

SANYO	No.3007	2SC4365
		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_{CE0}	15	V
Emitter to Base Voltage	V_{EB0}	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 $T_a = 25^\circ\text{C}$

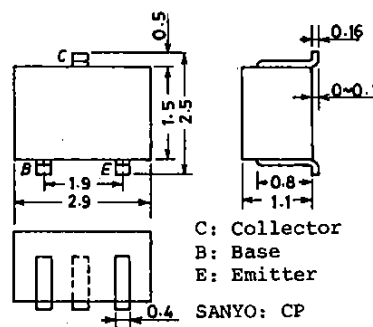
			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = 15\text{V, }I_E = 0$			1.0	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 1\text{V, }I_C = 0$			1.0	μA
DC Current Gain	h_{FE}	$V_{CE} = 3\text{V, }I_C = 10\text{mA}$	40*		200*	
Gain-Bandwidth Product	f_T	$V_{CE} = 3\text{V, }I_C = 10\text{mA}$		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:

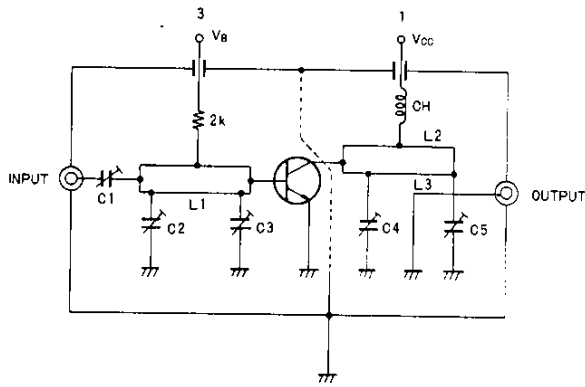
40	2	80	60	3	120	100	4	200
----	---	----	----	---	-----	-----	---	-----

(Note) Marking: PT
 h_{FE} rank: 2,3,4

Package Dimensions 2018A
(unit: mm)

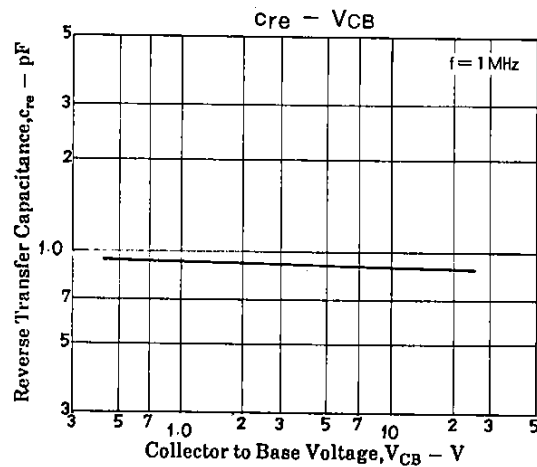
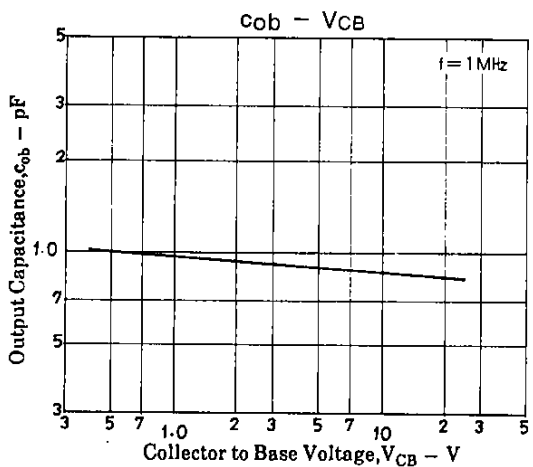
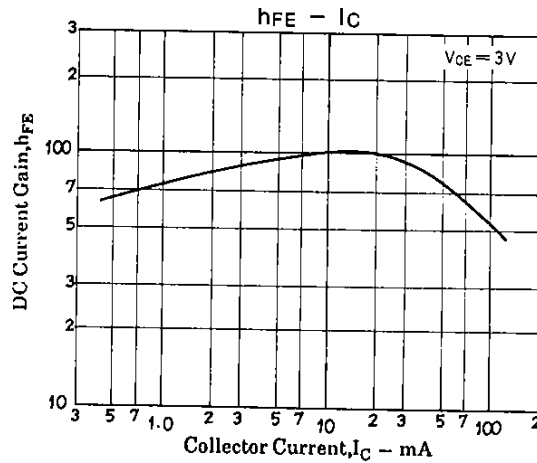
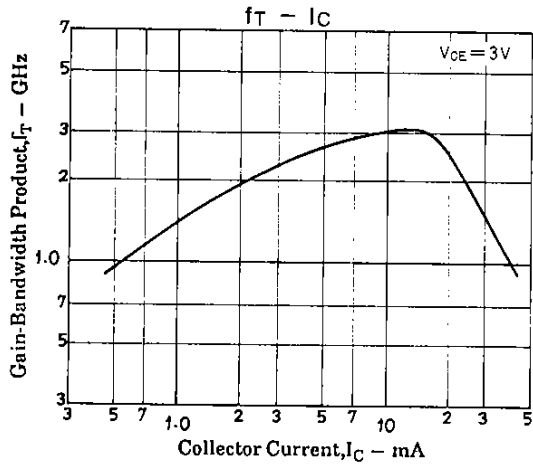


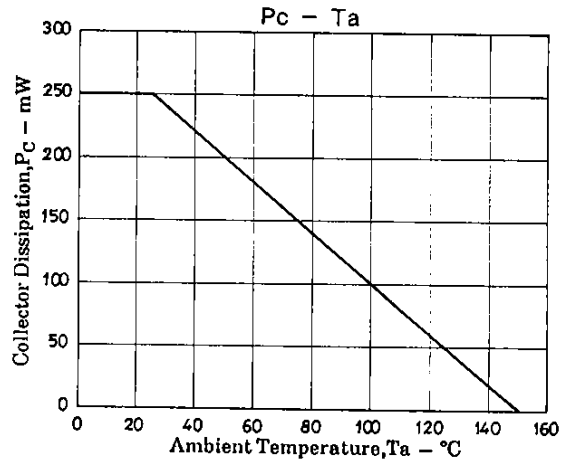
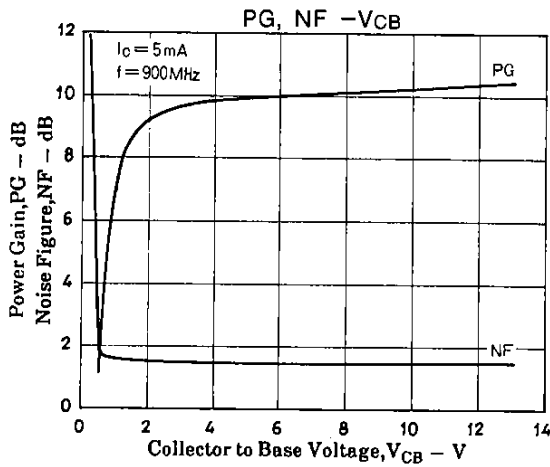
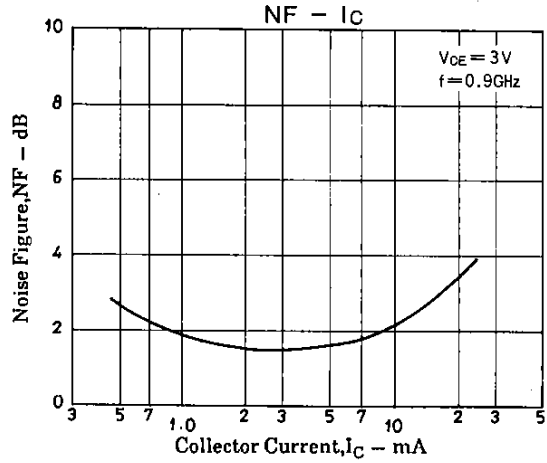
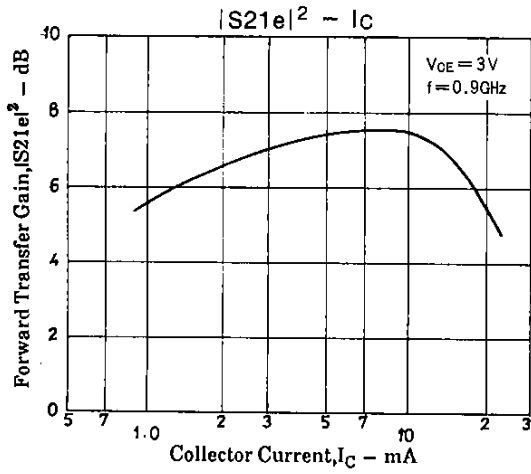
NF Test Circuit



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

Unit (Resistance : Ω)





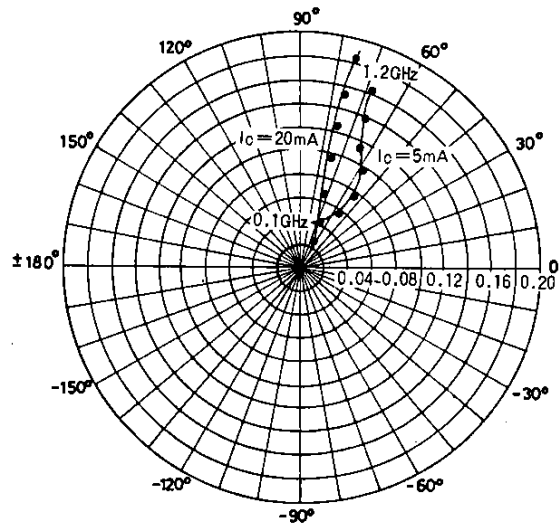
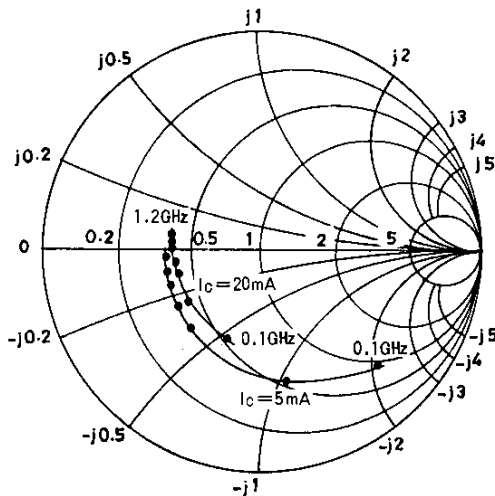
S parameter

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

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

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

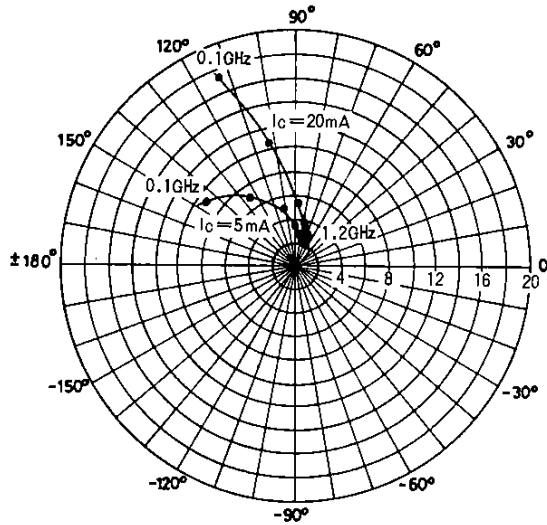
$f = 100\text{MHz}, 200 \sim 1200\text{MHz} (<200\text{MHz step})$



2SC4365

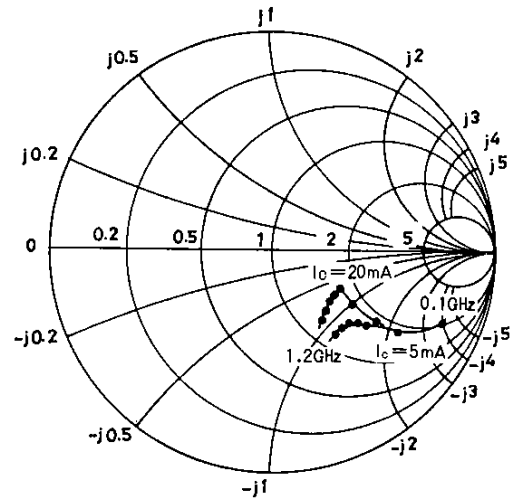
S21e : $V_{CE} = 3\text{ V}$

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



S22e : $V_{CE} = 3\text{ V}$

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



S parameter (Common emitter)

$V_{CE} = 3\text{ V}, I_C = 5\text{ mA}, Z_0 = 50\Omega$

Freq (MHz)	$ S_{11} $	$\angle S_{11}$	$ S_{21} $	$\angle S_{21}$	$ S_{12} $	$\angle S_{12}$	$ S_{22} $	$\angle S_{22}$
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

$V_{CE} = 3\text{ V}, I_C = 20\text{ mA}, Z_0 = 50\Omega$

Freq (MHz)	$ S_{11} $	$\angle S_{11}$	$ S_{21} $	$\angle S_{21}$	$ S_{12} $	$\angle S_{12}$	$ S_{22} $	$\angle S_{22}$
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

- 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.