

<b>SANYO</b>	No.3008	<b>2SC4364</b>
		NPN Epitaxial Planar Silicon Transistor
VHF. UHF/MIX. OSC. Low-Voltage High-Frequency Amp Applications		

**Features**

- Low-voltage operation :  $f_T = 3.0\text{GHz typ (}V_{CE} = 3\text{V)}$
- :  $\text{MAG} = 11\text{dB typ (}V_{CE} = 3\text{V, }I_C = 3\text{mA)}$
- :  $\text{NF} = 3.0\text{dB typ (}V_{CE} = 3\text{V, }I_C = 3\text{mA)}$

**Absolute Maximum Ratings at  $T_a = 25^\circ\text{C}$**

		unit
Collector to Base Voltage	$V_{CB0}$	25 V
Collector to Emitter Voltage	$V_{CEO}$	15 V
Emitter to Base Voltage	$V_{EBO}$	3 V
Collector Current	$I_C$	30 mA
Collector Dissipation	$P_C$	250 mW
Junction Temperature	$T_j$	150 $^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 to +150 $^\circ\text{C}$

**Electrical Characteristics at  $T_a = 25^\circ\text{C}$**

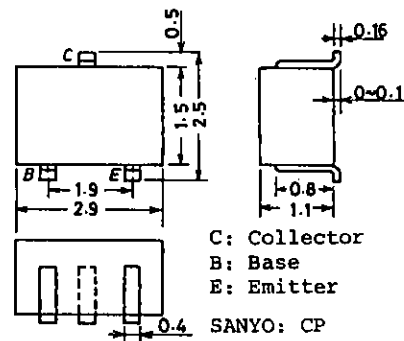
			min	typ	max	unit
Collector Cutoff Current	$I_{CB0}$	$V_{CB} = 15\text{V, }I_E = 0$			1.0	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 2\text{V, }I_C = 0$			1.0	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE} = 3\text{V, }I_C = 3\text{mA}$	40*		200*	
Gain-Bandwidth Product	$f_T$	$V_{CE} = 3\text{V, }I_C = 3\text{mA}$		3.0		GHz
Output Capacitance	$c_{ob}$	$V_{CB} = 3\text{V, }f = 1\text{MHz}$	0.75		1.3	pF
Reverse Transfer Capacitance	$c_{re}$	$V_{CB} = 3\text{V, }f = 1\text{MHz}$	0.7			pF
Forward Transfer Gain	$IS21eI^2$	$V_{CE} = 3\text{V, }I_C = 3\text{mA, }f = 0.9\text{GHz}$		7		dB
Maximum Available Power Gain	$\text{MAG}$	$V_{CE} = 3\text{V, }I_C = 3\text{mA, }f = 0.9\text{GHz}$		11		dB
Noise Figure	$\text{NF}$	$V_{CE} = 3\text{V, }I_C = 3\text{mA, }f = 0.9\text{GHz}$	3.0		5.0	dB

\* The 2SC4364 is classified by 3mA  $h_{FE}$  as follows:

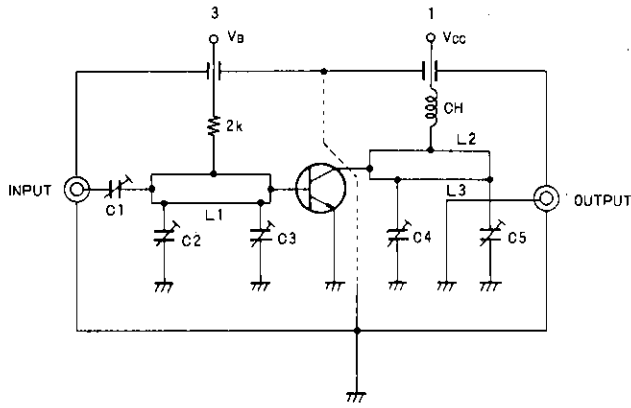
40 2 80	60 3 120	100 4 200
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(Note) Marking: OT  
h<sub>FE</sub> rank: 2,3,4

**Package Dimensions 2018A**  
(unit: mm)

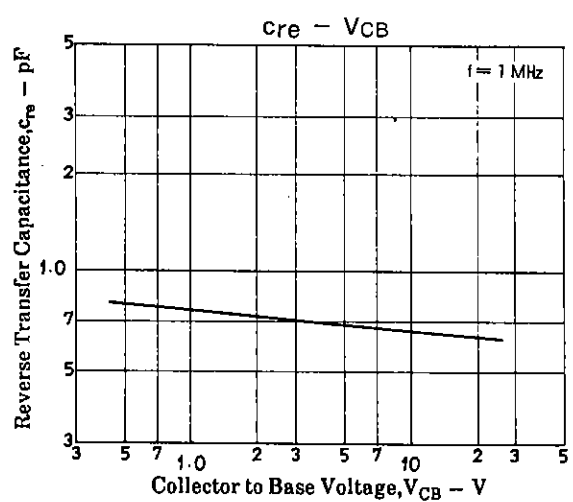
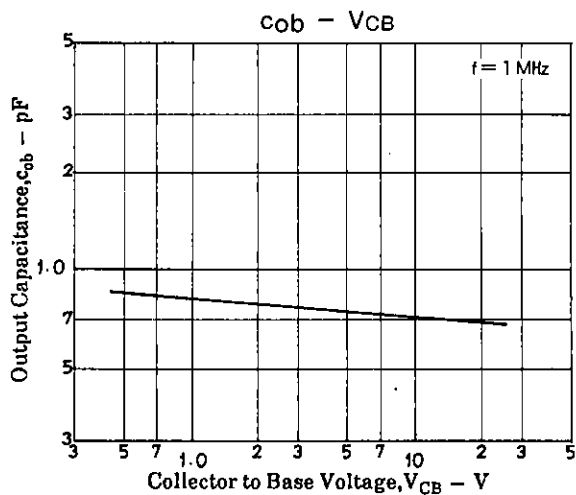
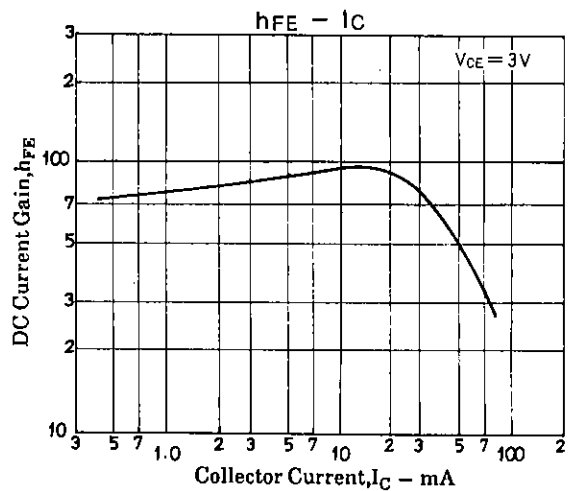
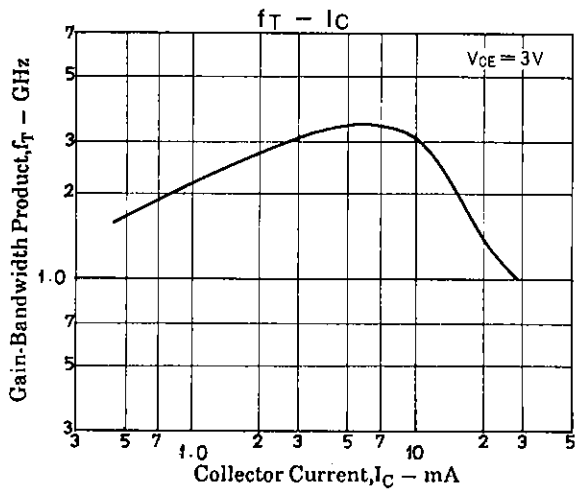


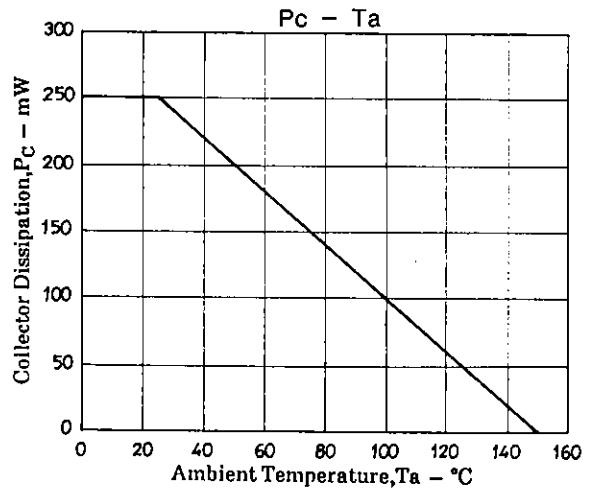
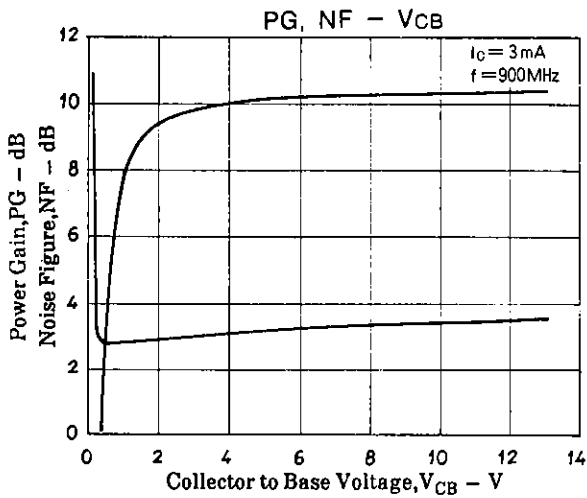
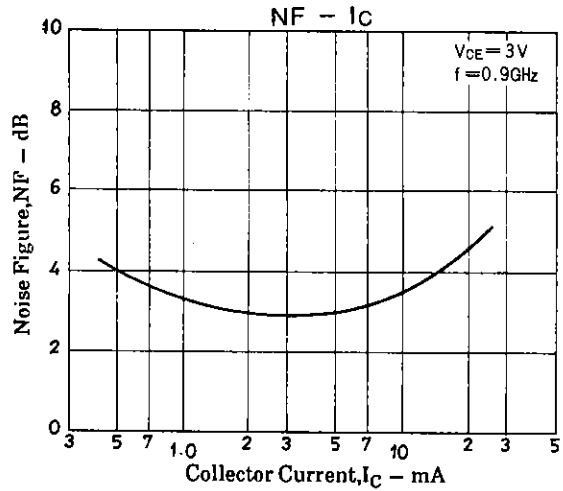
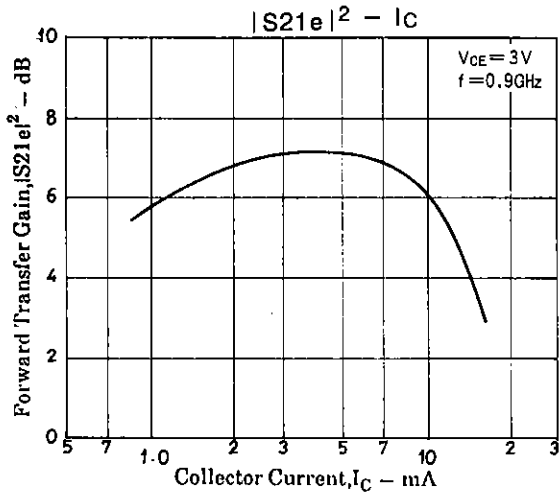
NF Test Circuit



900MHz	
C1	~ 5 pF
C2	~ 10 pF
C3	~ 10 pF
C4	~ 10 pF
C5	~ 10 pF
L1	W = 1.5mm, l = 25mm strip line
L2	W = 4mm, l = 25mm strip line
L3	0.5φ, l = 40mm
CH	2t + bead core

Unit (Resistance : Ω)





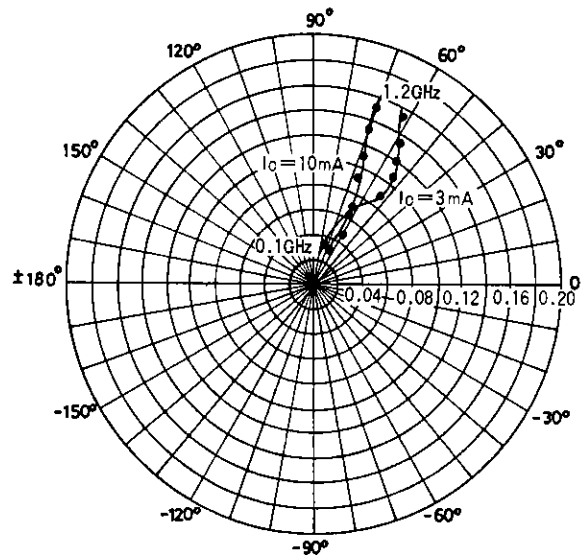
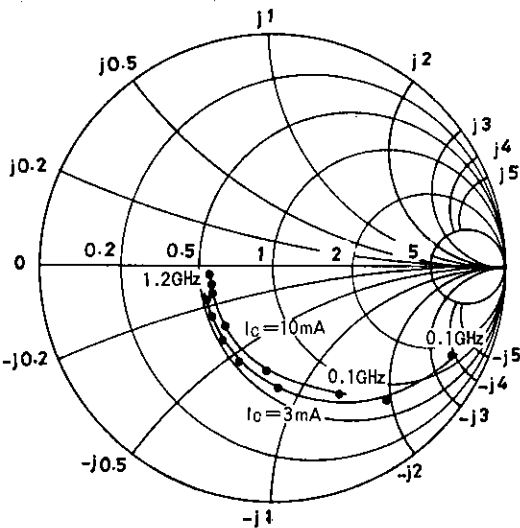
**S parameter**

S11e :  $V_{CE} = 3V$

$f = 100MHz, 200 \sim 1200MHz (200MHz \text{ step})$

S12e :  $V_{CE} = 3V$

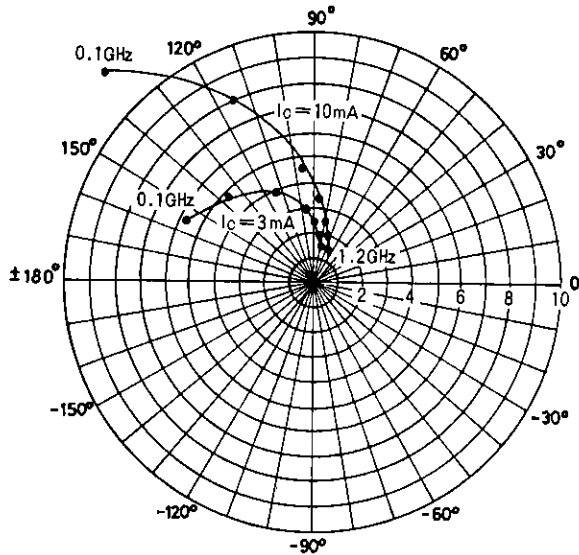
$f = 100MHz, 200 \sim 1200MHz (200MHz \text{ step})$



## 2SC4364

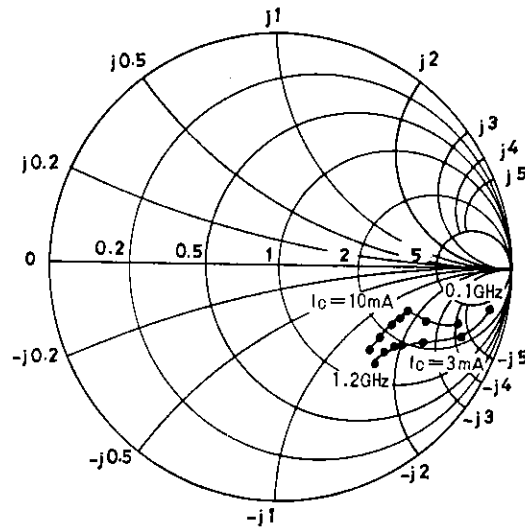
S21e : VCE= 3 V

f=100MHz, 200~1200MHz (200MHz step)



S22e : VCE=10V

f=100MHz, 200~1200MHz (200MHz step)



### S parameter (Common emitter)

VCE= 3 V, Ic= 3 mA, Zo=50Ω

Freq (MHz)	S <sub>11</sub>	∠S <sub>11</sub>	S <sub>21</sub>	∠S <sub>21</sub>	S <sub>12</sub>	∠S <sub>12</sub>	S <sub>22</sub>	∠S <sub>22</sub>
100	0.874	-25.4	5.638	154.7	0.036	73.4	0.931	-12.4
200	0.758	-46.8	4.895	137.3	0.061	62.3	0.842	-19.9
400	0.555	-85.9	3.925	112.5	0.088	53.7	0.696	-26.7
600	0.437	-110.1	3.004	97.1	0.105	53.2	0.631	-30.3
800	0.377	-127.8	2.387	86.7	0.119	56.2	0.596	-32.9
900	0.361	-135.3	2.201	82.7	0.128	57.3	0.594	-34.4
1000	0.353	-141.9	2.014	79.1	0.135	56.5	0.586	-36.1
1200	0.340	-151.4	1.763	72.7	0.153	60.6	0.581	-40.1

VCE= 3 V, Ic=10mA, Zo=50Ω

Freq (MHz)	S <sub>11</sub>	∠S <sub>11</sub>	S <sub>21</sub>	∠S <sub>21</sub>	S <sub>12</sub>	∠S <sub>12</sub>	S <sub>22</sub>	∠S <sub>22</sub>
100	0.632	-59.2	11.508	135.2	0.031	63.9	0.811	-18.4
200	0.467	-92.6	7.923	115.1	0.045	58.7	0.677	-21.8
400	0.352	-129.6	4.570	95.5	0.067	61.8	0.584	-22.7
600	0.317	-147.2	3.190	85.3	0.089	65.4	0.561	-25.8
800	0.307	-157.8	2.432	78.1	0.109	68.6	0.548	-29.2
900	0.308	-162.6	2.217	75.1	0.122	69.1	0.551	-31.2
1000	0.314	-166.9	2.023	72.2	0.133	70.1	0.547	-33.3
1200	0.318	-172.2	1.756	67.0	0.156	70.1	0.549	-38.1

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