Ordering number:EN3008

NPN Epitaxial Planar Silicon Transistor

2SC4364

VHF, UHF/MIX. OSC. Low-Voltage High-Frequency Amplifier Applications

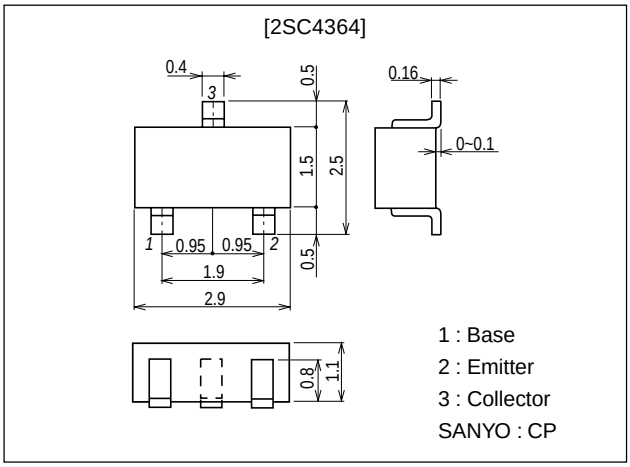
Features

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

Package Dimensions

unit:mm

2018B



Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		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	Tj		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

Electrical Characteristics at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=15V, I_E=0			1.0	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=2V, I_C=0			1.0	μA
DC Current Gain	h_{FE}	V_{CE}=3V, I_C=3mA	40*		200*	
Gain-Bandwidth Product	f_T	V_{CE}=3V, I_C=3mA		3.0		GHz
Output Capacitance	C_{ob}	V_{CB}=3V, f=1MHz		0.75	1.3	pF
Reverse Transfer Capacitance	C_{re}	V_{CB}=3V, f=1MHz		0.7		pF

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

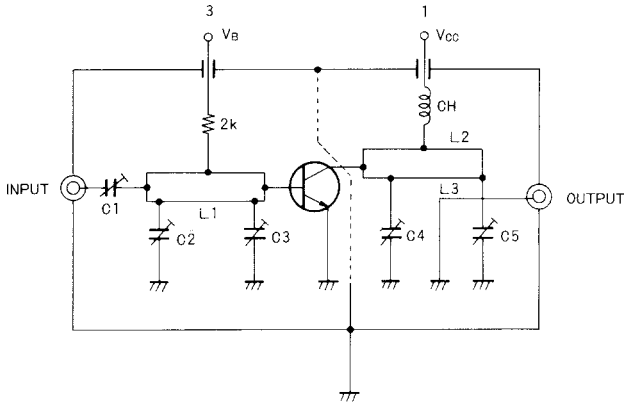
40	2	80	60	3	120	100	4	200

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

SANYO Electric Co.,Ltd. Semiconductor Bussiness Headquaters
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

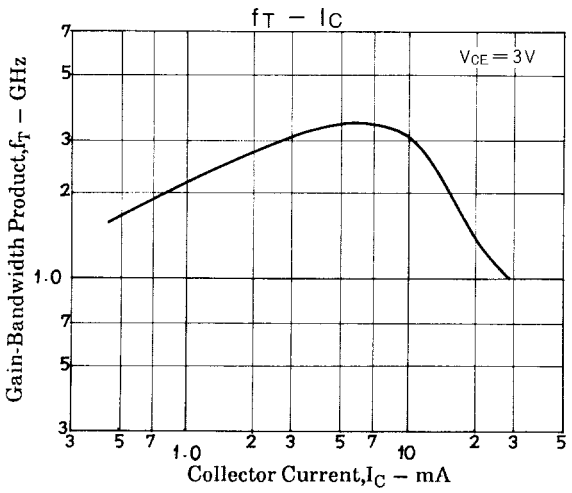
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Forward Transfer Gain	$\|S21e\|^2$	V_{CE}=3V, I_C=3mA, f=0.9GHz		7		dB
Maximum Available Power Gain	MAG	V_{CE}=3V, I_C=3mA, f=0.9GHz		11		dB
Noise Figure	NF	V_{CE}=3V, I_C=3mA, f=0.9GHz		3.0	5.0	dB

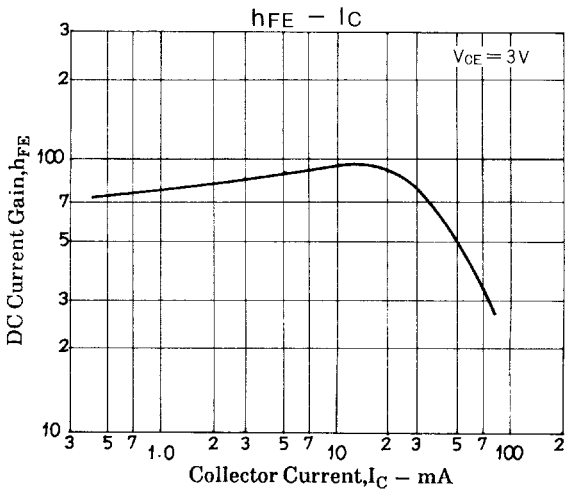
NF Test Circuit

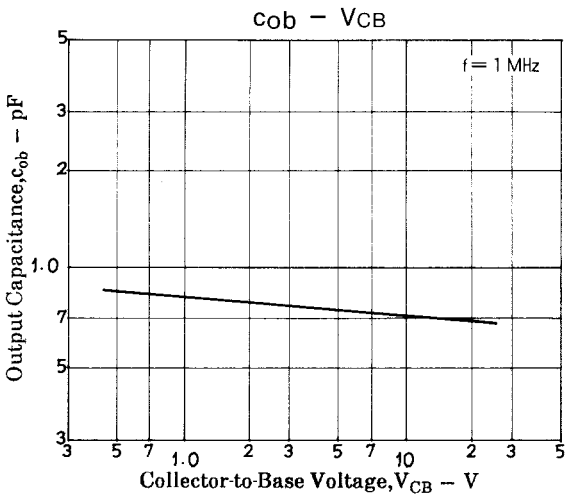


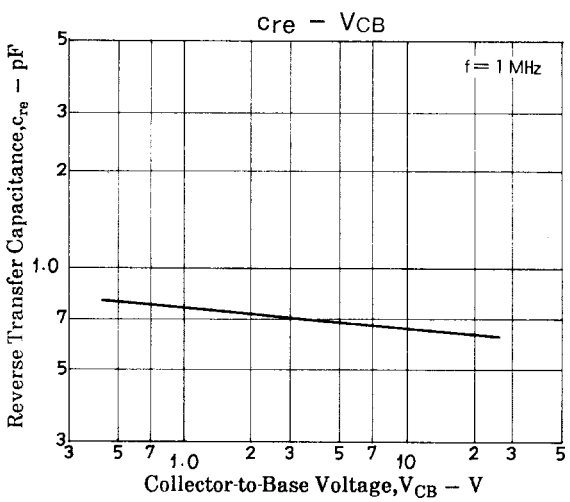
	900MHz
C1	~5pF
C2	~10pF
C3	~10pF
C4	~10pF
C5	~10pF
L1	W ≈ 1.5mm, l ≈ 25mm Strip line
L2	W ≈ 4mm, l ≈ 25mm Strip line
L3	0.5ϕ, l ≈ 40mm
CH	2t+bead core

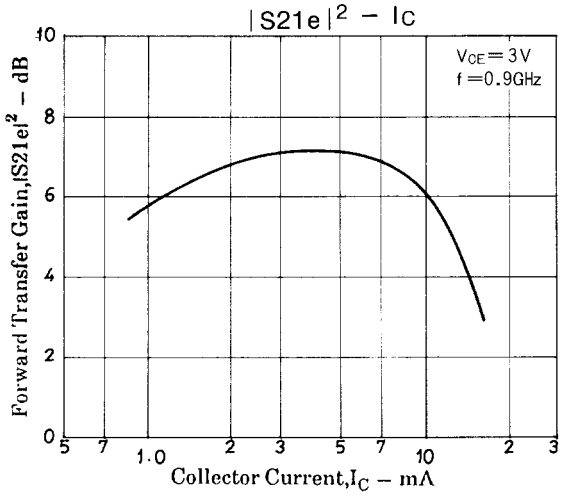
Unit (resistance : Ω)

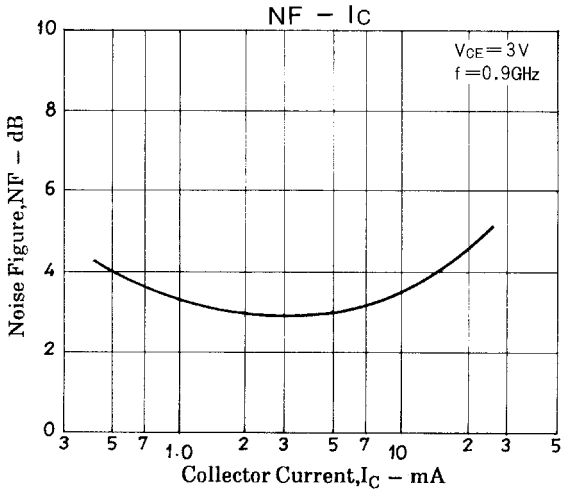


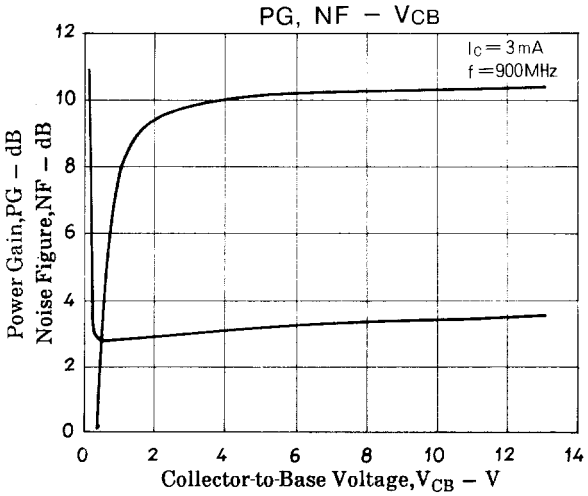


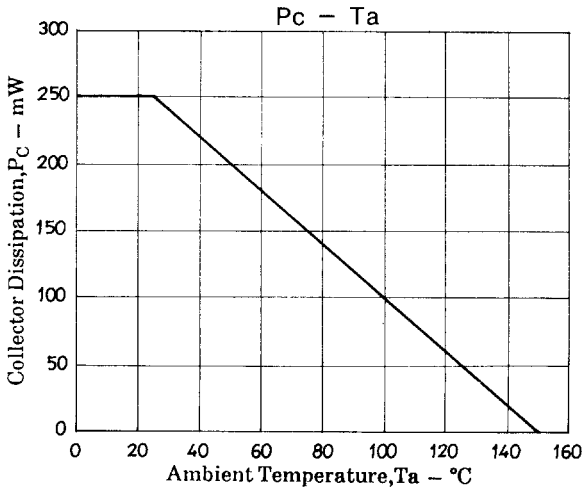






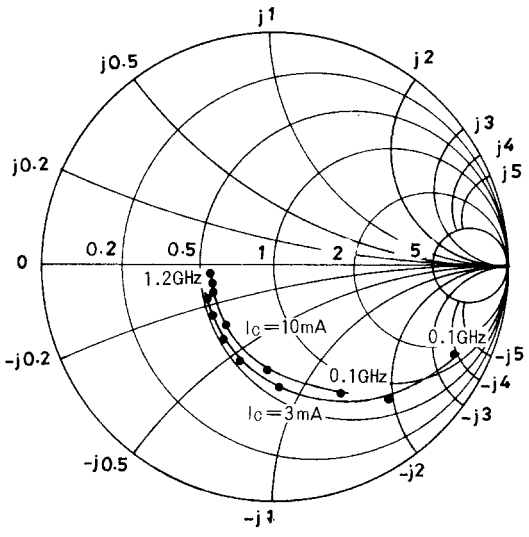




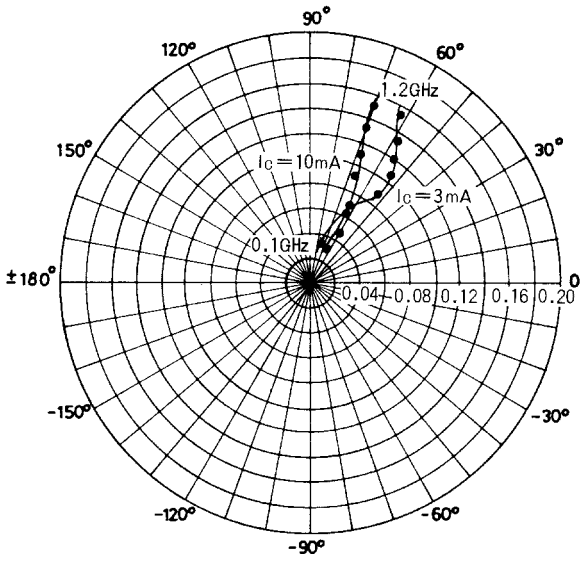


S parameter

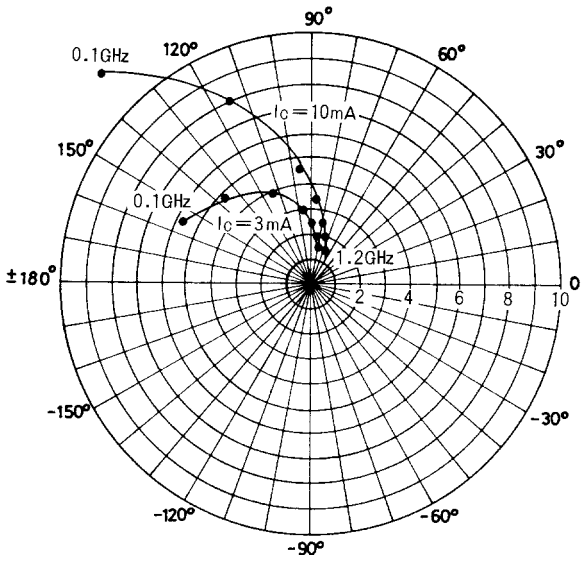
S11e : VCE= 3 V
f=100MHz, 200 to1200MHz(200MHz step)



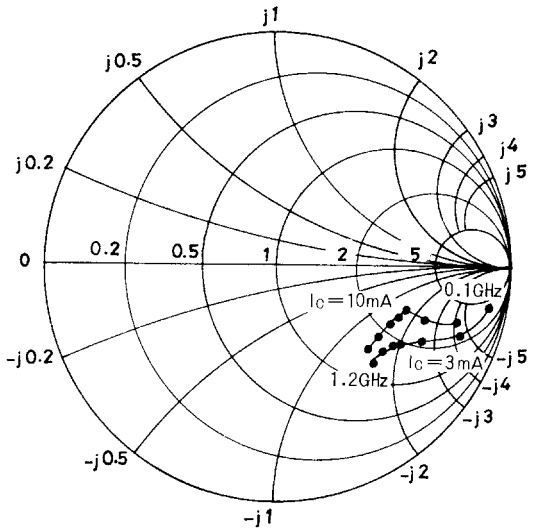
S12e : VCE= 3 V
f=100MHz, 200 to1200MHz(200MHz step)



S21e : V_{CE}= 3 V
f=100MHz, 200 to 1200MHz (200MHz step)



S22e : V_{CE}=10V
f=100MHz, 200 to 1200MHz (200MHz step)



S parameter (Common emitter)

V_{CE}=3V, I_C=3mA, Z_O=50Ω

Freq (MHz)	| S_{11} |	∠ S_{11}	| S_{21} |	∠ S_{21}	| S_{12} |	∠ S_{12}	| S_{22} |	∠ S_{22}
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

V_{CE}=3V, I_C=10mA, Z_O=50Ω

Freq (MHz)	| S_{11} |	∠ S_{11}	| S_{21} |	∠ S_{21}	| S_{12} |	∠ S_{12}	| S_{22} |	∠ S_{22}
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