

<b>SANYO</b>	No.1949B	<b>2SC3776</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=2.5dB typ(f=0.9GHz).
- High power gain: MAG=12dB typ(f=0.9GHz).
- High cutoff frequency:  $f_T=3.0\text{GHz}$  typ.

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

			unit
Collector to Base Voltage	V <sub>CB0</sub>	25	V
Collector to Emitter Voltage	V <sub>CEO</sub>	16	V
Emitter to Base Voltage	V <sub>EBO</sub>	3	V
Collector Current	I <sub>C</sub>	70	mA
Base Current	I <sub>B</sub>	20	mA
Collector Dissipation	P <sub>C</sub>	400	mW
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55 to +150	°C

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

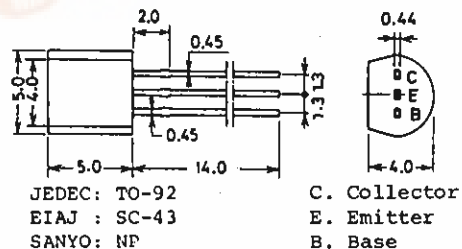
		min	typ	max	unit
Collector Cutoff Current	I <sub>CB0</sub> V <sub>CB</sub> =16V, I <sub>E</sub> =0			1.0	μA
Emitter Cutoff Current	I <sub>EBO</sub> V <sub>EB</sub> =2V, I <sub>C</sub> =0			10	μA
DC Current Gain	h <sub>FE</sub> V <sub>CE</sub> =10V, I <sub>C</sub> =10mA	40*		200*	
Gain-Bandwidth Product	f <sub>T</sub> V <sub>CE</sub> =10V, I <sub>C</sub> =10mA	1.5	3.0		GHz
Output Capacitance	c <sub>ob</sub> V <sub>CB</sub> =10V, f=1MHz		0.7	1.0	pF
Reverse Transfer Capacitance	c <sub>re</sub> V <sub>CB</sub> =10V, f=1MHz		0.45		pF
Forward Transfer Gain	S <sub>21e</sub>   <sup>2</sup> V <sub>CE</sub> =10V, I <sub>C</sub> =10mA, f=0.9GHz	7	9		dB
Maximum Available Power Gain	MAG V <sub>CE</sub> =10V, I <sub>C</sub> =10mA, f=0.9GHz		12		dB
Noise Figure	NF V <sub>CE</sub> =10V, I <sub>C</sub> =3mA, f=0.9GHz,		2.5		dB

See specified Test Circuit.

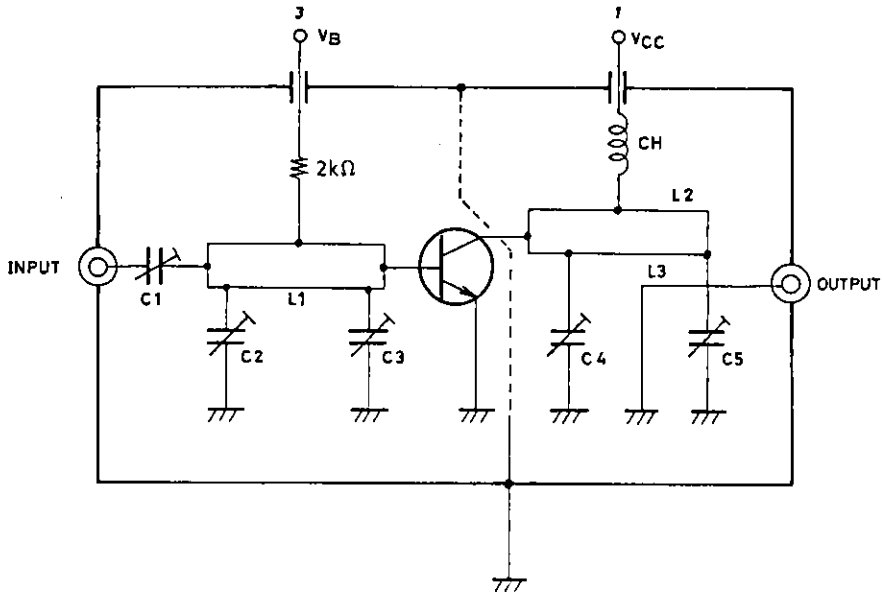
\*: The 2SC3776 is classified by 10mA h<sub>FE</sub> as follows:

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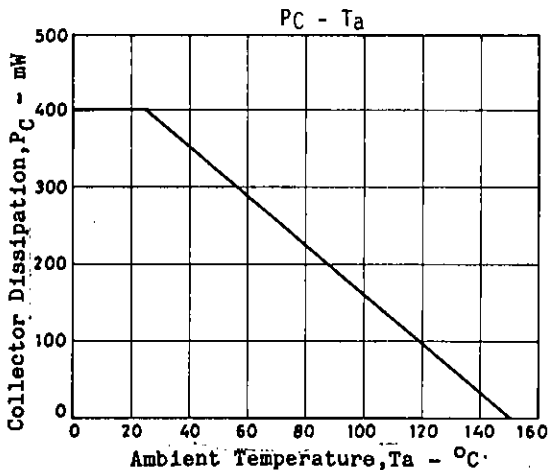
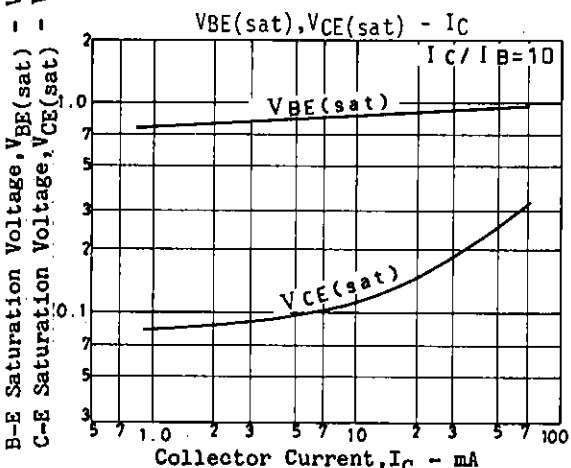
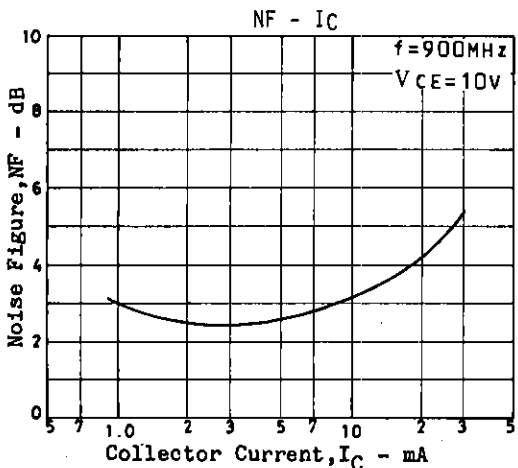
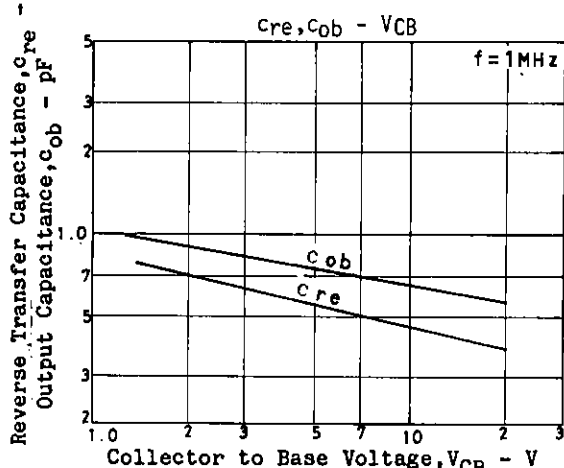
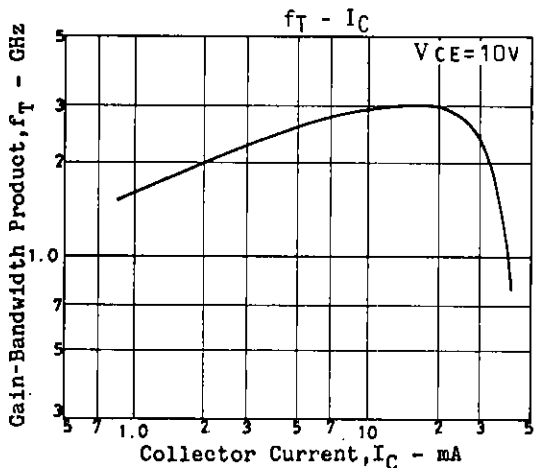
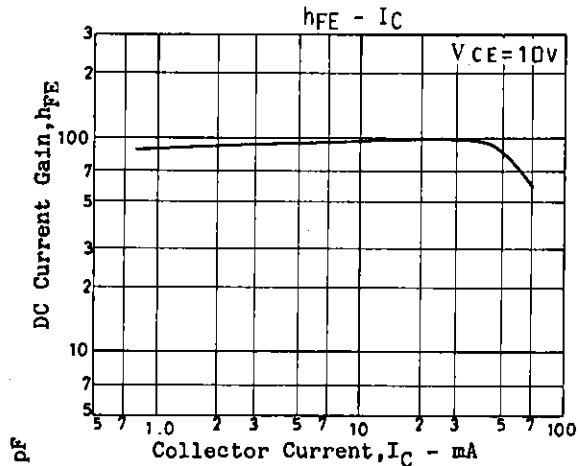
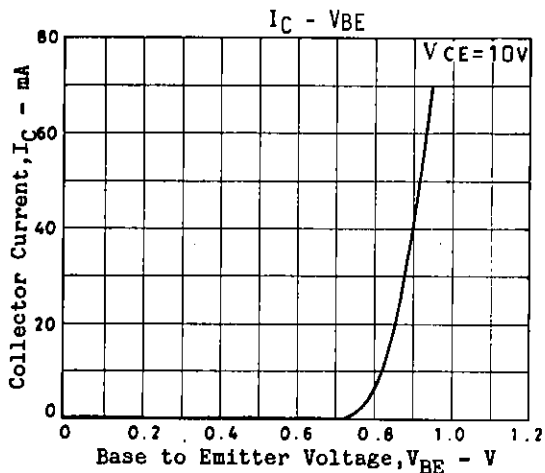
**Package Dimensions 2004A**  
(unit: mm)



## NF Test Circuit

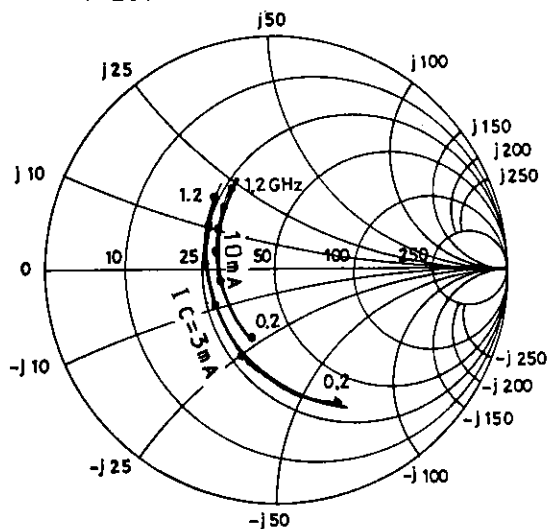


900MHz	
C1	~5 pF
C2	~10 pF
C3	~10 pF
C4	~10 pF
C5	~10 pF
L1	W ≐ 1.5mm, l ≐ 25mm strip line
L2	W ≐ 4mm, l ≐ 25mm strip line
L3	0.5φ, l ≐ 40mm
CH	2t+bead core

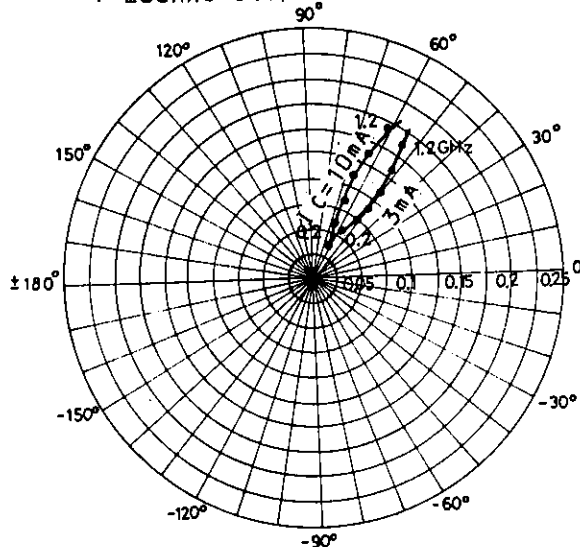


S11e :  $V_{CE}=10V$ 

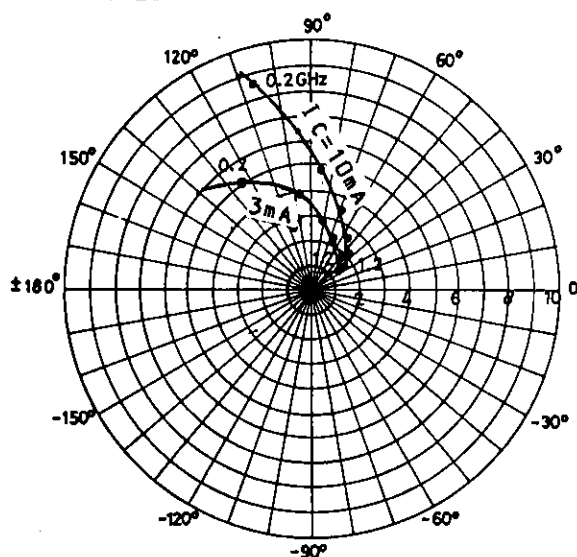
f=200MHz step

S12e :  $V_{CE}=10V$ 

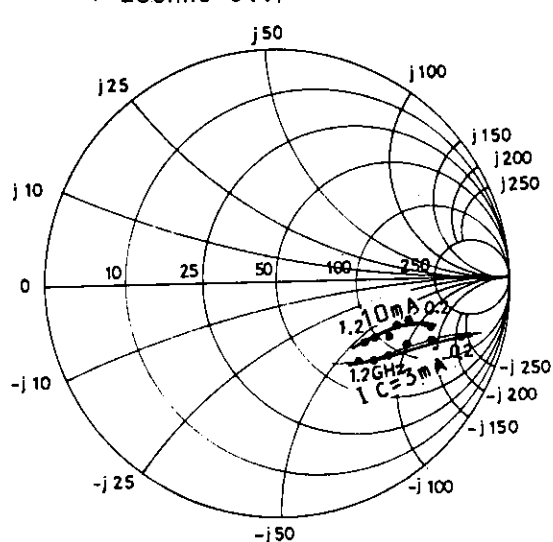
f=200MHz step

S21e :  $V_{CE}=10V$ 

f=200MHz step

S22e :  $V_{CE}=10V$ 

f=200MHz step



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