

<b>SANYO</b>	No.4856	<b>2SC4867</b>
		NPN Epitaxial Planar Silicon Transistor <b>VHF to UHF Wide-Band Low-Noise Amp Applications</b>

**Features**

- Low noise : NF=1.2dB typ (f=1GHz).
- High gain : |S21e|<sup>2</sup>=13dB typ (f=1GHz).
- High cutoff frequency : f<sub>T</sub>=9.0GHz typ.

**Absolute Maximum Ratings at Ta=25°C**

			unit
Collector-to-Base Voltage	V <sub>CB0</sub>	16	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>	8	V
Emitter-to-Base Voltage	V <sub>EBO</sub>	1.5	V
Collector Current	I <sub>C</sub>	50	mA
Collector Dissipation	P <sub>C</sub>	150	mW
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55 to +150	°C

**Electrical Characteristics at Ta=25°C**

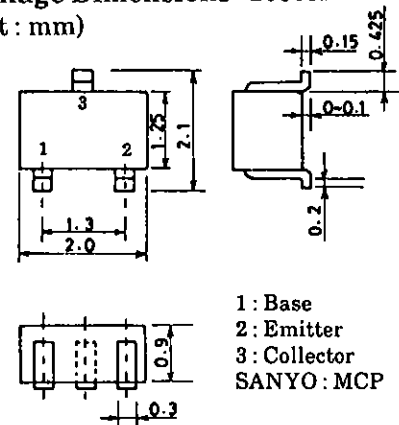
			min	typ	max	unit
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> =10V, I <sub>E</sub> =0			1.0	μA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =1V, I <sub>C</sub> =0			10	μA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =15mA	60*		270*	
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =15mA		9.0		GHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10V, f=1MHz		0.6	1.1	pF
Forward Transfer Gain	S21e  <sup>2</sup>	V <sub>CE</sub> =5V, I <sub>C</sub> =15mA, f=1GHz	10	13		dB
Noise Figure	NF	V <sub>CE</sub> =5V, I <sub>C</sub> =5mA, f=1GHz		1.2	2.5	dB

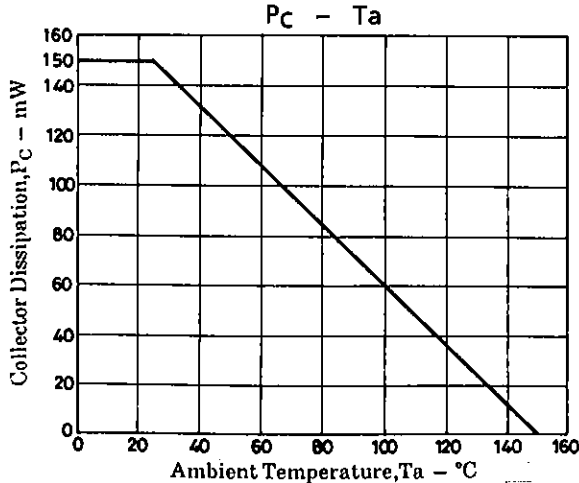
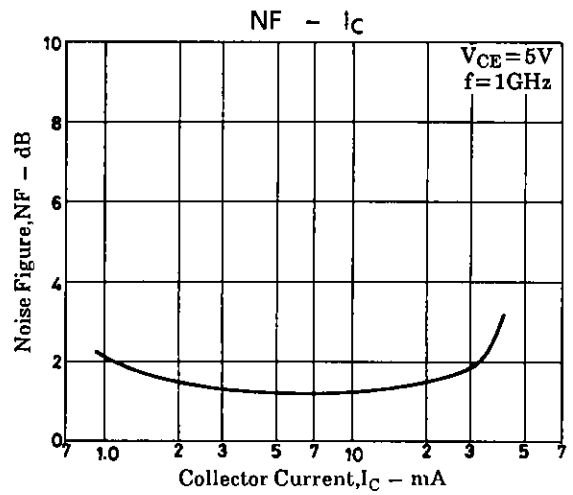
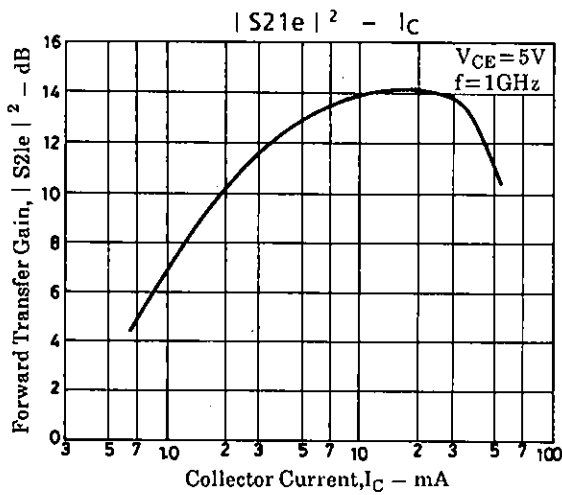
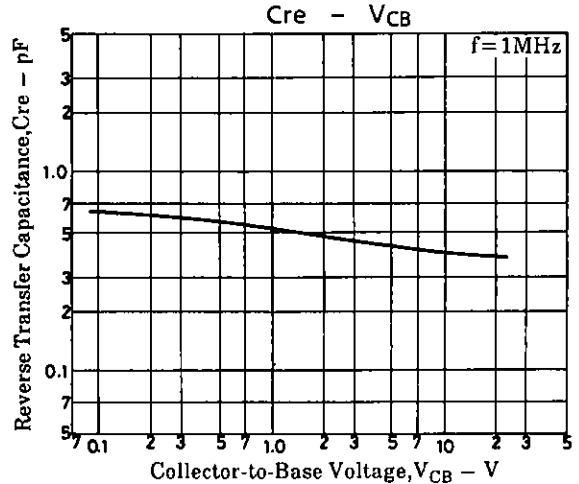
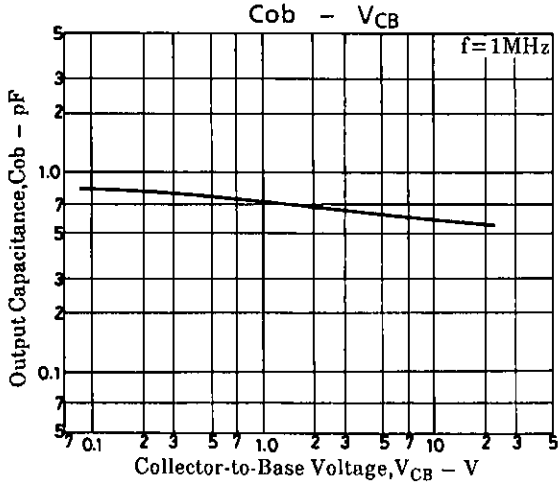
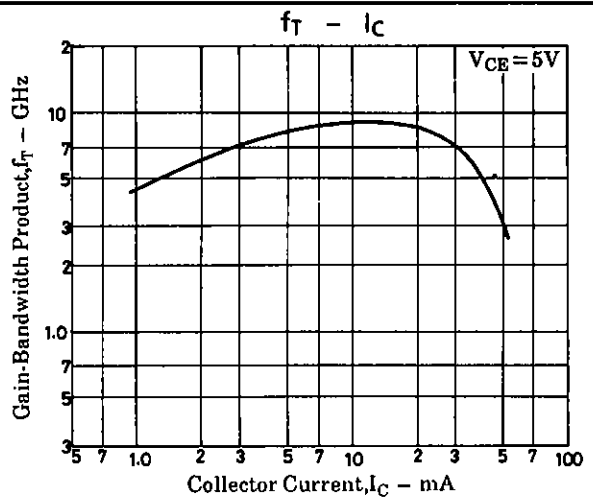
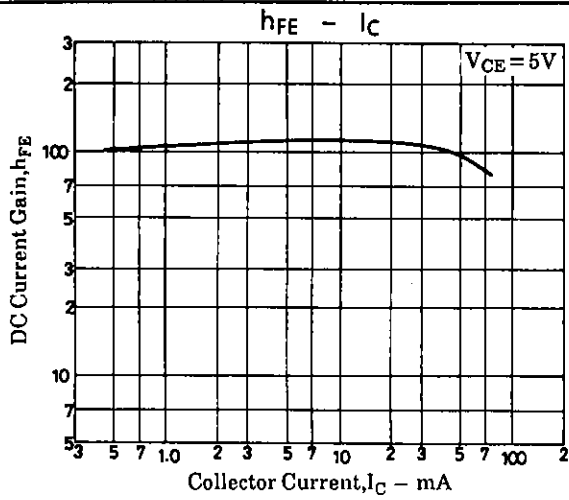
\* : The 2SC4867 is classified by 15mA h<sub>FE</sub> as follows :

60	3	120	90	4	180	135	5	270
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Marking : GN  
h<sub>FE</sub> rank : 3, 4, 5

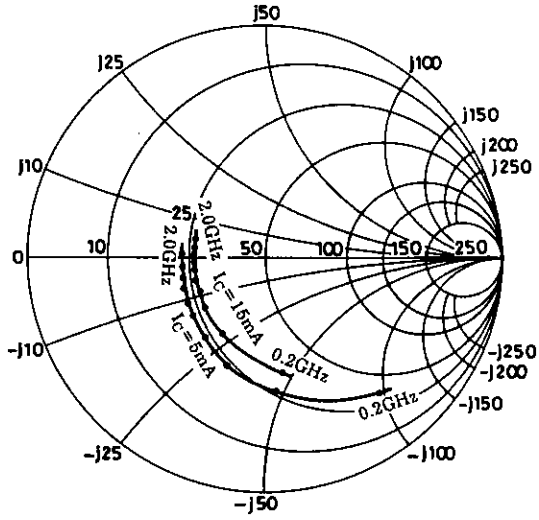
**Package Dimensions 2059A**  
(unit : mm)



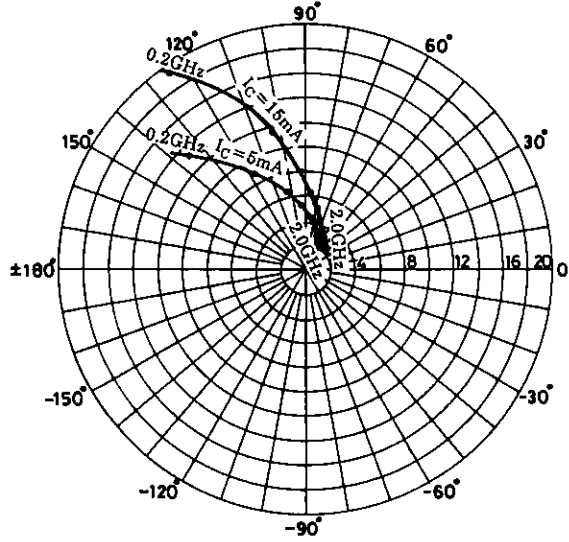


S Parameter

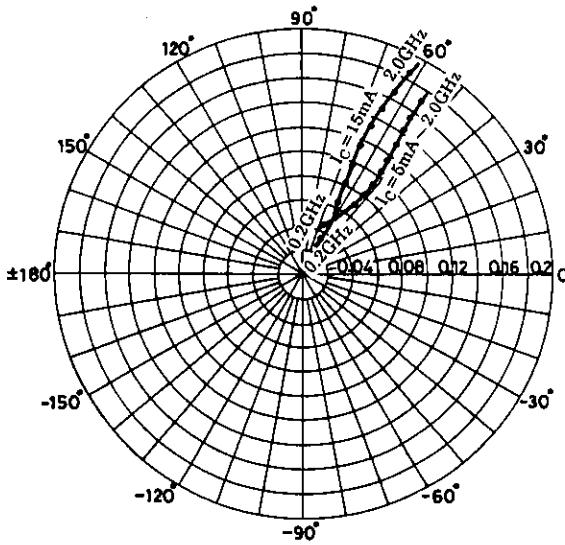
$V_{CE} = 5V$   
 $f = 200$  to  $2000MHz$  (200MHz Step)



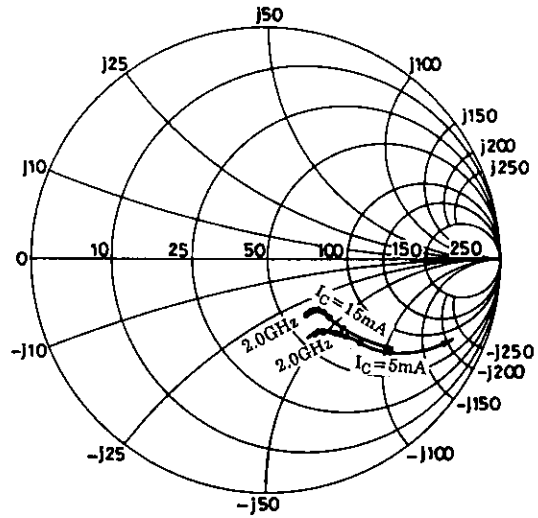
$V_{CE} = 5V$   
 $f = 200$  to  $2000MHz$  (200MHz Step)



$V_{CE} = 5V$   
 $f = 200$  to  $2000MHz$  (200MHz Step)



$V_{CE} = 5V$   
 $f = 200$  to  $2000MHz$  (200MHz Step)



## S Parameter (Common emitter)

 $V_{CE}=5V, I_C=5mA, Z_0=50\Omega$ 

Freq (MHz)	$ S_{11} $	$\angle S_{11}$	$ S_{21} $	$\angle S_{21}$	$ S_{12} $	$\angle S_{12}$	$ S_{22} $	$\angle S_{22}$
200	0.749	-50.7	12.229	141.6	0.044	65.4	0.847	-25.4
400	0.583	-85.7	8.900	118.1	0.068	54.3	0.655	-37.4
600	0.487	-109.6	6.636	103.7	0.081	51.6	0.538	-42.3
800	0.428	-126.6	5.276	93.9	0.093	51.6	0.473	-44.4
1000	0.405	-139.3	4.379	85.9	0.106	52.6	0.443	-46.2
1200	0.387	-150.6	3.731	78.7	0.117	53.6	0.421	-48.1
1400	0.377	-160.1	3.258	72.6	0.130	54.4	0.405	-49.6
1600	0.365	-166.8	2.924	67.5	0.142	55.2	0.393	-52.1
1800	0.362	-174.3	2.589	61.9	0.156	55.6	0.387	-54.3
2000	0.361	178.3	2.363	56.8	0.171	55.9	0.383	-56.4

 $V_{CE}=5V, I_C=15mA, Z_0=50\Omega$ 

Freq (MHz)	$ S_{11} $	$\angle S_{11}$	$ S_{21} $	$\angle S_{21}$	$ S_{12} $	$\angle S_{12}$	$ S_{22} $	$\angle S_{22}$
200	0.507	-81.6	19.422	124.2	0.033	61.9	0.650	-36.9
400	0.382	-119.5	11.595	103.8	0.050	61.0	0.445	-43.0
600	0.341	-140.9	8.046	93.3	0.065	63.3	0.365	-43.5
800	0.332	-154.0	6.182	86.4	0.081	65.1	0.330	-43.3
1000	0.320	-163.0	5.063	79.8	0.099	65.6	0.318	-43.8
1200	0.316	-170.9	4.263	74.1	0.116	65.7	0.311	-45.9
1400	0.315	-178.0	3.716	69.2	0.134	65.0	0.304	-47.4
1600	0.314	176.7	3.270	64.3	0.150	64.4	0.297	-50.3
1800	0.311	171.2	2.922	60.0	0.167	63.3	0.293	-52.6
2000	0.313	165.4	2.656	55.9	0.186	62.1	0.295	-54.8

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