

SANYO	No.1947B	2SC3774
		NPN Epitaxial Planar Silicon Transistor UHF Low-Noise Amp, Wide-Band Amp Applications

Applications

- . UHF low-noise amplifiers, wide-band amplifiers

Features

- . Small noise figure: NF=2.2dB typ(f=0.9GHz).
- . High power gain: MAG=14dB typ(f=0.9GHz).
- . High cutoff frequency: $f_T=5.0\text{GHz}$ typ.

Absolute Maximum Ratings at Ta=25°C

Collector to Base Voltage	V_{CB0}	20	V	unit
Collector to Emitter Voltage	V_{CE0}	12	V	
Emitter to Base Voltage	V_{EB0}	3	V	
Collector Current	I_C	70	mA	
Base Current	I_B	20	mA	
Collector Dissipation	P_C	250	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}	$V_{CB}=12V, I_E=0$			1.0	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=2V, I_C=0$			10	μA
DC Current Gain	h_{FE}	$V_{CE}=10V, I_C=20mA$	40*		200*	
Gain-Bandwidth Product	f_T	$V_{CE}=10V, I_C=20mA$		5.0		GHz
Output Capacitance	c_{ob}	$V_{CB}=10V, f=1MHz$		0.75	1.0	pF
Reverse Transfer Capacitance	c_{re}	$V_{CB}=10V, f=1MHz$		0.5		pF
Forward Transfer Gain	$ S_{21e} ^2$	$V_{CE}=10V, I_C=20mA, f=0.9GHz$	8	10		dB
Maximum Available Power Gain	MAG	$V_{CE}=10V, I_C=20mA, f=0.9GHz$		14		dB
Noise Figure	NF	$V_{CE}=10V, I_C=5mA, f=0.9GHz$	2.2	4.5		dB

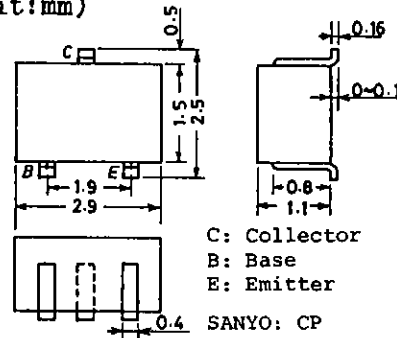
See specified Test Circuit.

*: The 2SC3774 is classified by 20mA h_{FE} as follows:

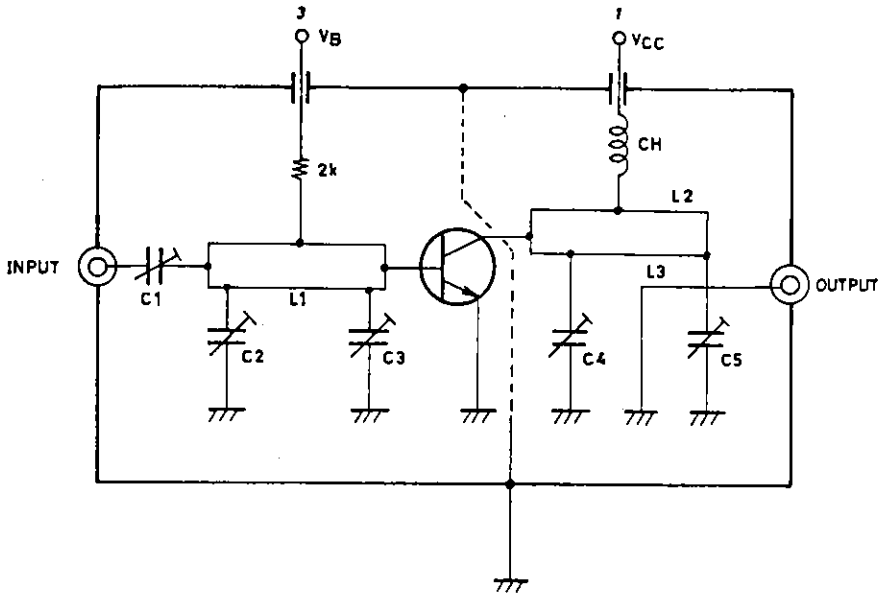
40	2	80	60	3	120	100	4	200
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(Note) Marking : NY
 h_{FE} rank : 2,3,4

Package Dimensions 2018A
(unit:mm)

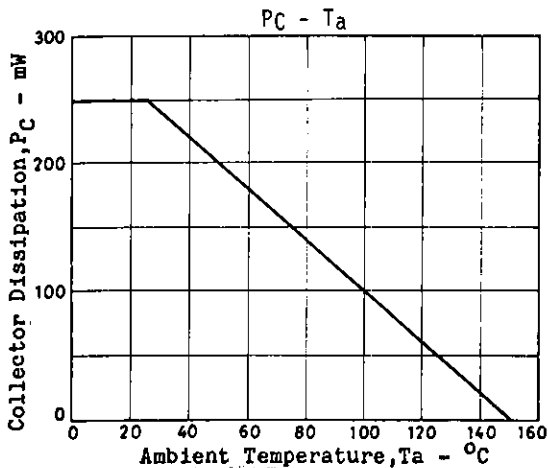
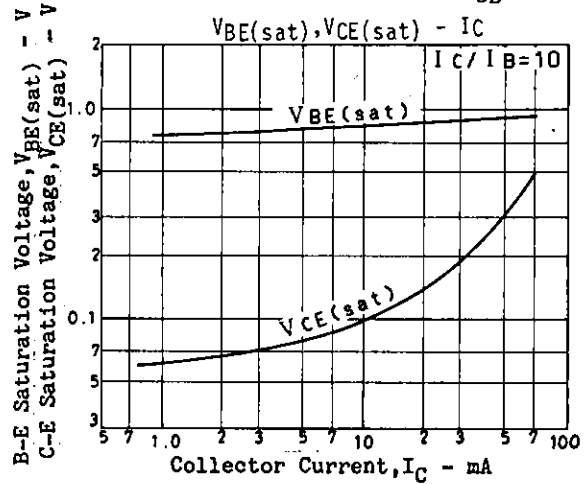
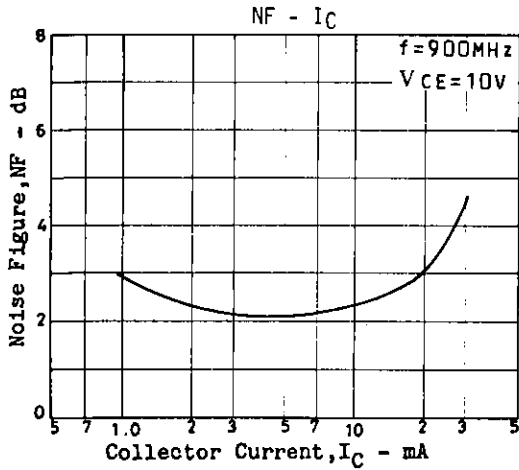
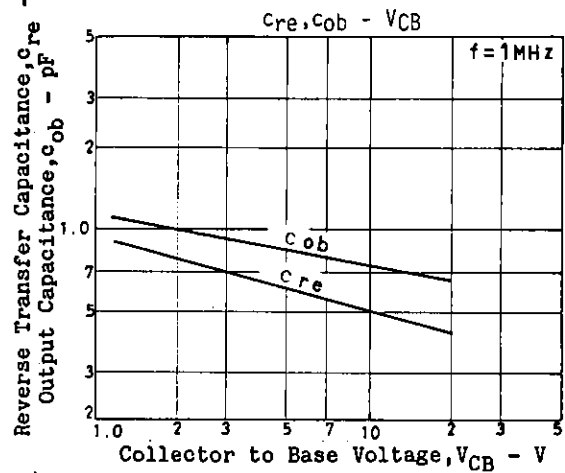
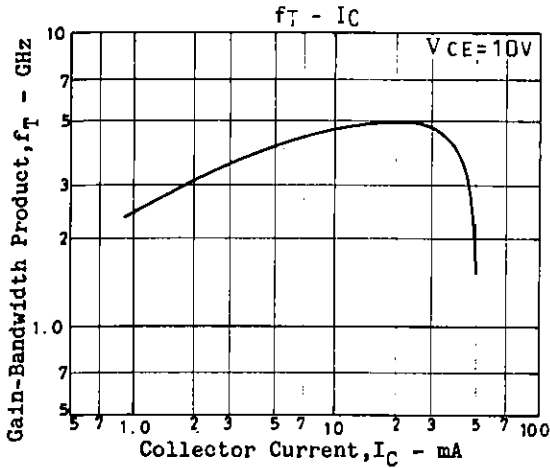
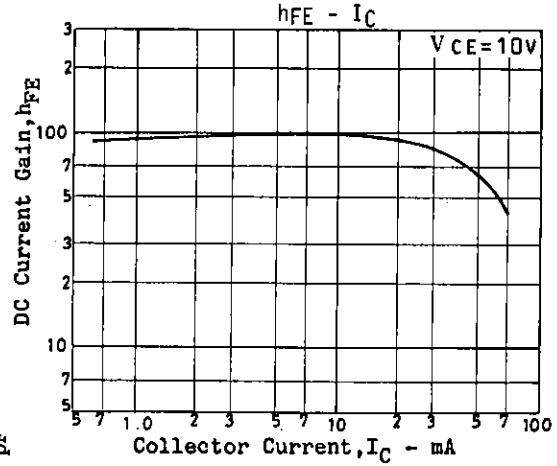
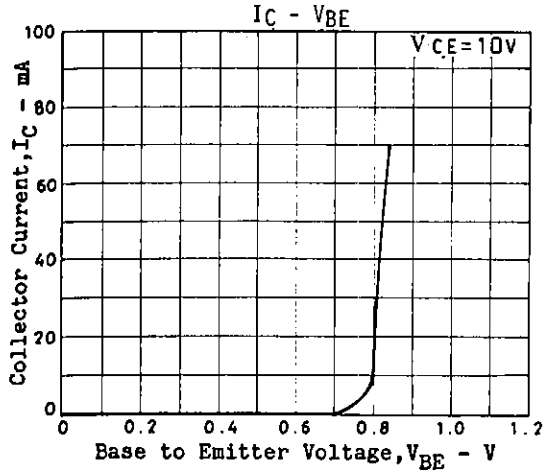


NF Test Circuit

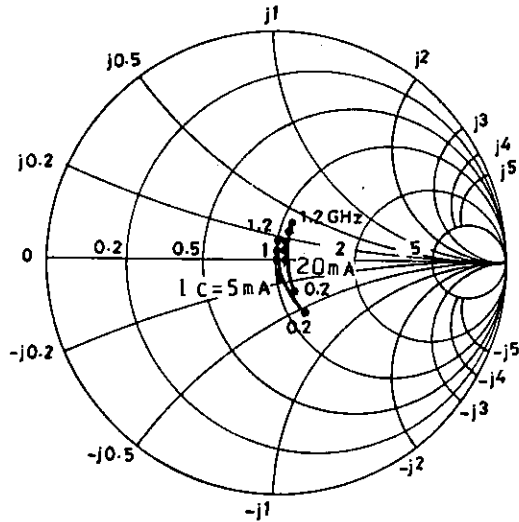


Unit (Resistance : Ω)

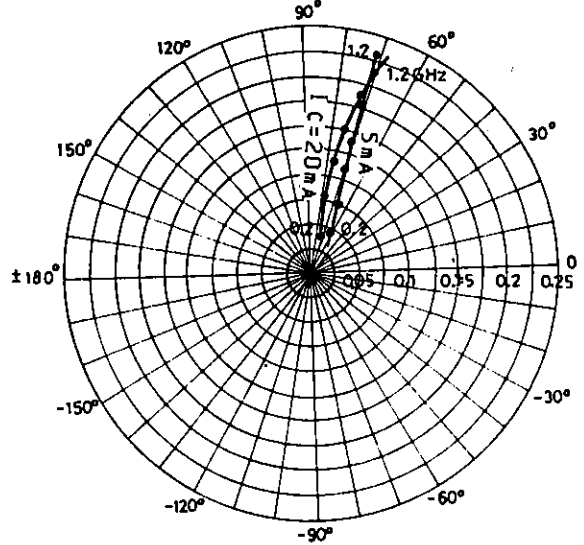
900MHz	
C 1	~5 pF
C 2	~10 pF
C 3	~10 pF
C 4	~10 pF
C 5	~10 pF
L 1	W≐1.5mm, l≐25mm strip line
L 2	W≐4mm, l≐25mm strip line
L 3	0.5φ, l≐40mm
CH	2t+bead core



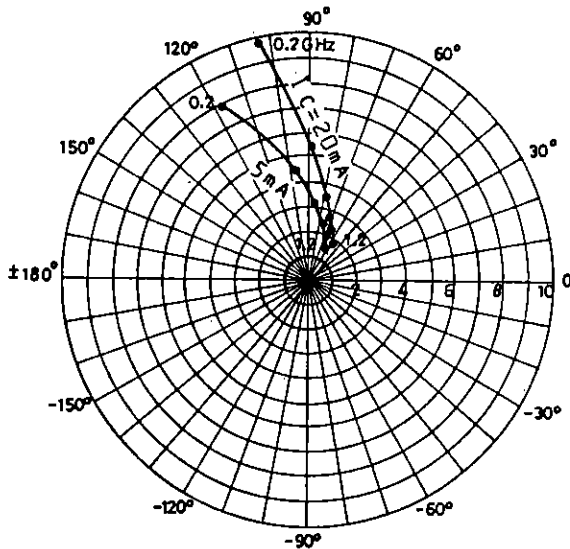
S11e : $V_{CE}=10V$
f=200MHz step



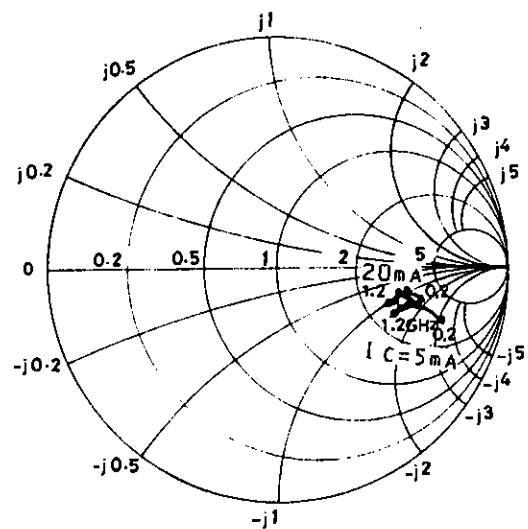
S12e : $V_{CE}=10V$
f=200MHz step



S21e : $V_{CE}=10V$
f=200MHz step



S22e : $V_{CE}=10V$
f=200MHz step



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