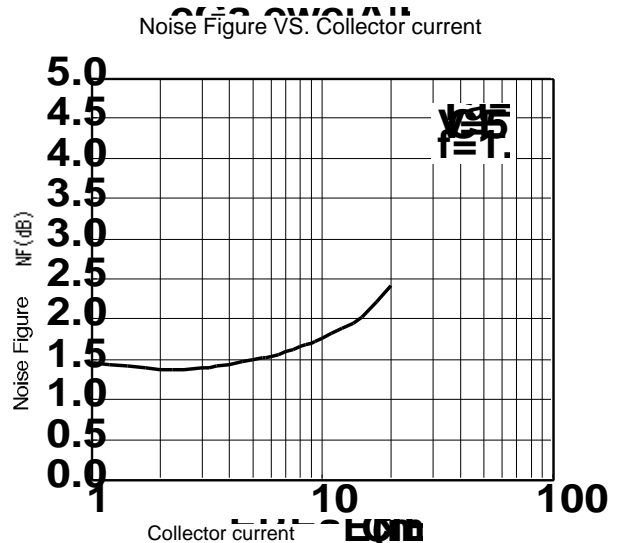
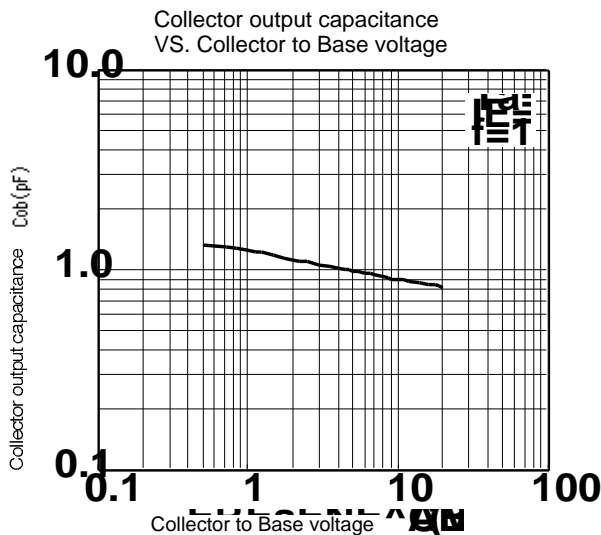
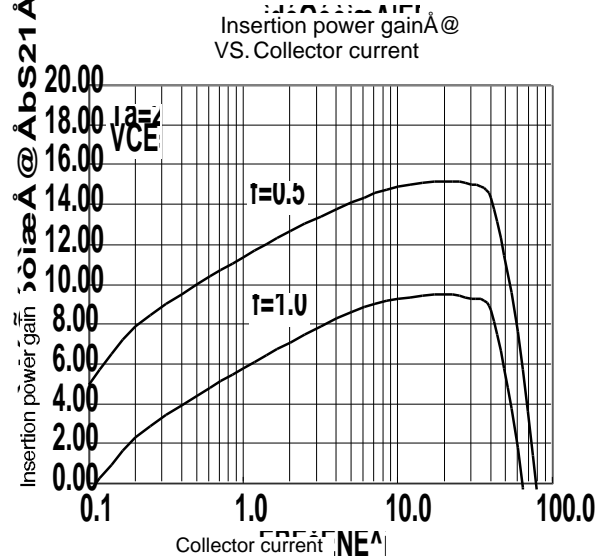
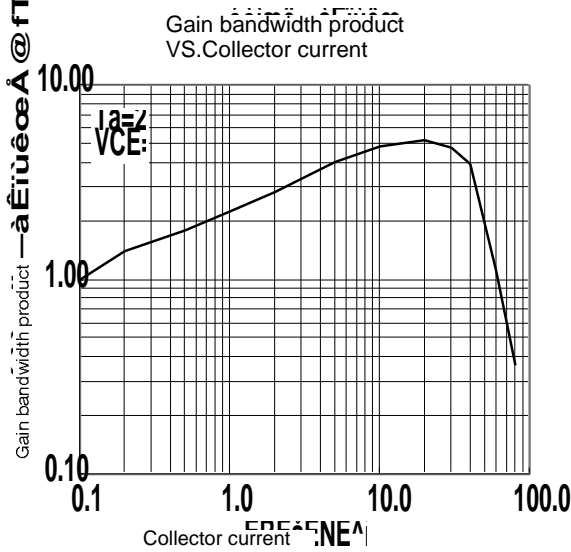
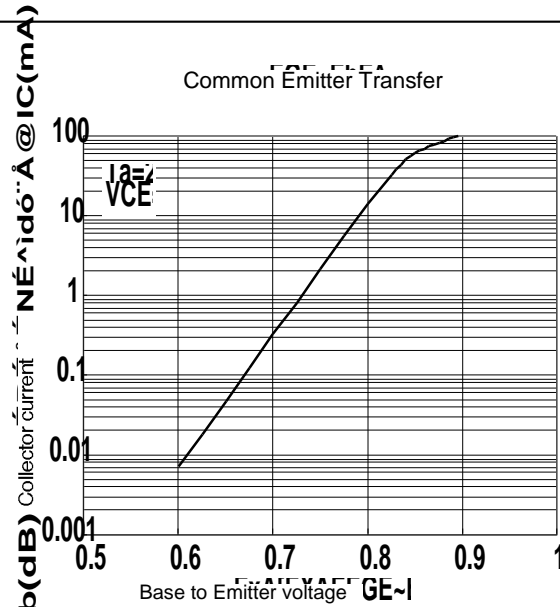
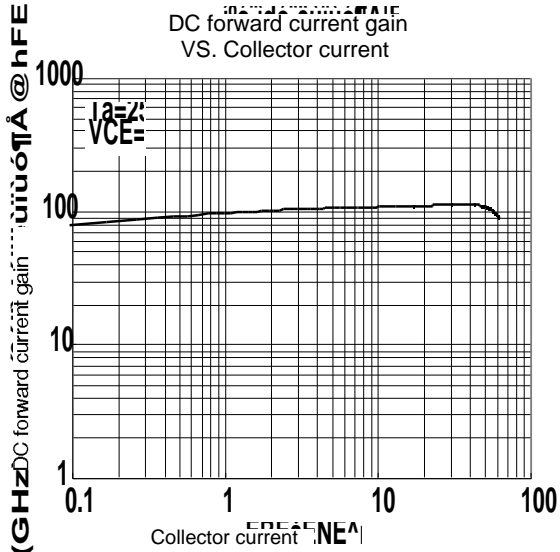
Symbol	Parameter	Test conditions	Limits			unit
			min	typ	max	
V <sub>(BR)CBO</sub>	C to B break down voltage	I <sub>CB</sub> =10 mA, I <sub>E</sub> =0	20			V
V <sub>(BR)CEO</sub>	C to E break down voltage	I <sub>C</sub> =1mA, R <sub>BE</sub> =∞	15			V
I <sub>CBO</sub>	Collector cut off current	V <sub>CB</sub> =15V, I <sub>E</sub> =0			0.5	mA
I <sub>EBO</sub>	Emitter cut off current	V <sub>EB</sub> =3V, I <sub>C</sub> =0			10	mA
h <sub>FE</sub>	DC forward current gain	V <sub>CE</sub> =5V, I <sub>C</sub> =20mA	30	90	200	—
C <sub>ob</sub>	Collector output capacitance	V <sub>CB</sub> =5V, I <sub>E</sub> =0, f=1MHz		1.0	1.5	pF
f <sub>T</sub>	Gain bandwidth product	V <sub>CE</sub> =5V, I <sub>E</sub> =-20mA	3.5	4.5		GHz
S <sub>21</sub>   <sup>2</sup>	Insertion power gain	V <sub>CB</sub> =5V, I <sub>C</sub> =20mA, f=1.8GHz		9.0		dB
NF	Noise figure	V <sub>CE</sub> =5V, I <sub>C</sub> =5mA, f=1.0GHz		1.5		dB

ISAHAYA ELECTRONICS CORPORATION

# 2SC5547

For High Frequency Amplify Application

Silicon NPN Epitaxial Type



Agilent  
**2SC5547**

For High Frequency Amplify Application  
Silicon NPN Epitaxial Type

VCE=5V,IC=5mA

FREQUENCY (MHZ)	S11		S21		S12		S22	
	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 (MHZ)	S11		S21		S12		S22	
	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 (MHZ)	S11		S21		S12		S22	
	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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