

<b>SANYO</b>	No.3007	<b>2SC4365</b>
		NPN Epitaxial Planar Silicon Transistor
VHF. UHF/MIX. OSC. Low-Voltage High-Frequency Amp Applications		

**Features**

- Low-voltage operation :  $f_T = 3.0\text{GHz typ (}V_{CE} = 3\text{V)}$
- :  $\text{MAG} = 12\text{dB typ (}V_{CE} = 3\text{V, }I_C = 10\text{mA)}$
- :  $\text{NF} = 1.5\text{dB typ (}V_{CE} = 3\text{V, }I_C = 5\text{mA)}$

**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	$I_C$	50	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  $T_a = 25^\circ\text{C}$**

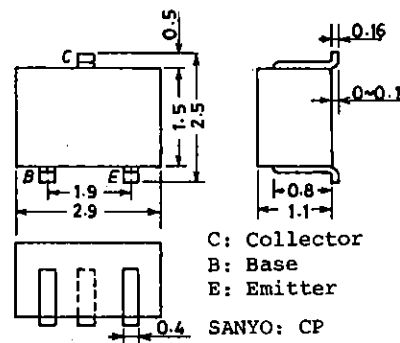
			min	typ	max	unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 15\text{V, }I_E = 0$			1.0	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 1\text{V, }I_C = 0$			1.0	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE} = 3\text{V, }I_C = 10\text{mA}$	40*		200*	
Gain-Bandwidth Product	$f_T$	$V_{CE} = 3\text{V, }I_C = 10\text{mA}$		3.0		GHz
Output Capacitance	$c_{ob}$	$V_{CB} = 3\text{V, }f = 1\text{MHz}$		0.9	1.5	pF
Reverse Transfer Capacitance	$c_{re}$	$V_{CB} = 3\text{V, }f = 1\text{MHz}$	0.85			pF
Forward Transfer Gain	$ S_{21e} ^2$	$V_{CE} = 3\text{V, }I_C = 10\text{mA, }f = 0.9\text{GHz}$		7		dB
Maximum Available Power Gain	MAG	$V_{CE} = 3\text{V, }I_C = 10\text{mA, }f = 0.9\text{GHz}$		12		dB
Noise Figure	NF	$V_{CE} = 3\text{V, }I_C = 5\text{mA, }f = 0.9\text{GHz}$	1.5	3.0		dB

\* The 2SC4365 is classified by 10mA  $h_{FE}$  as follows:

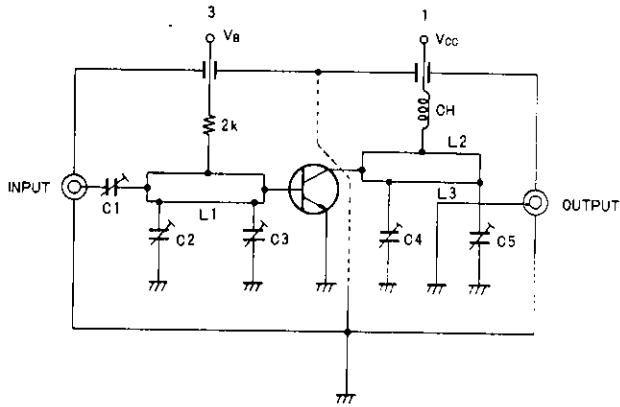
40	2	80	60	3	120	100	4	200
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(Note) Marking : PT  
 $h_{FE}$  rank : 2,3,4

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

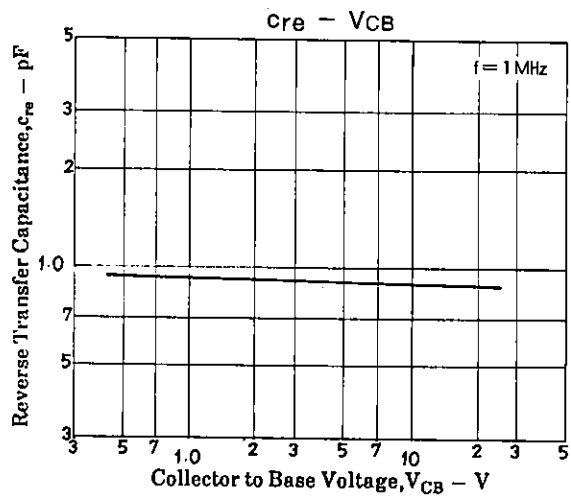
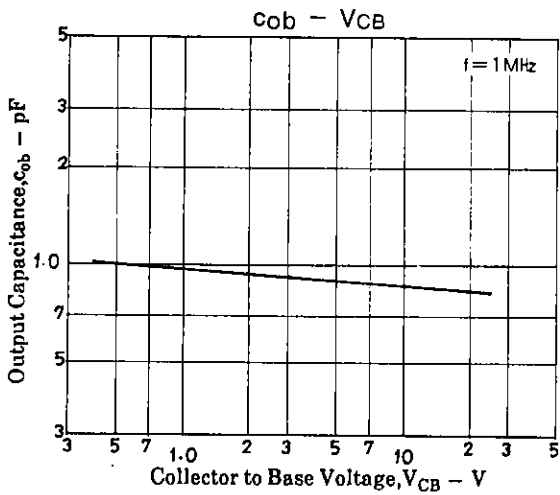
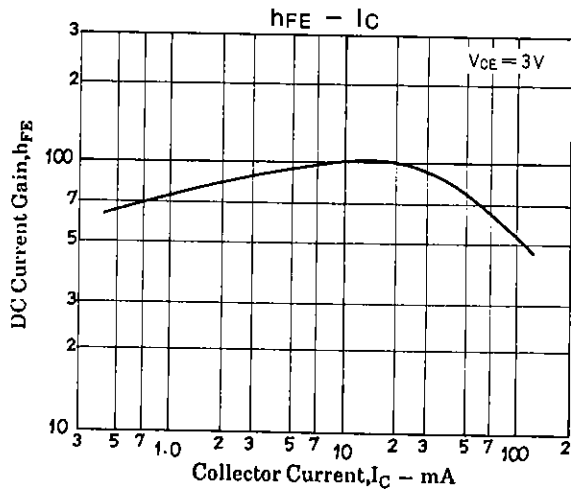
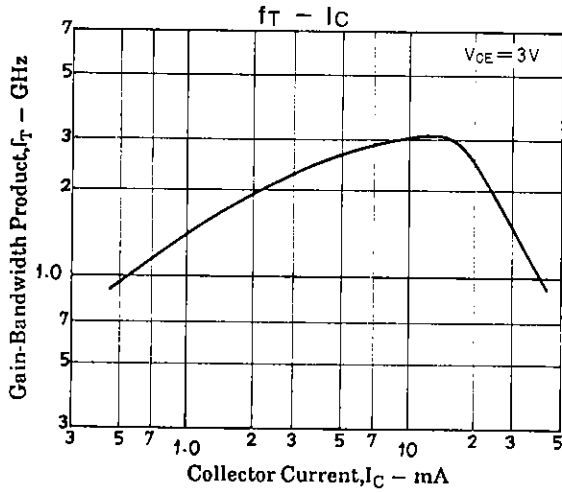


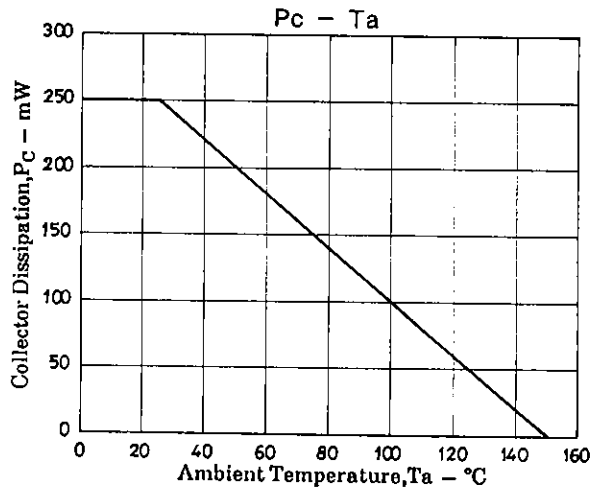
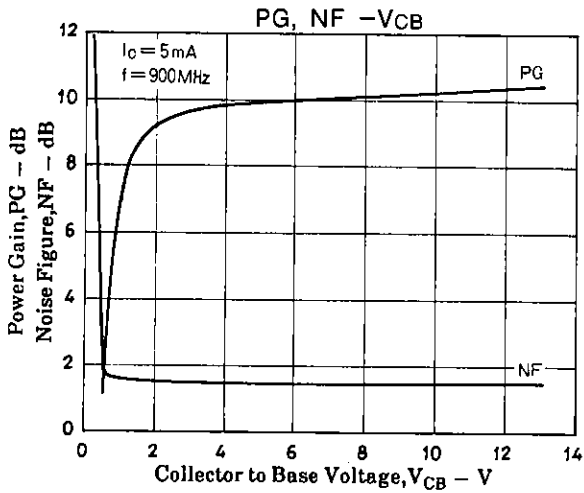
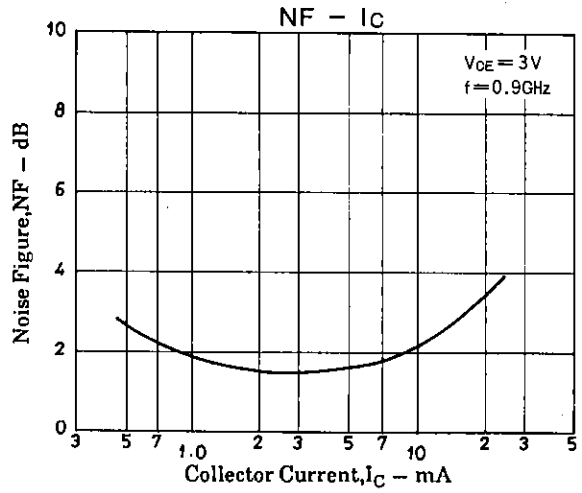
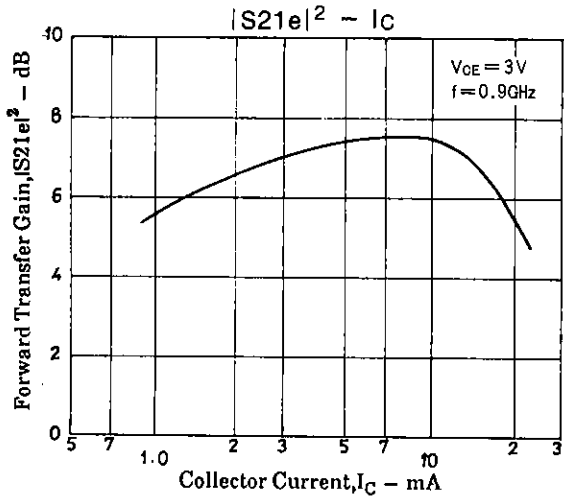
NF Test Circuit



900MHz	
C1	~ 5 pF
C2	~ 10 pF
C3	~ 10 pF
C4	~ 10 pF
C5	~ 10 pF
L1	W≠1.5mm, 1≠25mm strip line
L2	W≠4mm, 1≠25mm strip line
L3	0.5φ, 1≠40mm
CH	2t+bead core

Unit (Resistance : Ω)





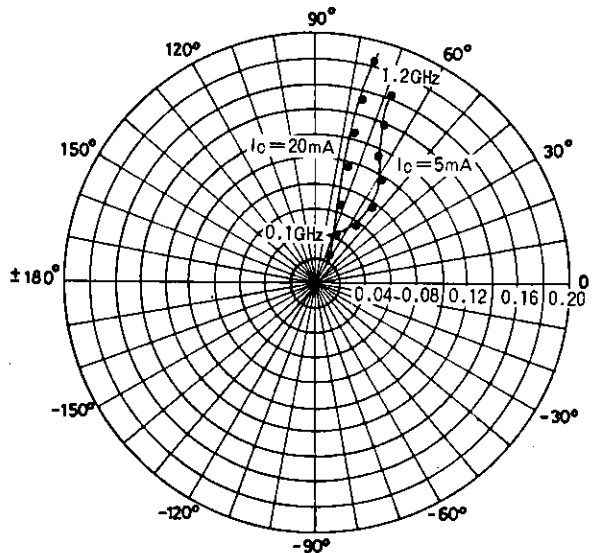
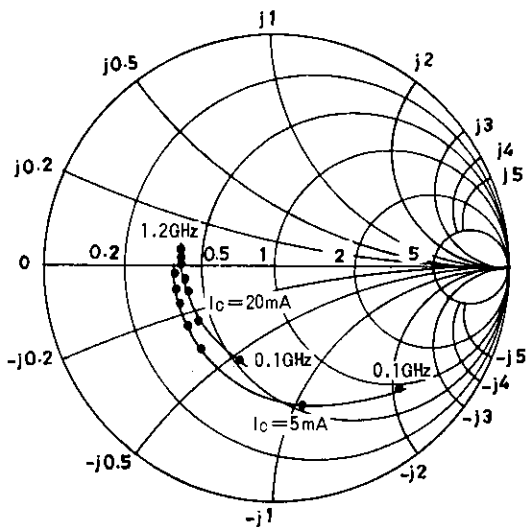
**S parameter**

S11e :  $V_{CE} = 3\text{V}$

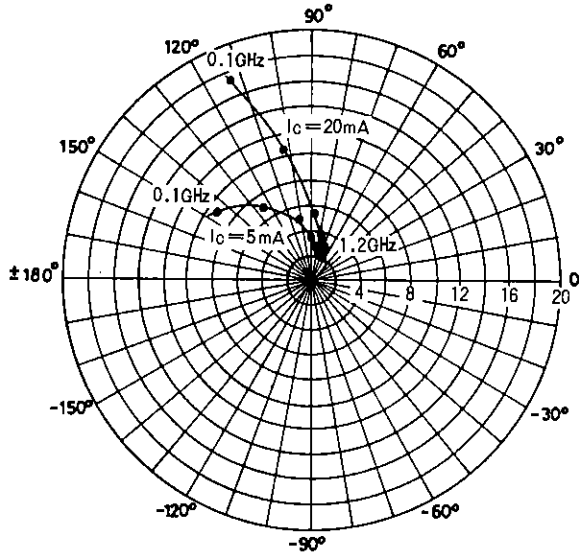
$f = 100\text{MHz}, 200 \sim 1200\text{MHz} (200\text{MHz step})$

S12e :  $V_{CE} = 3\text{V}$

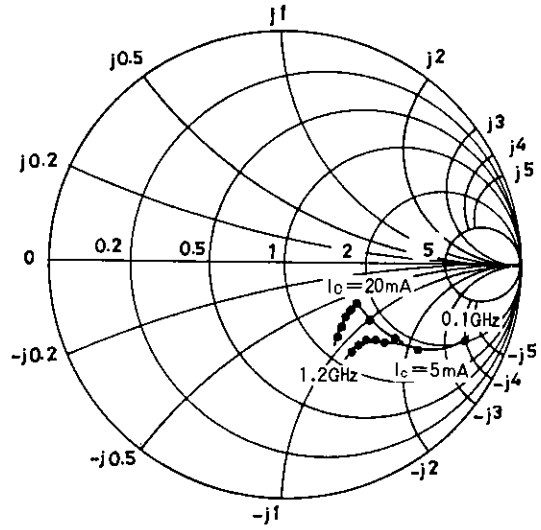
$f = 100\text{MHz}, 200 \sim 1200\text{MHz} (200\text{MHz step})$



S21e :  $V_{CE} = 3\text{ V}$   
 $f = 100\text{ MHz}, 200 \sim 1200\text{ MHz} (200\text{ MHz step})$



S22e :  $V_{CE} = 3\text{ V}$   
 $f = 100\text{ MHz}, 200 \sim 1200\text{ MHz} (200\text{ MHz step})$



**S parameter (Common emitter)**

$V_{CE} = 3\text{ V}, I_c = 5\text{ mA}, Z_o = 50\Omega$

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	0.738	-45.7	9.352	143.7	0.040	65.0	0.827	-22.5
200	0.606	-80.3	7.183	123.9	0.059	54.4	0.664	-31.3
400	0.485	-129.6	4.814	99.4	0.079	53.5	0.506	-35.3
600	0.449	-149.5	3.426	87.4	0.097	58.1	0.463	-38.1
800	0.437	-161.2	2.626	78.8	0.115	63.5	0.444	-41.4
900	0.437	-165.9	2.392	75.6	0.127	65.2	0.446	-43.3
1000	0.444	-170.2	2.180	72.3	0.138	67.3	0.444	-45.4
1200	0.448	-175.7	1.891	66.8	0.163	69.0	0.451	-50.4

$V_{CE} = 3\text{ V}, I_c = 20\text{ mA}, Z_o = 50\Omega$

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	0.446	-112.7	17.471	118.5	0.026	61.5	0.581	-32.6
200	0.421	-143.4	10.341	102.4	0.040	65.0	0.437	-32.2
400	0.414	-164.8	5.545	88.2	0.067	71.7	0.370	-30.5
600	0.412	-173.5	3.742	79.9	0.096	74.1	0.361	-34.4
800	0.412	-178.4	2.822	73.4	0.123	75.8	0.359	-39.1
900	0.418	179.1	2.566	70.9	0.139	75.6	0.365	-41.5
1000	0.428	176.8	2.326	68.1	0.153	76.0	0.366	-44.2
1200	0.435	174.0	2.013	63.2	0.182	74.9	0.398	-50.2

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