

SANYO	No.1944B	2SC3771
		NPN Epitaxial Planar Silicon Transistor UHF, VHF Oscillator, Mixer, HF Amp Applications

Applications

- . UHF/VHF frequency converters, local oscillators, HF amplifiers

Features

- . High power gain: PG=10dB typ(f=0.9GHz).
PG=16dB typ(f=0.4GHz).
- . Small noise figure: NF=3.5dB typ(f=0.9GHz).
- . High cutoff frequency: $f_T=2.2\text{GHz}$ typ.

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

			unit
Collector to Base Voltage	V_{CB0}	30	V
Collector to Emitter Voltage	V_{CEO}	20	V
Emitter to Base Voltage	V_{EBO}	3	V
Collector Current	I_C	30	mA
Base Current	I_B	10	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} $V_{CB}=20\text{V}, I_E=0$			1.0	μA
Emitter Cutoff Current	I_{EBO} $V_{EB}=2\text{V}, I_C=0$			10	μA
DC Current Gain	h_{FE} $V_{CE}=10\text{V}, I_C=5\text{mA}$	40*		200*	
Gain-Bandwidth Product	f_T $V_{CE}=10\text{V}, I_C=5\text{mA}$	1.4	2.2		GHz
Output Capacitance	c_{ob} $V_{CB}=10\text{V}, f=1\text{MHz}$		0.7	1.1	pF
Reverse Transfer Capacitance	c_{re} $V_{CB}=10\text{V}, f=1\text{MHz}$		0.5		pF
Power Gain	PG $V_{CE}=10\text{V}, I_C=10\text{mA}, f=0.4\text{GHz}$		16		dB
	$V_{CE}=10\text{V}, I_C=10\text{mA}, f=0.9\text{GHz}$		10		dB
Noise Figure	NF $V_{CE}=10\text{V}, I_C=3\text{mA}, f=0.9\text{GHz}$		3.5		dB

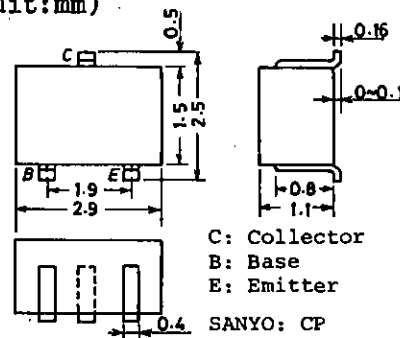
See specified Test Circuit.

*: The 2SC3771 is classified by 5mA h_{FE} as follows:

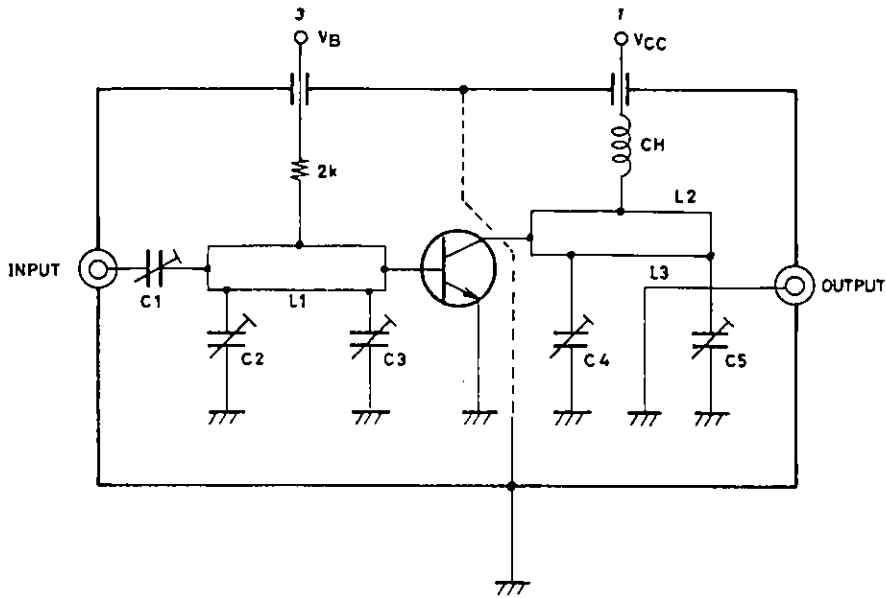
40	2	80	60	3	120	100	4	200
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(Note) Marking :KY
 h_{FE} rank :2,3,4

Package Dimensions 2018A
(unit:mm)



PG, NF Test Circuit

Unit (Resistance : Ω)

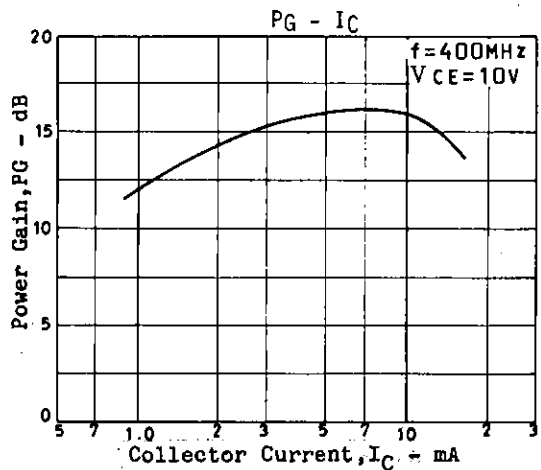
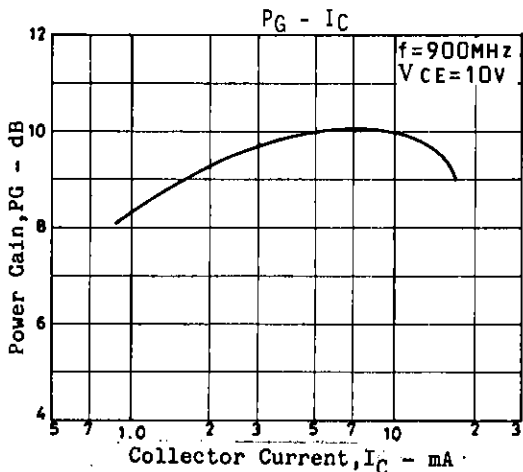
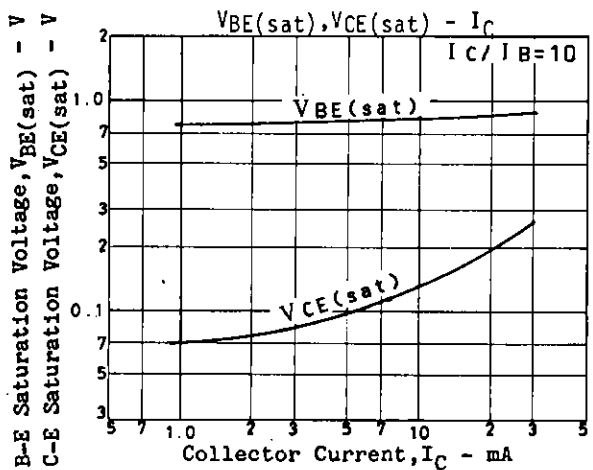
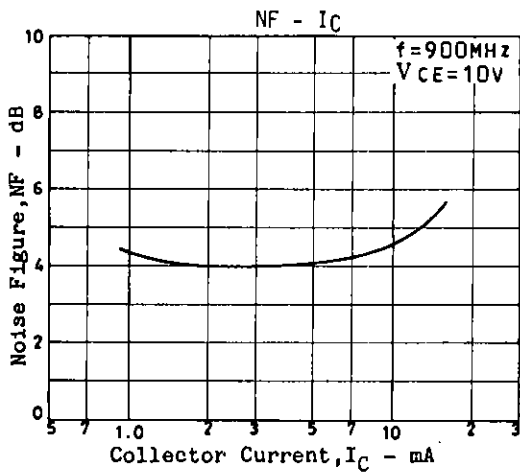
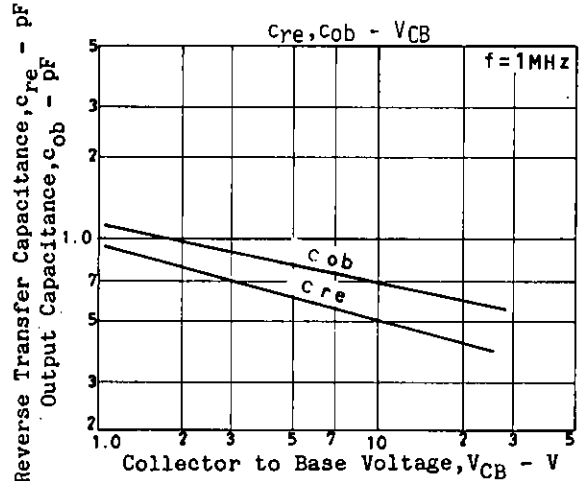
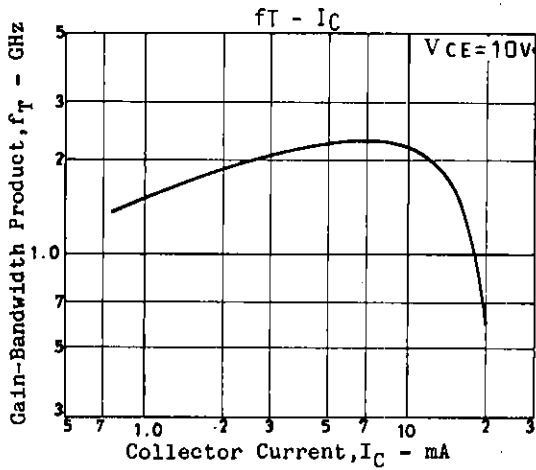
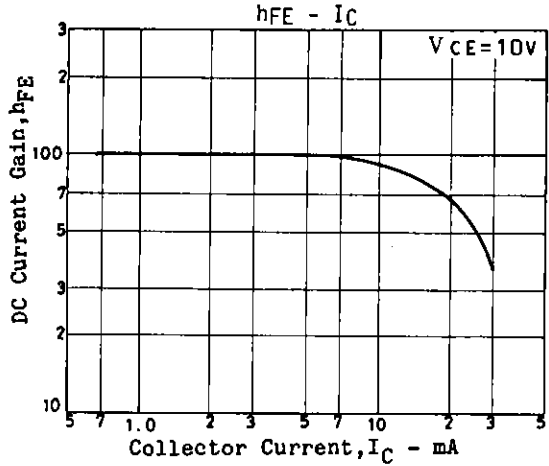
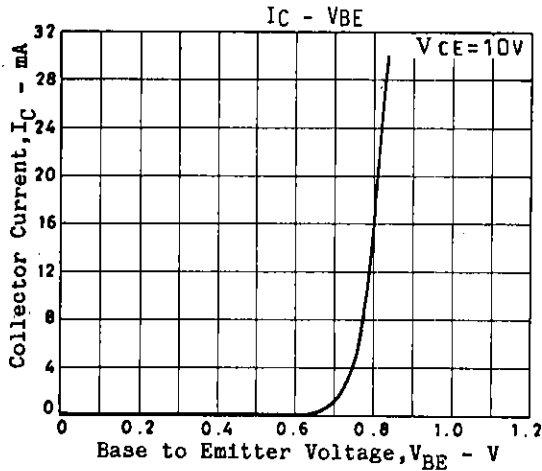
	900MHz
C1	~ 5 pF
C2	~ 10 pF
C3	~ 10 pF
C4	~ 10 pF
C5	~ 10 pF
L1	$W \doteq 1.5$ mm, $l \doteq 25$ mm strip line
L2	$W \doteq 4$ mm, $l \doteq 25$ mm strip line
L3	0.5ϕ , $l \doteq 40$ mm
CH	2t+bead core

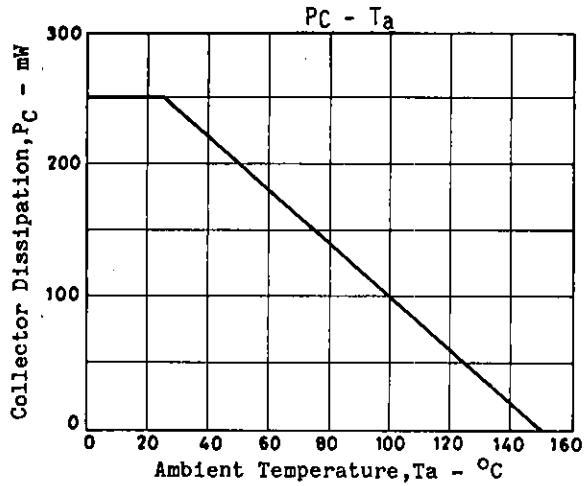
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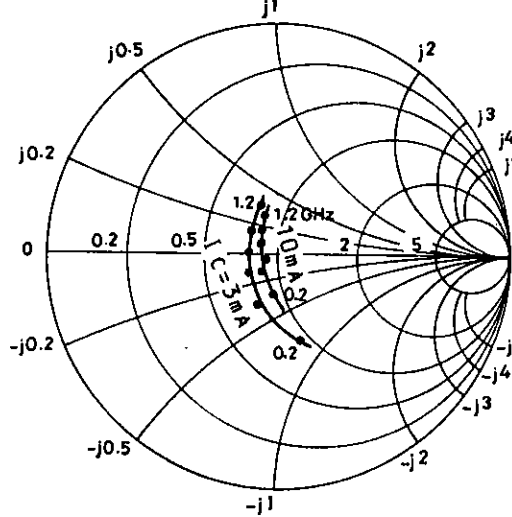
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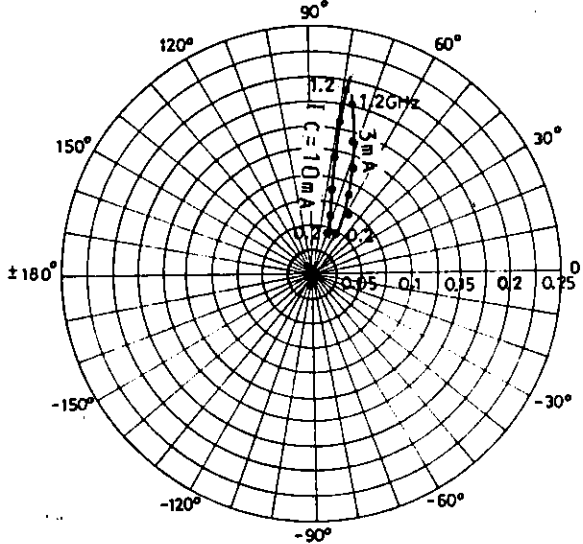
S11e : V_{CE}=10V

f=200MHz step



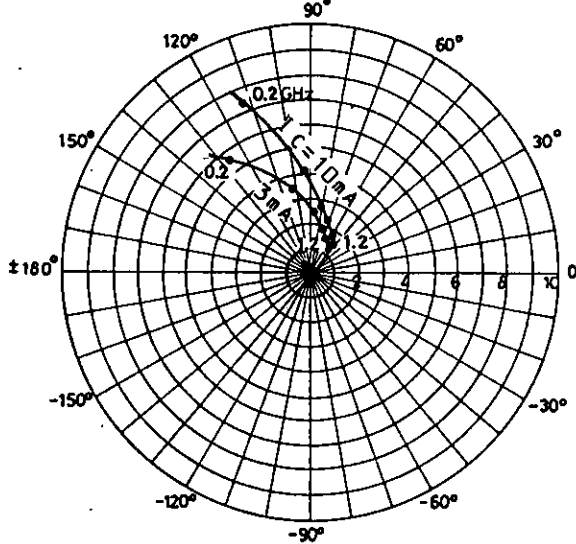
S12e : V_{CE}=10V

f=200MHz step



S21e : V_{CE}=10V

f=200MHz step



S22e : V_{CE}=10V

f=200MHz step

