

SANYO	No.5044	2SC4869
		NPN Epitaxial Planar Silicon Transistor VHF to UHF Wide-Band Low-noise Amp Applications

Features

- Low noise : NF = 1.2dB typ (f = 1GHz).
- High gain : | S_{21e} |² = 15dB typ (f = 1GHz).
- High cutoff frequency : f_T = 9.0GHz typ.

Absolute Maximum Ratings at Ta = 25°C

			unit
Collector-to-Base Voltage	V _{CB0}	16	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 Dissipation	P _C	200	mW
Junction Temperature	T _j	150	°C
Storage Temperature	T _{stg}	-55 to +150	°C

Electrical Characteristics at Ta = 25°C

			min	typ	max	unit
Collector Cutoff Current	I _{CB0}	V _{CB} = 10V, I _E = 0			1.0	μA
Emitter Cutoff Current	I _{EBO}	V _{EB} = 1V, I _C = 0			10	μA
DC Current Gain	h _{FE}	V _{CE} = 5V, I _C = 15mA	60*		270*	
Gain-Bandwidth Product	f _T	V _{CE} = 5V, I _C = 15mA		9.0		GHz
Output Capacitance	C _{ob}	V _{CB} = 10V, f = 1MHz		0.6	1.1	pF
Forward Transfer Gain	S _{21e} ²	V _{CE} = 5V, I _C = 15mA, f = 1GHz	12	15		dB
Noise Figure	NF	V _{CE} = 5V, I _C = 5mA, f = 1GHz		1.2	2.5	dB

* : The 2SC4869 is classified by 15mA h_{FE} as follows :

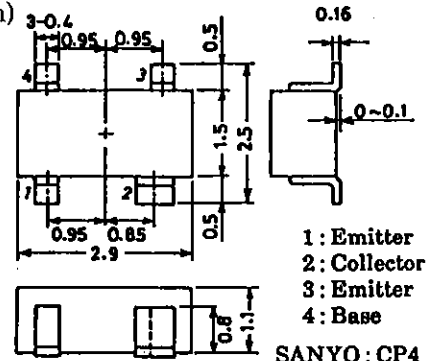
60	3	120	90	4	180	135	5	270
----	---	-----	----	---	-----	-----	---	-----

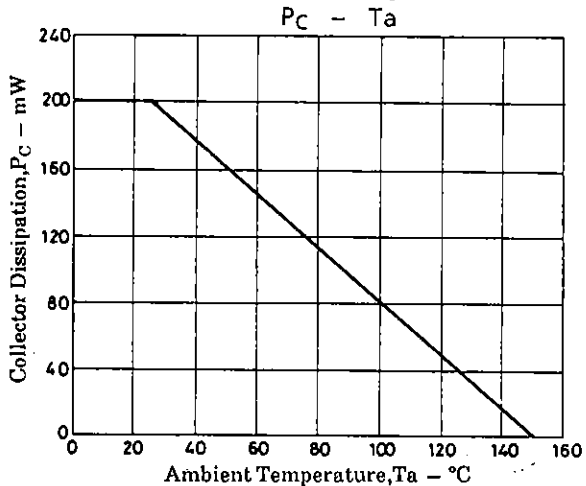
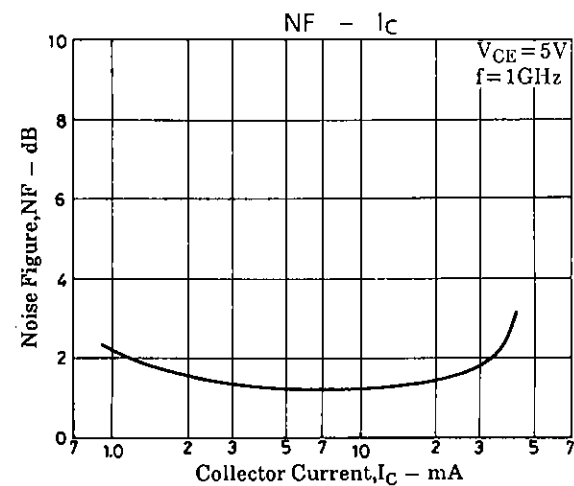
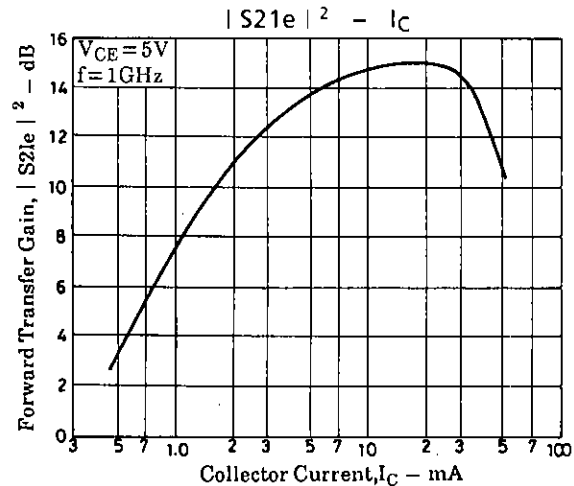
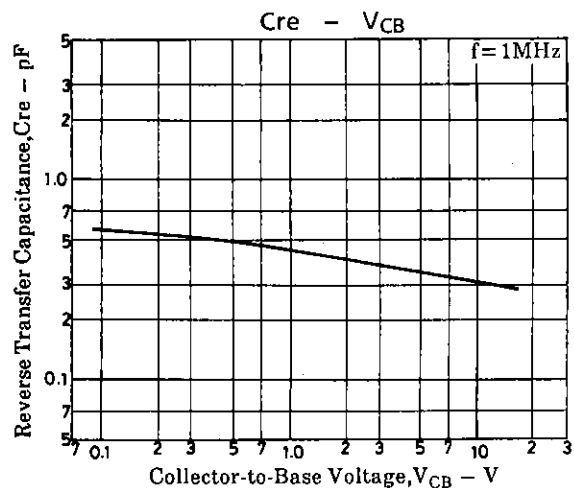
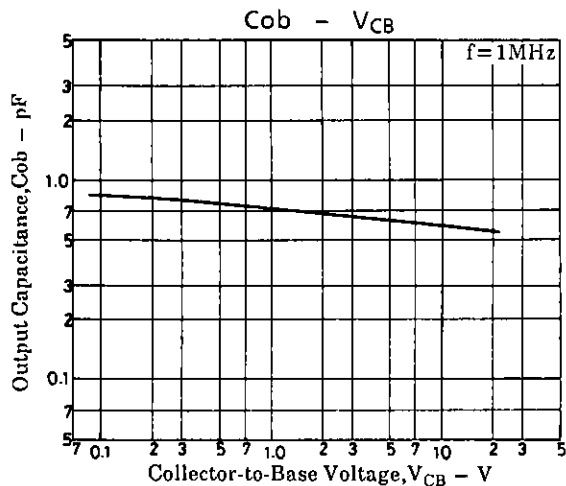
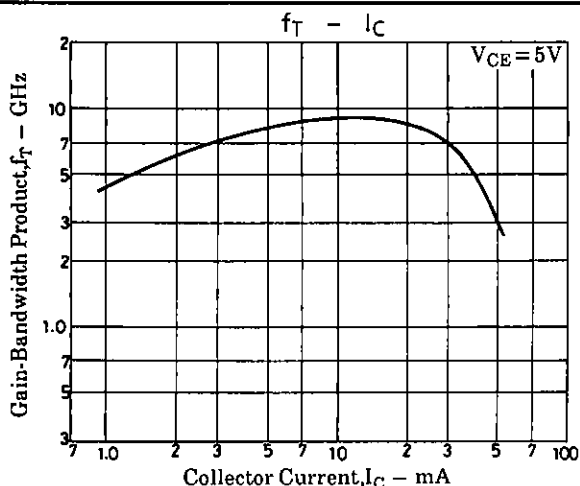
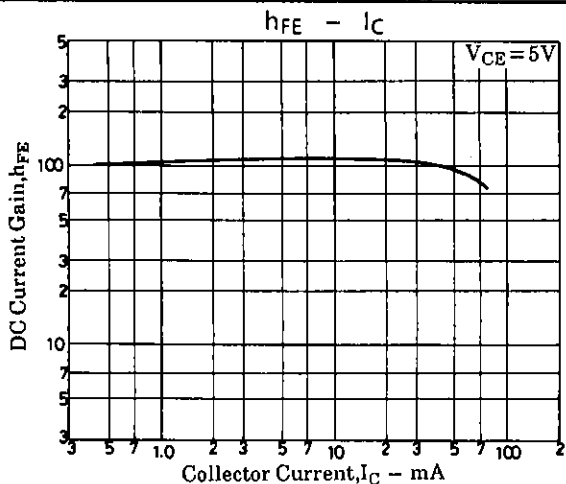
Marking : GN

h_{FE} rank : 3, 4, 5

Package Dimensions 2110A

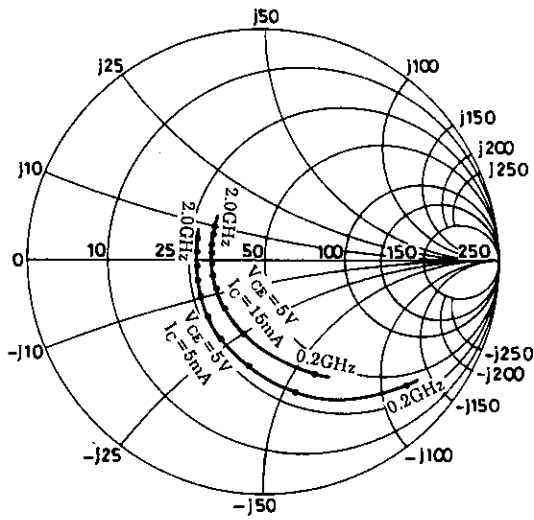
(unit : mm)



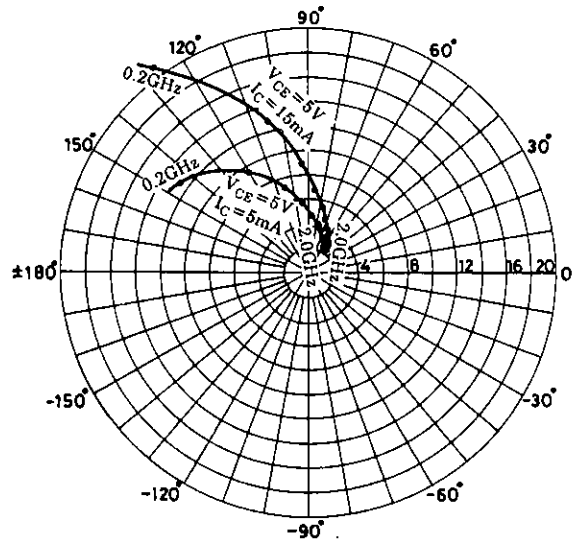


S Parameter

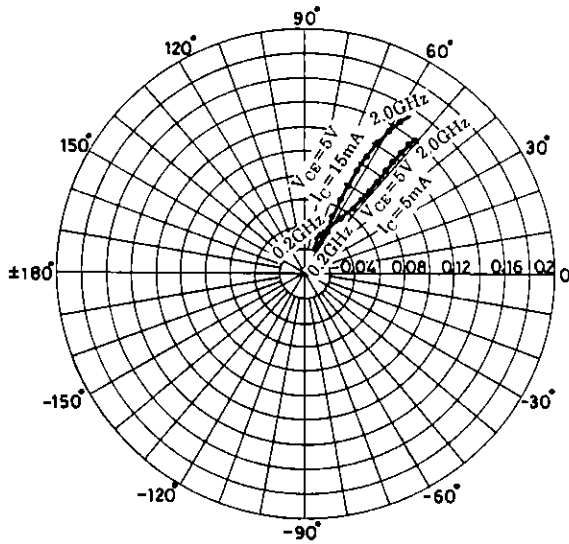
f = 200 to 2000MHz (200MHz step)



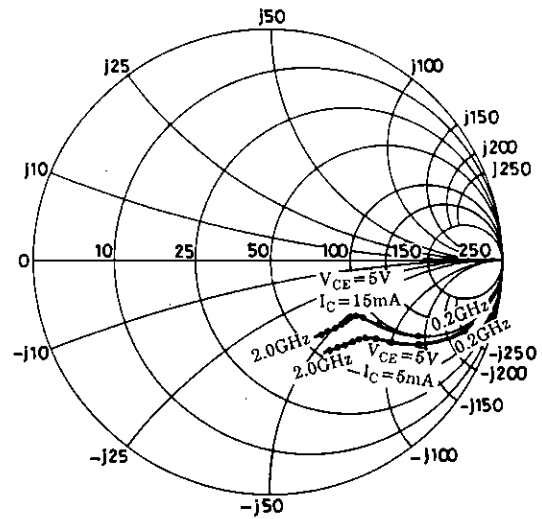
f = 200 to 2000MHz (200MHz step)



f = 200 to 2000MHz (200MHz step)



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	0.782	-43.7	12.681	144.2	0.034	68.1	0.883	-19.9
400	0.591	-76.4	9.601	120.2	0.054	56.7	0.727	-29.9
600	0.467	-100.3	7.329	105.2	0.066	52.9	0.624	-34.5
800	0.393	-119.8	5.828	94.1	0.076	51.8	0.564	-37.4
1000	0.346	-135.3	4.831	85.6	0.090	51.8	0.532	-40.1
1200	0.322	-150.3	4.109	78.1	0.095	52.2	0.513	-42.5
1400	0.304	-163.6	3.585	71.7	0.106	52.2	0.499	-45.4
1600	0.299	-175.3	3.175	65.2	0.116	52.2	0.487	-49.0
1800	0.296	173.4	2.873	59.8	0.126	52.0	0.477	-52.7
2000	0.301	162.9	2.618	54.1	0.135	51.5	0.472	-57.0

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

Freq (MHz)	$ S_{11} $	$\angle S_{11}$	$ S_{21} $	$\angle S_{21}$	$ S_{12} $	$\angle S_{12}$	$ S_{22} $	$\angle S_{22}$
200	0.525	-69.3	20.888	126.3	0.027	64.4	0.710	-28.0
400	0.347	-106.8	12.787	104.6	0.040	62.3	0.540	-32.0
600	0.281	-131.5	8.978	93.2	0.053	63.6	0.472	-32.8
800	0.251	-150.6	6.897	85.1	0.067	64.2	0.442	-34.3
1000	0.240	-164.7	5.584	78.6	0.080	64.0	0.428	-37.1
1200	0.235	-177.5	4.715	72.6	0.094	63.8	0.421	-39.6
1400	0.237	172.0	4.090	67.2	0.108	62.7	0.414	-42.9
1600	0.242	163.7	3.615	62.0	0.122	61.4	0.406	-47.1
1800	0.251	154.1	3.240	57.2	0.135	59.9	0.400	-51.3
2000	0.264	145.5	2.943	52.3	0.147	58.0	0.398	-56.0

■ No products described or contained herein are intended for use in surgical implants, life-support systems, aerospace equipment, nuclear power control systems, vehicles, disaster/crime-prevention equipment and the like, the failure of which may directly or indirectly cause injury, death or property loss.

■ Anyone purchasing any products described or contained herein for an above-mentioned use shall:

- ① Accept full responsibility and indemnify and defend SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors and all their officers and employees, jointly and severally, against any and all claims and litigation and all damages, cost and expenses associated with such use;
- ② Not impose any responsibility for any fault or negligence which may be cited in any such claim or litigation on SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors or any of their officers and employees jointly or severally.

■ Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.