

**2SC3771**

UHF, VHF Oscillator Mixer, HF Amplifier Applications

Applications

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

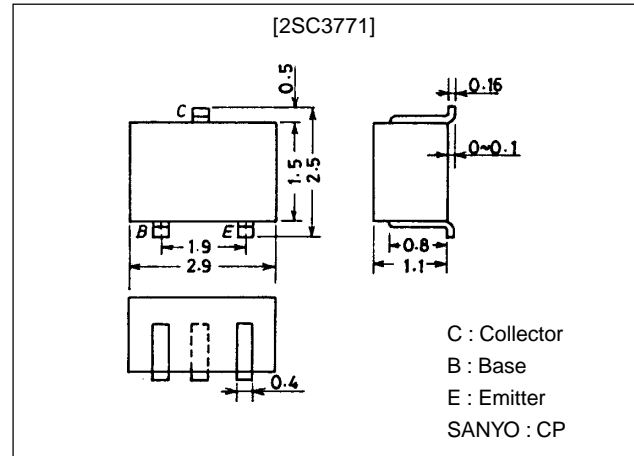
Features

- 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.

Package Dimensions

unit:mm

2018A



Specifications

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

Parameter	Symbol	Conditions	Ratings	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 $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
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

* : 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

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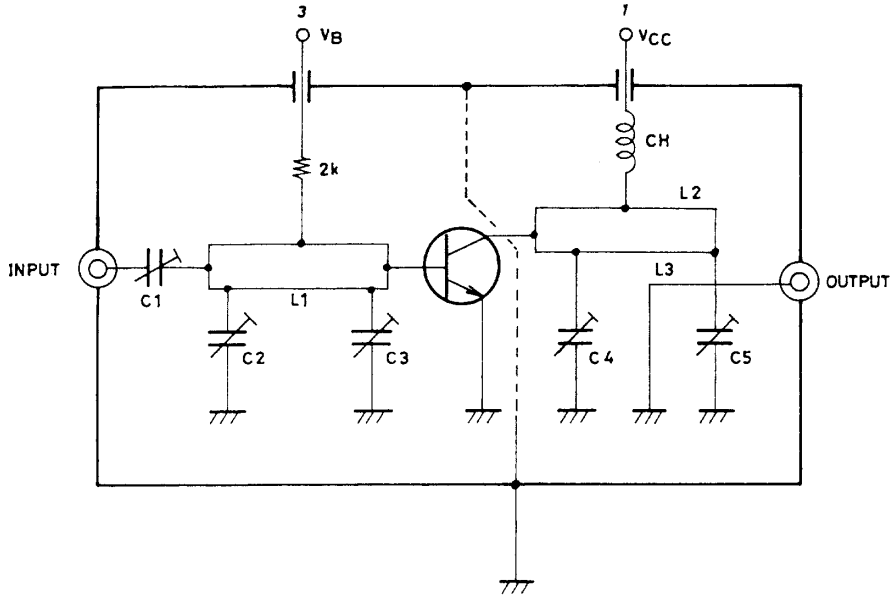
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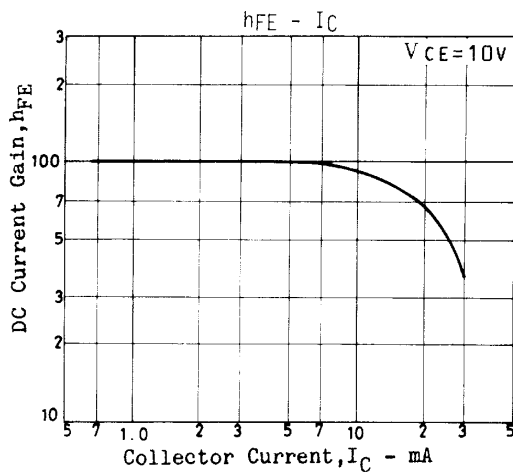
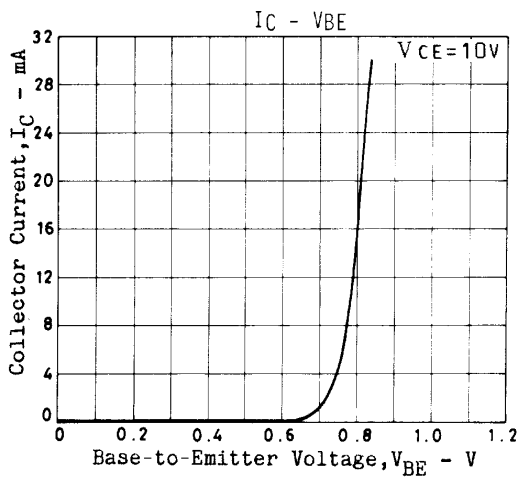
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Power Gain	PG	$V_{CE}=10V, I_C=10mA, f=0.4GHz$		16		dB
		$V_{CE}=10V, I_C=10mA, f=0.9GHz$		10		dB
Noise Figure	NF	$V_{CE}=10V, I_C=3mA, f=0.9GHz$, See specified Test Circuit.		3.5		dB

PG, NF Test Circuit

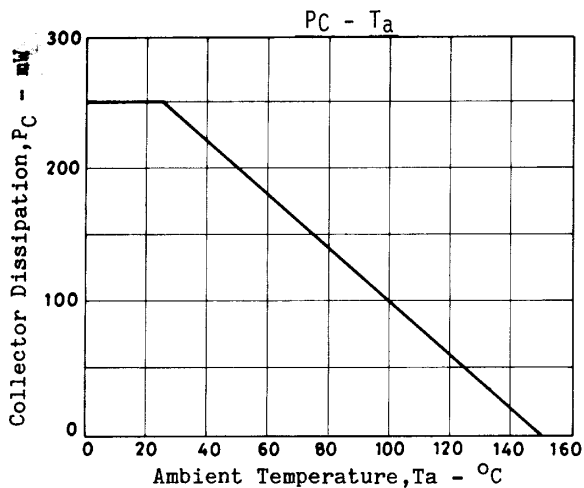
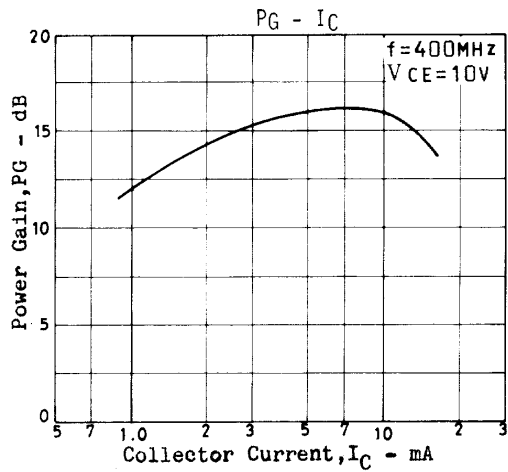
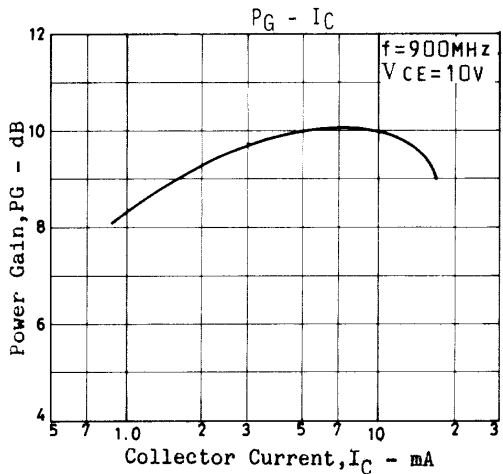
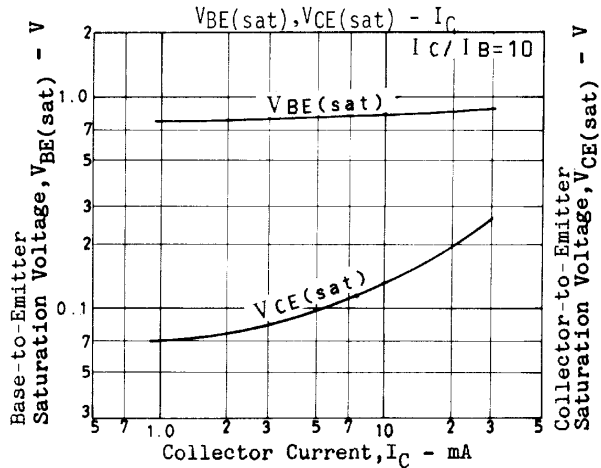
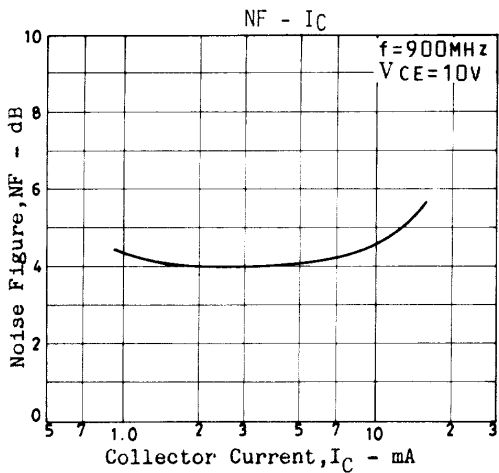
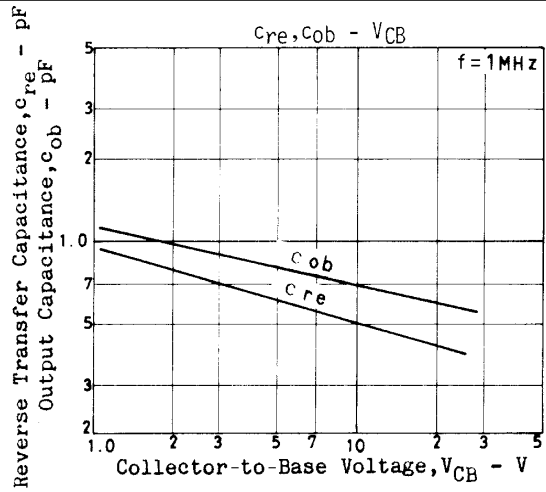
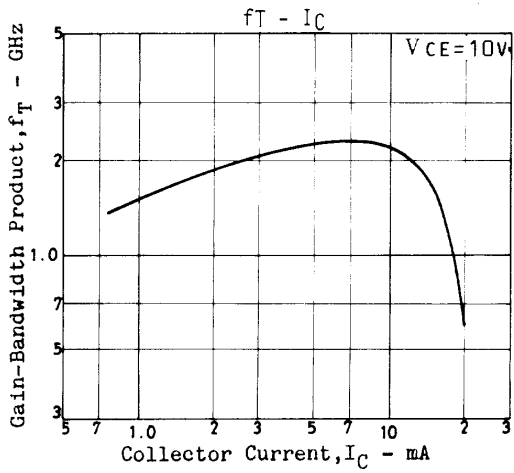


Unit (resistance : Ω)

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

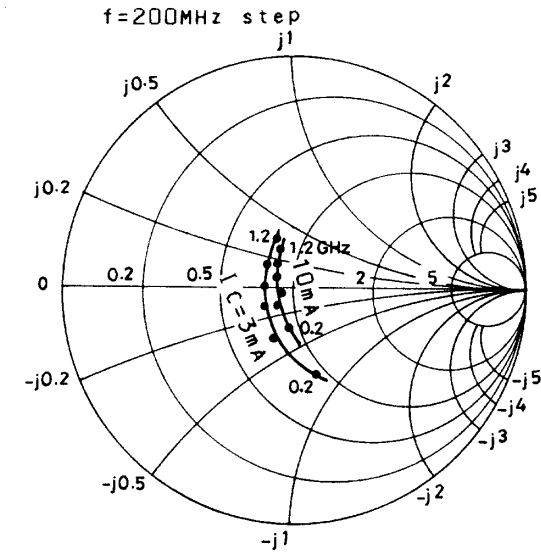


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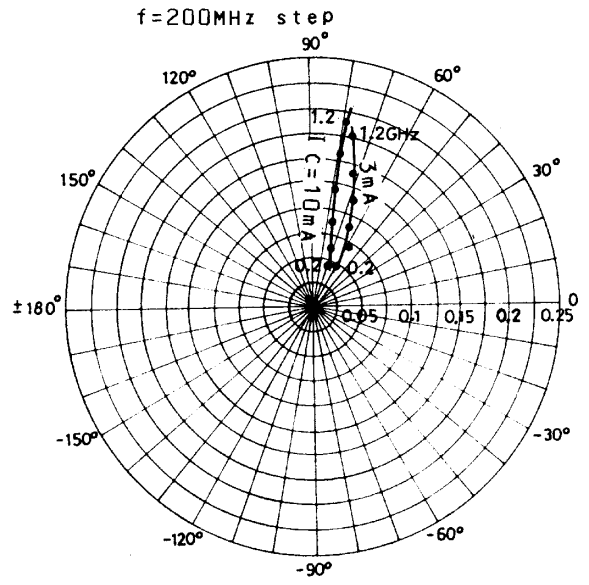


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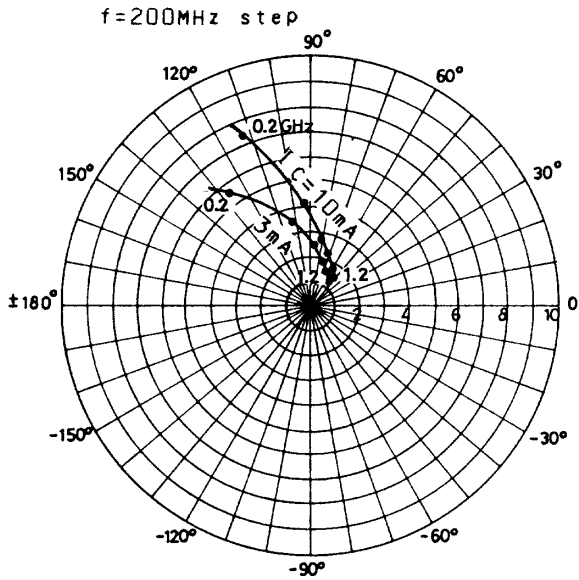
S11e : VCE=10V



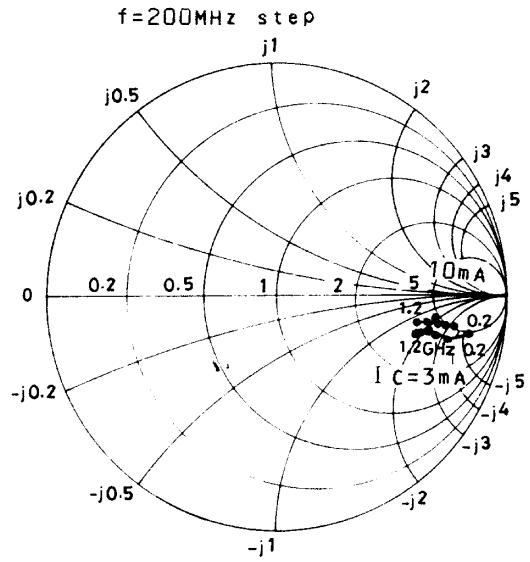
S12e : VCE=10V



S21e : VCE=10V



S22e : VCE=10V



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