

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($f=0.9\text{GHz}$).
 PG=16dB typ($f=0.4\text{GHz}$).
- Small noise figure: NF=3.5dB typ($f=0.9\text{GHz}$).
- 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_{CE0}	20	V
Emitter to Base Voltage	V_{EB0}	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 $T_a=25^\circ\text{C}$

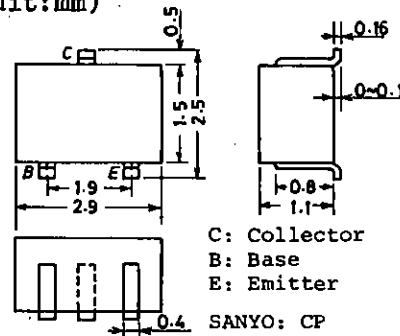
			min	typ	max	unit
Collector Cutoff Current	I_{CB0}	$V_{CB}=20\text{V}, I_E=0$			1.0	μA
Emitter Cutoff Current	I_{EB0}	$V_{EB}=2\text{V}, I_C=0$			10	μA
DC Current Gain	h_{FE}	$V_{CE}=10\text{V}, I_C=5\text{mA}$	40*		200*	
Gain-Bandwidth Product	f_T	$V_{CE}=10\text{V}, I_C=5\text{mA}$	1.4	2.2		GHz
Output 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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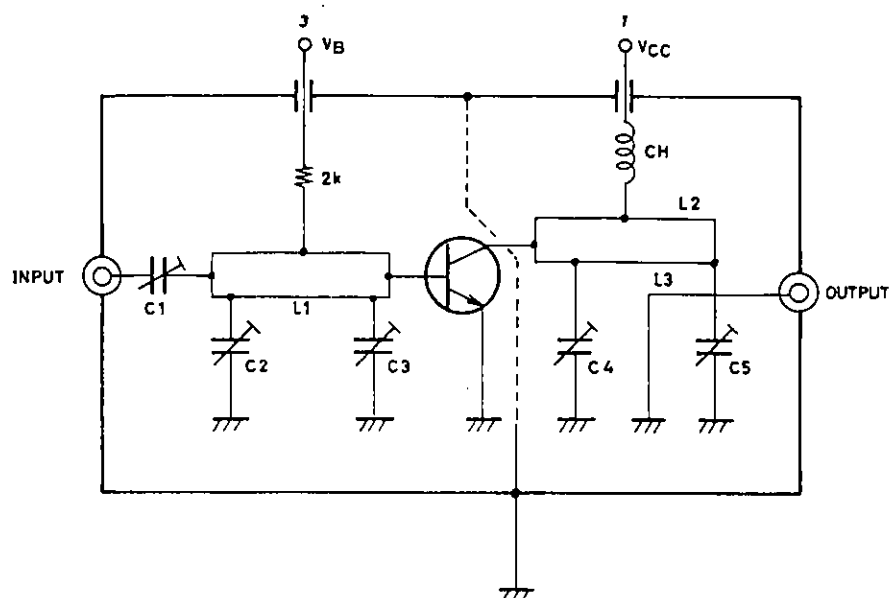
(Note) Marking :KY
 h_{FE} rank :2,3,4

Package Dimensions 2018A
(unit:mm)

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5318M0/5137KI/0115KI, TS No. 1944-1/4

PG, NF Test Circuit

Unit (Resistance : Ω)

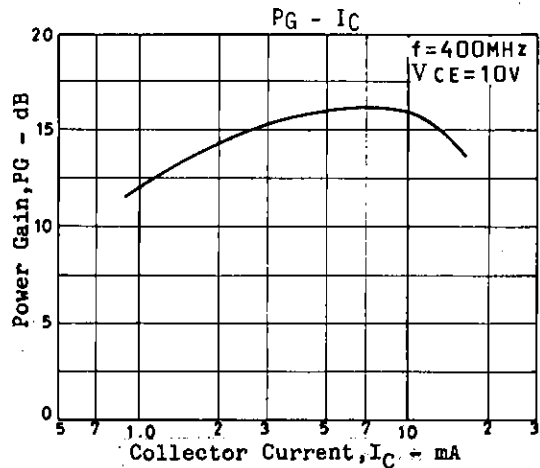
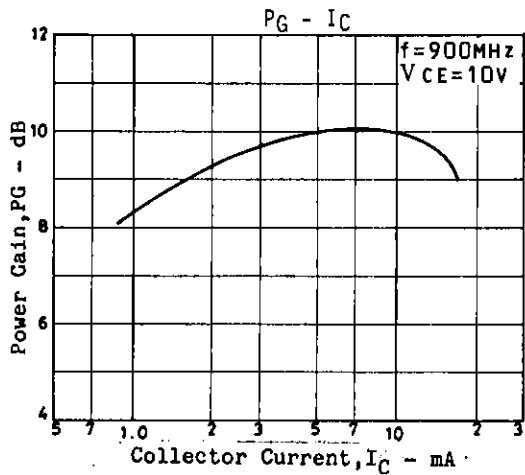
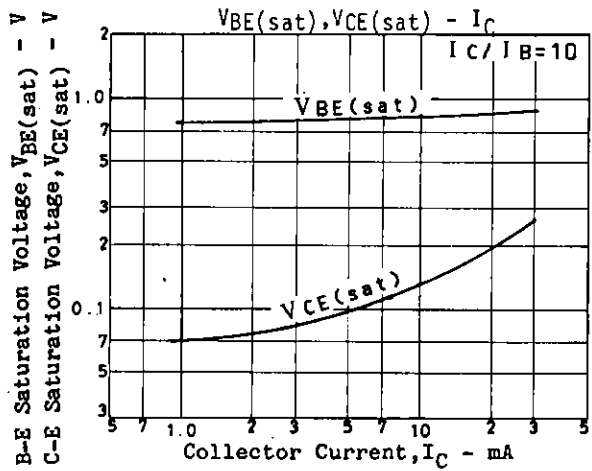
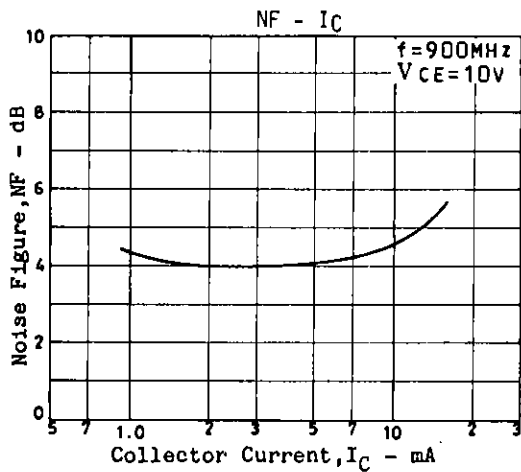
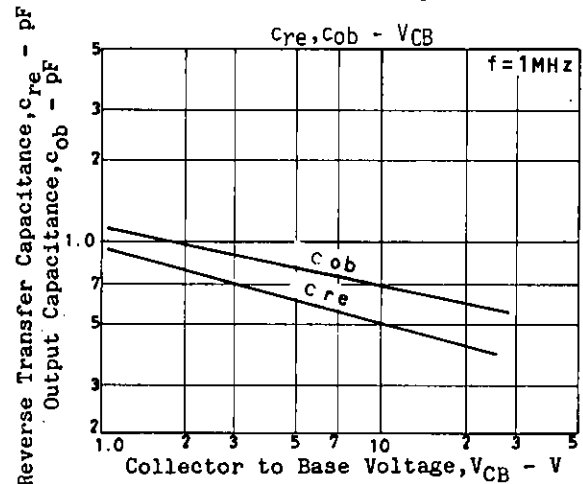
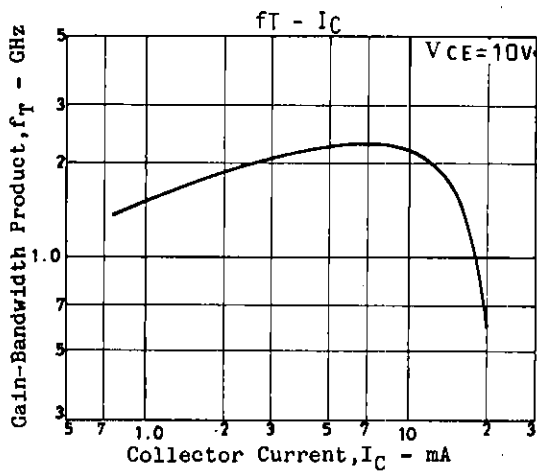
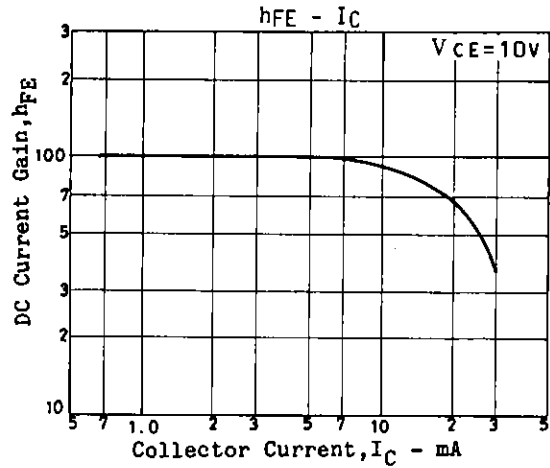
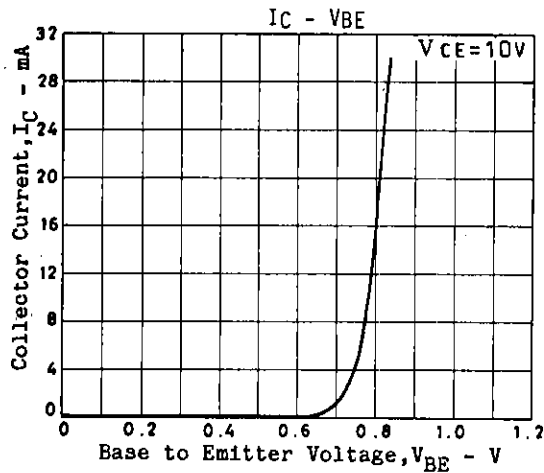
	900MHz
C1	$\sim 5\text{ pF}$
C2	$\sim 10\text{ pF}$
C3	$\sim 10\text{ pF}$
C4	$\sim 10\text{ pF}$
C5	$\sim 10\text{ pF}$
L1	$W \div 1.5\text{ mm}, l \div 25\text{ mm}$ strip line
L2	$W \div 4\text{ mm}, l \div 25\text{ mm}$ strip line
L3	$0.5\phi, l \div 40\text{ mm}$
CH	2t+bead core

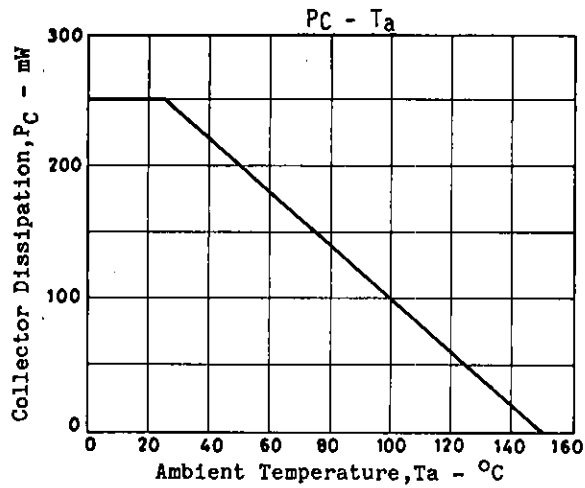
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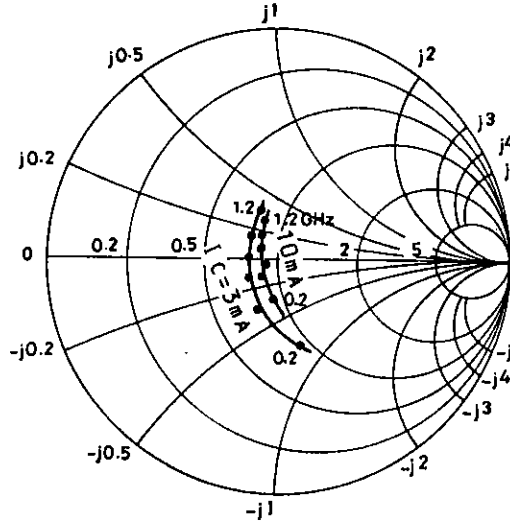
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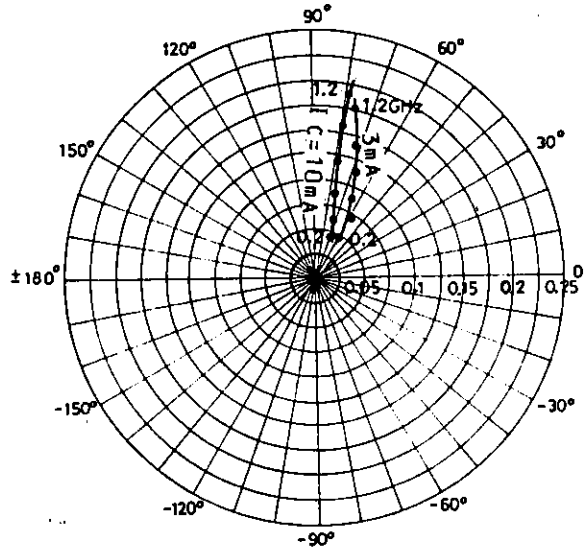


S11e : $V_{CE}=10V$

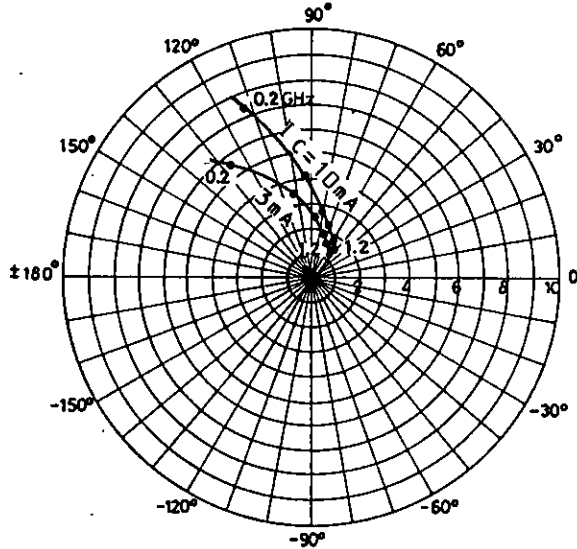
f=200MHz step

S12e : $V_{CE}=10V$

f=200MHz step

S21e : $V_{CE}=10V$

f=200MHz step

S22e : $V_{CE}=10V$

f=200MHz step

