

SANYO	No.5043	2SC4868
		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 : | S21e |² = 13dB 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	S21e ²	V _{CE} = 5V, I _C = 15mA, f = 1GHz	10	13		dB
Noise Figure	NF	V _{CE} = 5V, I _C = 5mA, f = 1GHz		1.2	2.5	dB

* : The 2SC4868 is classified by 15mA h_{FE} as follows :

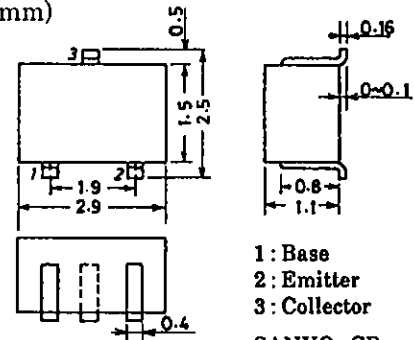
60	3	120	90	4	180	135	5	270
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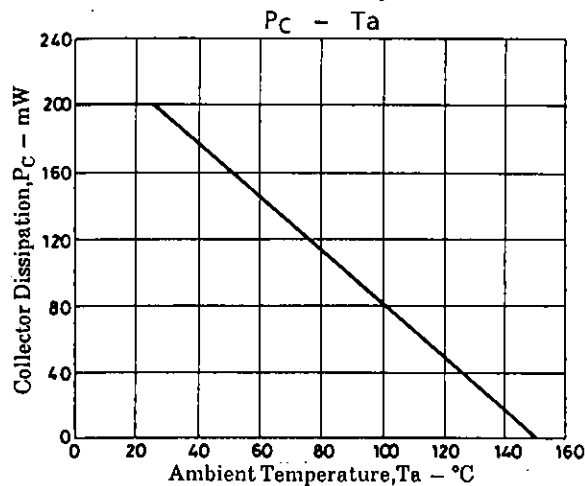
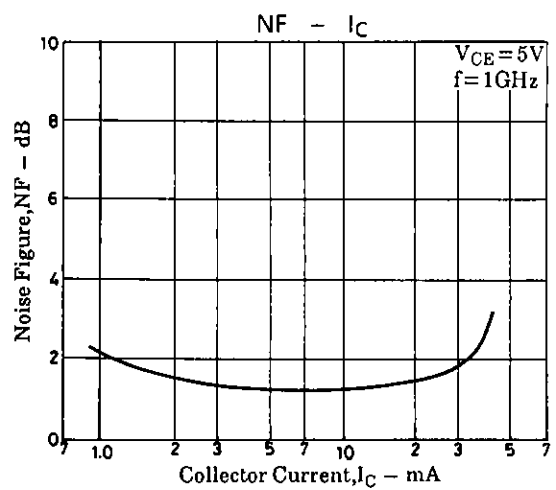
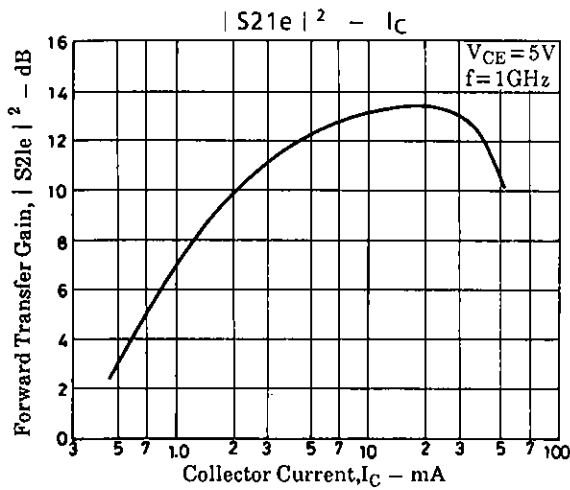
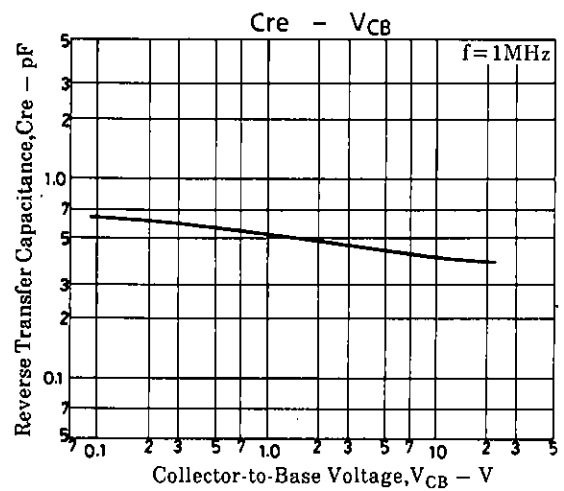
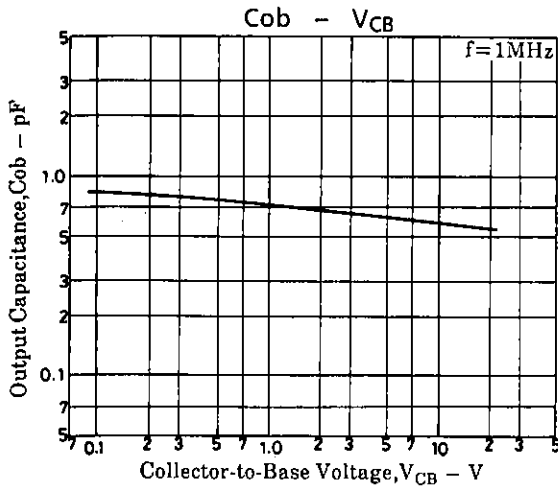
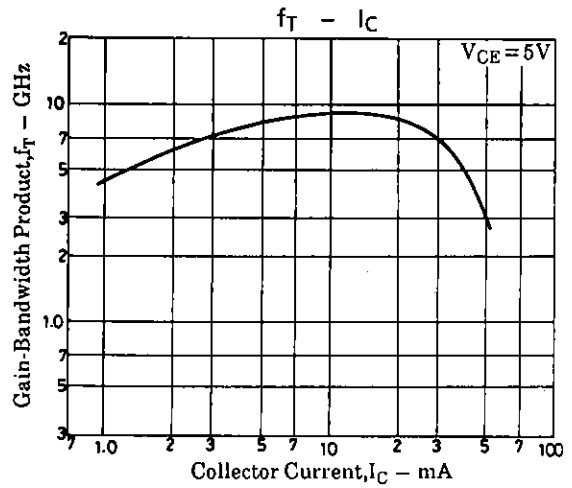
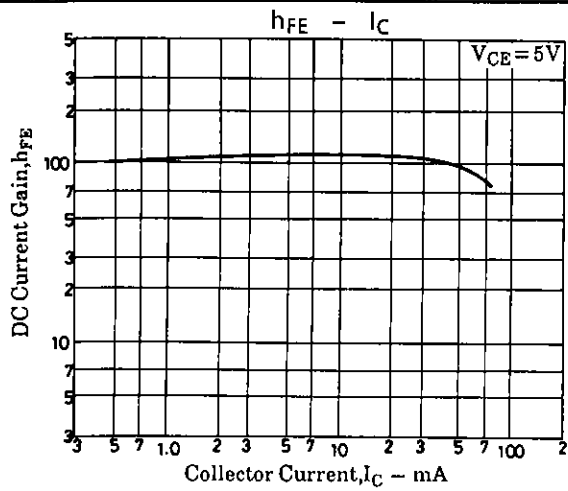
Marking : GN

h_{FE} rank : 3, 4, 5

Package Dimensions 2018B

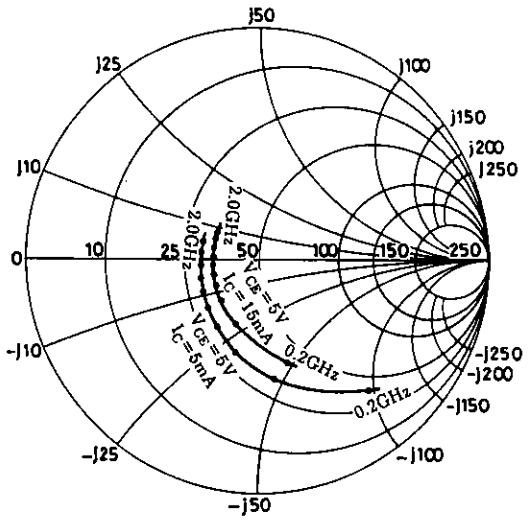
(unit : mm)



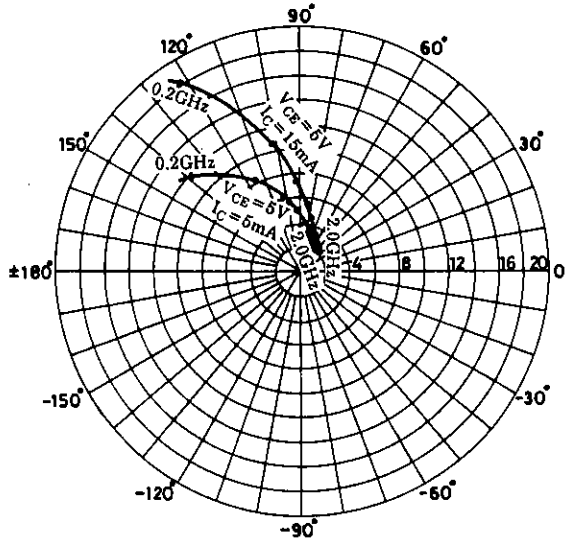


S Parameter

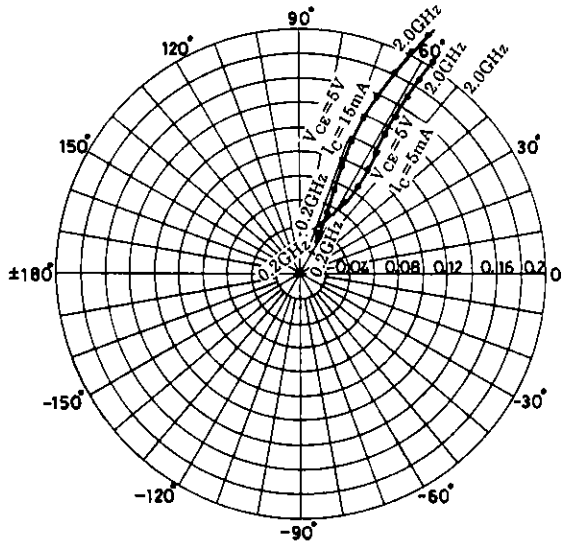
f = 200 to 2000MHz (200MHz step)



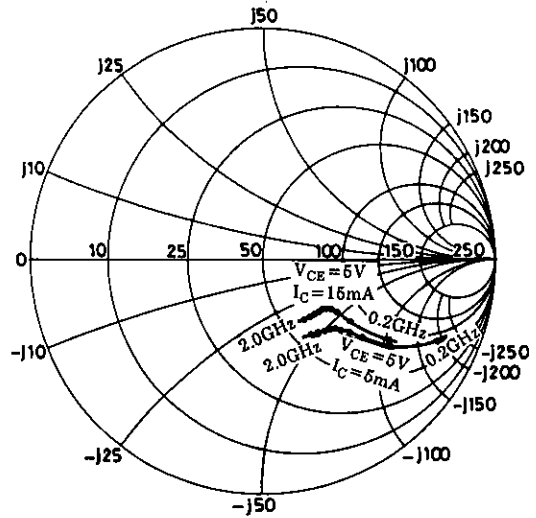
f = 200 to 2000MHz (200MHz step)



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	0.726	-49.0	11.900	139.5	0.045	66.5	0.832	-25.0
400	0.522	-81.9	8.438	115.9	0.070	58.2	0.648	-35.5
600	0.411	-104.5	6.284	101.5	0.086	56.5	0.538	-39.5
800	0.342	-122.0	4.977	91.5	0.102	57.1	0.473	-41.7
1000	0.304	-136.2	4.094	83.7	0.118	57.8	0.448	-44.0
1200	0.278	-150.8	3.498	76.8	0.134	58.8	0.427	-46.0
1400	0.263	-162.9	3.057	70.7	0.151	58.9	0.413	-48.4
1600	0.254	-174.7	2.732	65.3	0.170	58.8	0.400	-51.7
1800	0.252	172.2	2.473	60.2	0.187	58.5	0.391	-55.0
2000	0.253	162.6	2.289	55.4	0.206	58.1	0.387	-58.5

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

Freq (MHz)	$ S_{11} $	$\angle S_{11}$	$ S_{21} $	$\angle S_{21}$	$ S_{12} $	$\angle S_{12}$	$ S_{22} $	$\angle S_{22}$
200	0.454	-74.7	18.146	122.0	0.035	65.4	0.635	-33.9
400	0.295	-110.8	10.672	101.9	0.055	66.1	0.459	-37.3
600	0.243	-132.5	7.405	91.5	0.075	67.8	0.391	-37.1
800	0.219	-149.0	5.706	84.0	0.095	68.5	0.363	-38.0
1000	0.205	-161.4	4.636	78.0	0.117	68.4	0.347	-39.9
1200	0.200	-174.2	3.913	72.4	0.138	67.6	0.340	-42.4
1400	0.200	175.6	3.407	67.7	0.159	66.3	0.334	-45.3
1600	0.202	165.1	3.032	62.9	0.181	64.8	0.327	-49.3
1800	0.209	154.6	2.734	58.5	0.202	63.4	0.322	-53.1
2000	0.215	146.0	2.517	54.3	0.223	61.6	0.319	-57.3

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