

<b>SANYO</b>	No.1950B	<b>2SC3777</b>
		NPN Epitaxial Planar Silicon Transistor <b>UHF Oscillator, Mixer, Low-Noise Amp,                  Wide-Band Amp Applications</b>

**Applications**

- UHF frequency converters, local oscillators, low-noise amplifiers, wide-band amplifiers

**Features**

- Small noise figure: NF=3.0dB typ(f=0.9GHz).
- High power gain: MAG=12dB typ(f=0.9GHz).
- High cutoff frequency:  $f_T=3.5\text{GHz}$  typ.

**Absolute Maximum Ratings at Ta=25°C**

			unit
Collector to Base Voltage	$V_{CB0}$	25	V
Collector to Emitter Voltage	$V_{CEO}$	16	V
Emitter to Base Voltage	$V_{EBO}$	3	V
Collector Current	$I_C$	50	mA
Base Current	$I_B$	20	mA
Collector Dissipation	$P_C$	400	mW
Junction Temperature	$T_j$	150	°C
Storage Temperature	$T_{stg}$	-55 to +150	°C

**Electrical Characteristics at Ta=25°C**

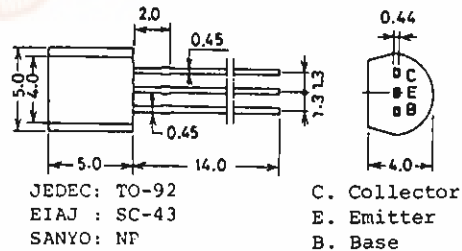
			min	typ	max	unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=16V, I_E=0$			1.0	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=2V, I_C=0$			10	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE}=10V, I_C=5mA$	40*		200*	
Gain-Bandwidth Product	$f_T$	$V_{CE}=10V, I_C=5mA$	1.8	3.5		GHz
Output Capacitance	$c_{ob}$	$V_{CB}=10V, f=1MHz$		0.7	1.0	pF
Reverse Transfer Capacitance	$c_{re}$	$V_{CB}=10V, f=1MHz$		0.45		pF
Forward Transfer Gain	$ S_{21ef} $	$V_{CE}=10V, I_C=10mA, f=0.9GHz$	7.5	9		dB
Maximum Available Power Gain	MAG	$V_{CE}=10V, I_C=10mA, f=0.9GHz$		12		dB
Noise Figure	NF	$V_{CE}=10V, I_C=3mA, f=0.9GHz$	3.0	5.0		dB

See specified Test Circuit.

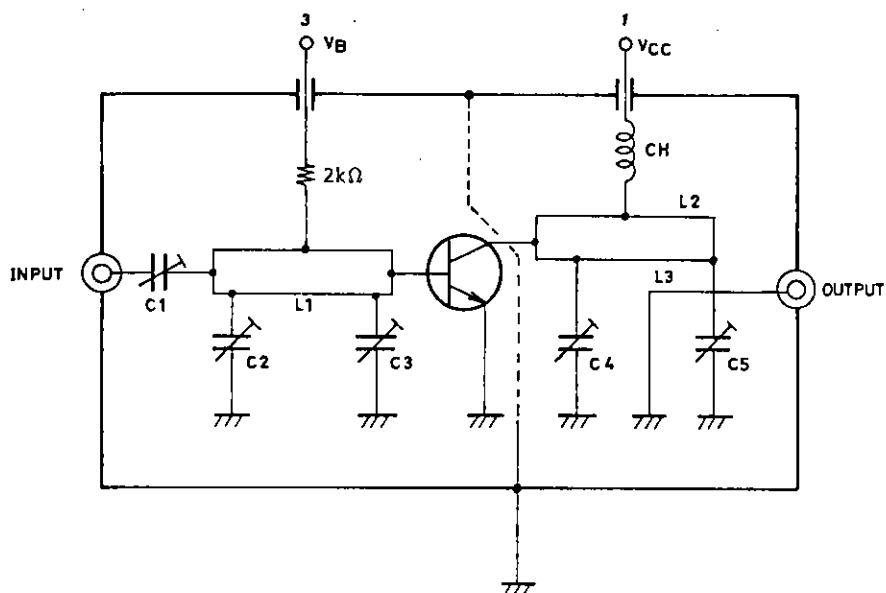
\*: The 2SC3777 is classified by 5mA  $h_{FE}$  as follows:

40	C	80	60	D	120	100	E	200
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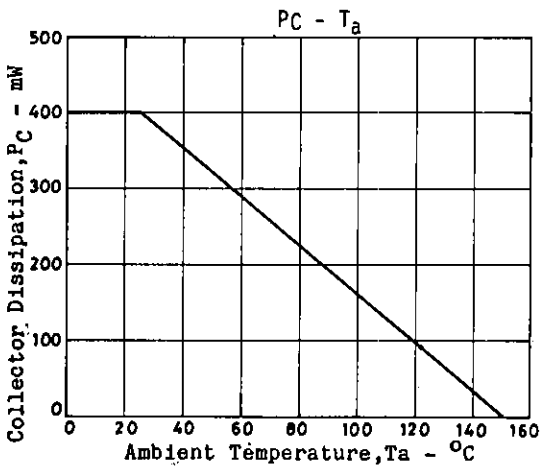
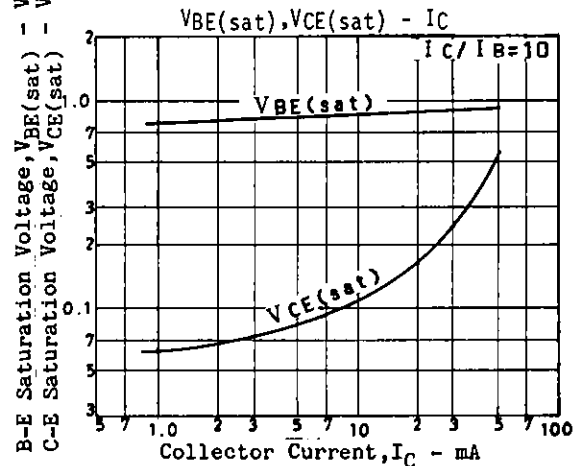
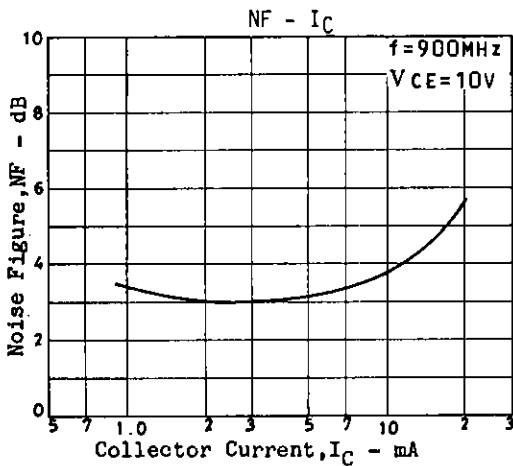
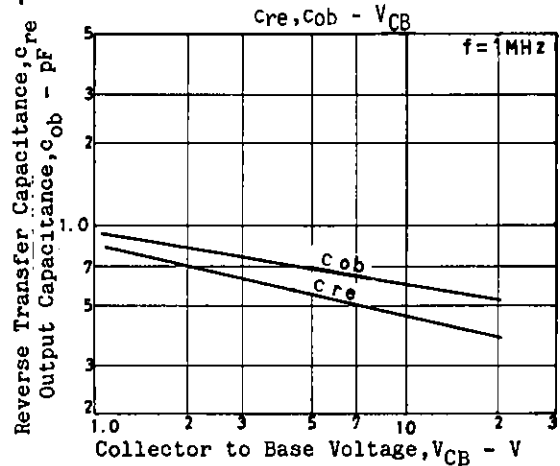
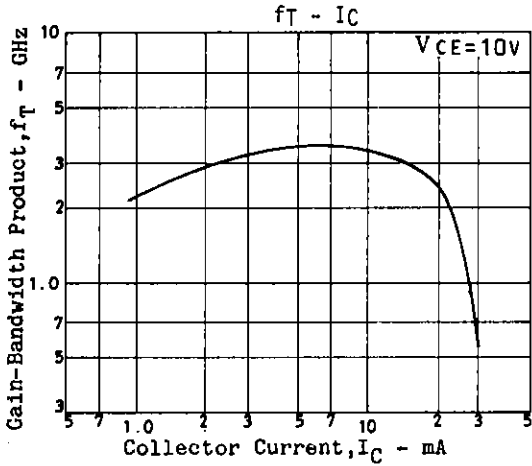
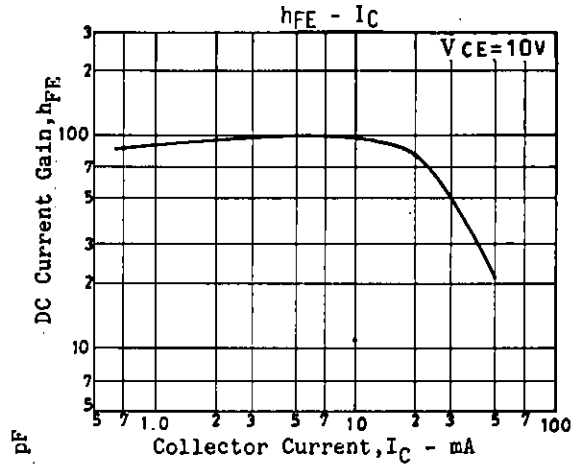
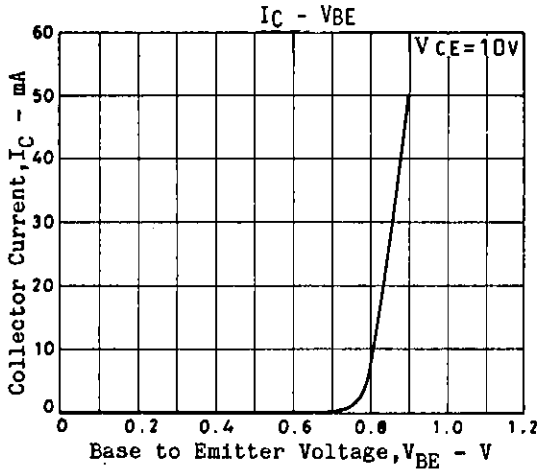
**Package Dimensions 2004A**  
(unit: mm)



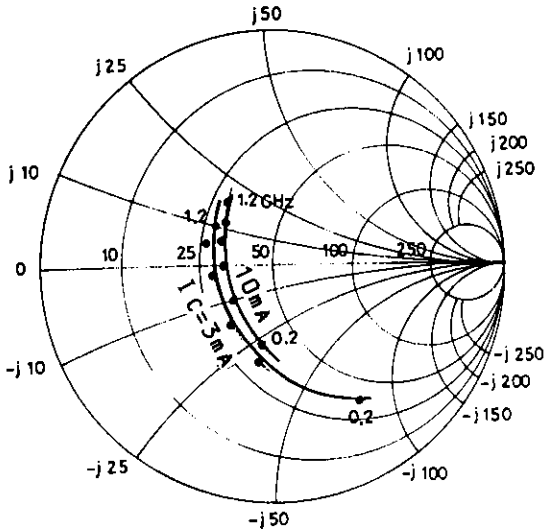
## NF Test Circuit



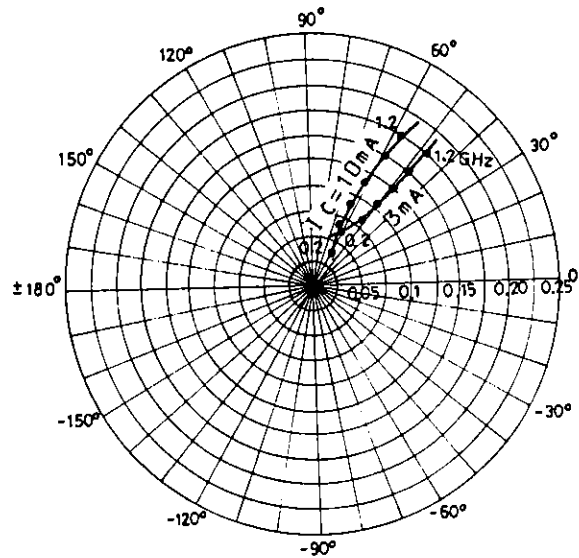
900MHz	
C1	~5 pF
C2	~10 pF
C3	~10 pF
C4	~10 pF
C5	~10 pF
L1	W≐1.5mm, l≐25mm strip line
L2	W≐4mm, l≐25mm strip line
L3	0.5ϕ, l≐40mm
CH	2t+bead core



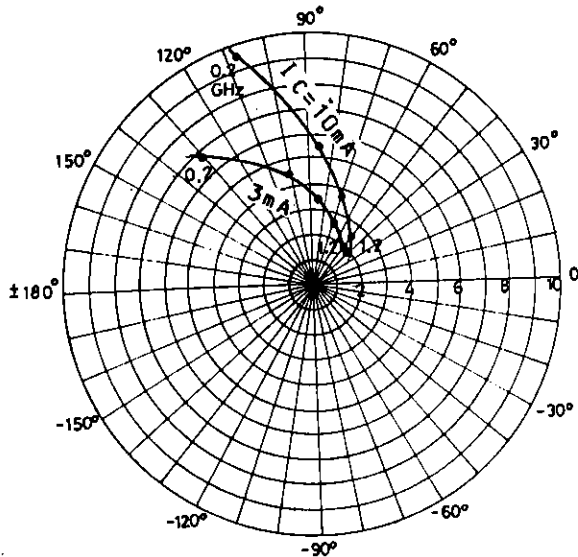
S11e : VCE=10V  
f=200MHz step



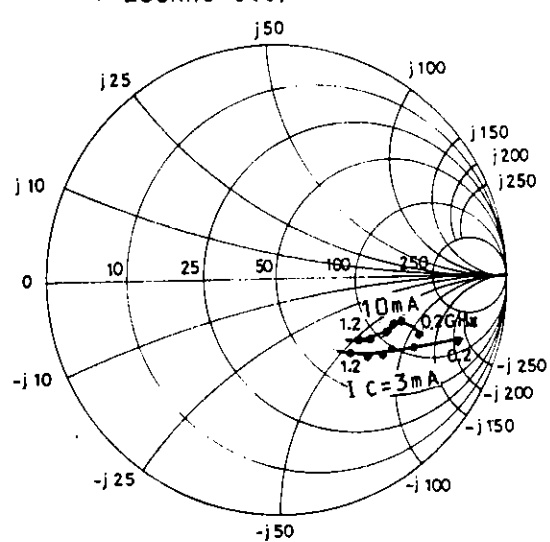
S12e : VCE=10V  
f=200MHz step



S21e : VCE=10V  
f=200MHz step



S22e : VCE=10V  
f=200MHz step



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