

SANYO	No.1948B	2SC3775
		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=1.5dB 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

			unit
Collector to Base Voltage	V_{CB0}	20	V
Collector to Emitter Voltage	V_{CEO}	12	V
Emitter to Base Voltage	V_{EBO}	3	V
Collector Current	I_C	100	mA
Base Current	I_B	30	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_{CB0} $V_{CB}=12V, I_E=0$			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} $V_{CB}=10V, f=1MHz$		0.9		pF
Reverse Transfer Capacitance	c_{re} $V_{CB}=10V, f=1MHz$		0.6		pF
Forward Transfer Gain	$ S_{21e} ^2$ $V_{CE}=10V, I_C=20mA, f=0.9GHz$	8.5	10		dB
Maximum Available Power Gain	MAG $V_{CE}=10V, I_C=20mA, f=0.9GHz$		14		dB
Noise Figure	NF $V_{CE}=10V, I_C=5mA, f=0.9GHz$	1.5	3.0		dB

See specified Test Circuit.

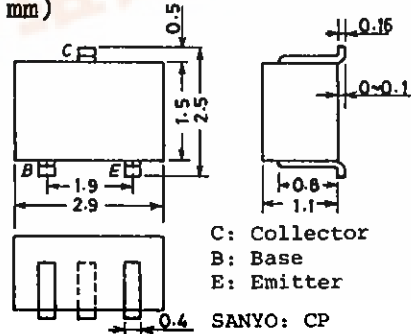
*: The 2SC3775 is classified by 20mA h_{FE} as follows:

40	2	80	60	3	120	100	4	200
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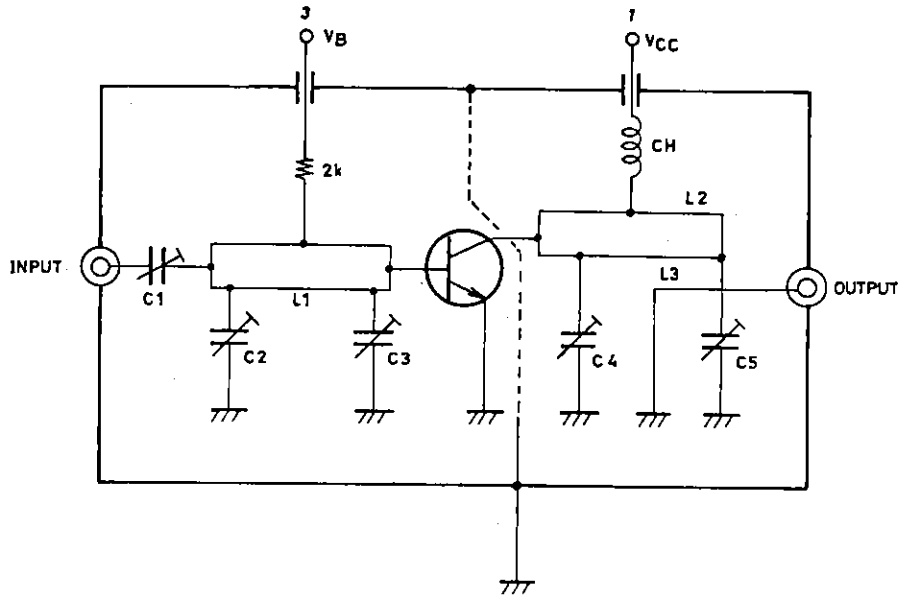
(Note) Marking :0Y
 h_{FE} rank :2,3,4

Package Dimensions 2018A

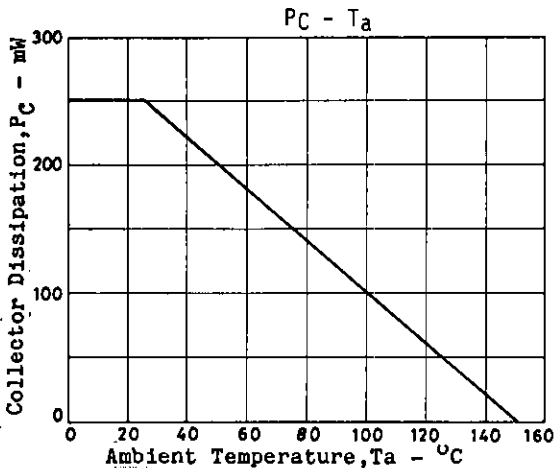
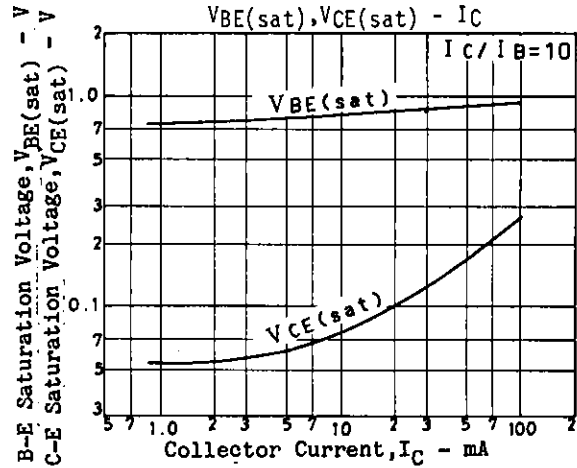
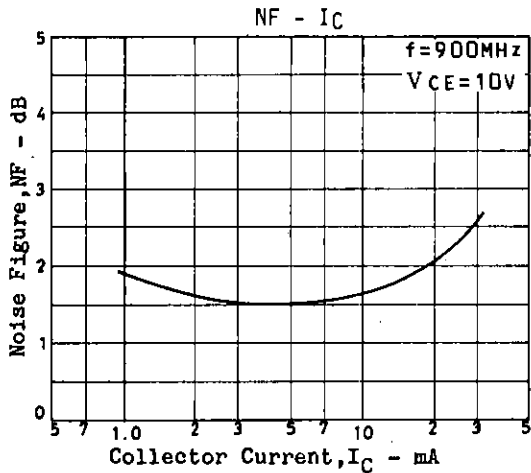
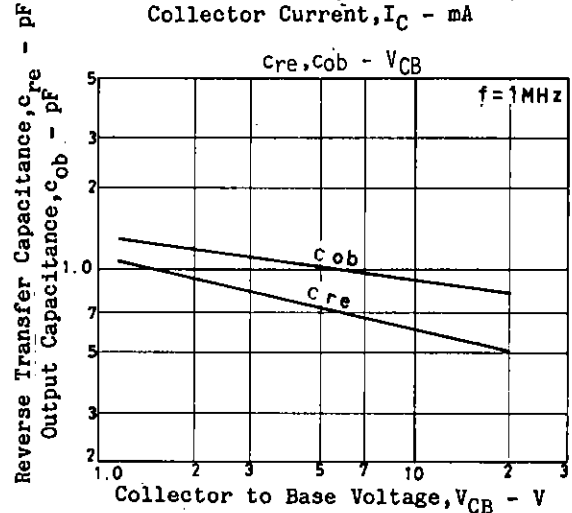
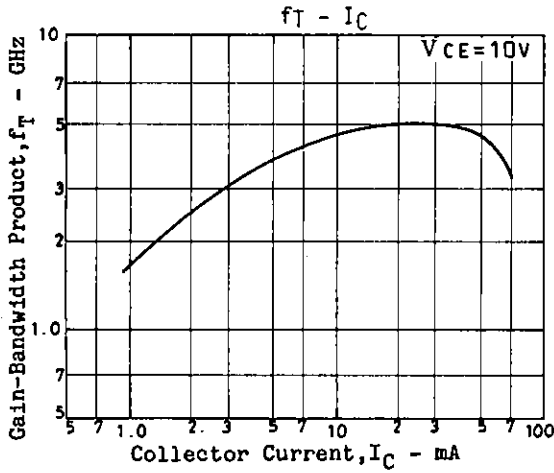
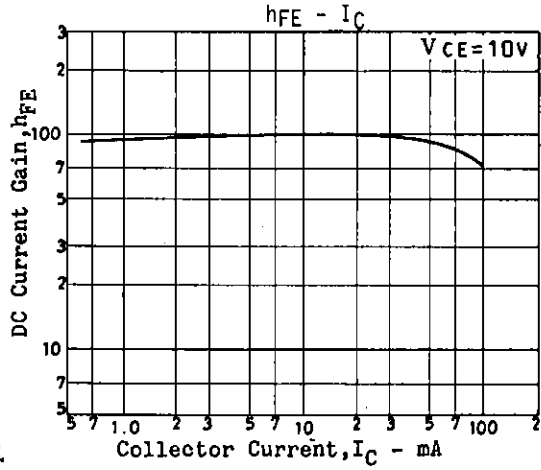
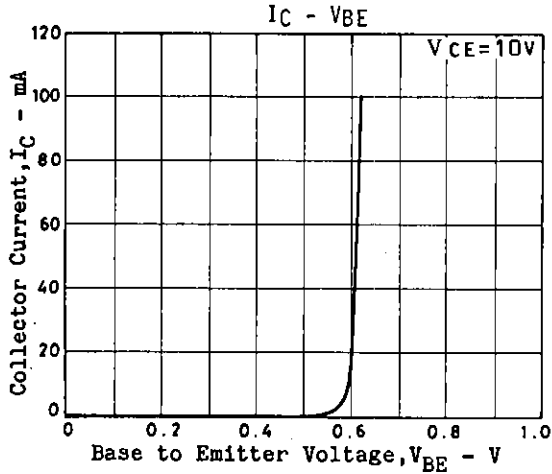
(unit:mm)



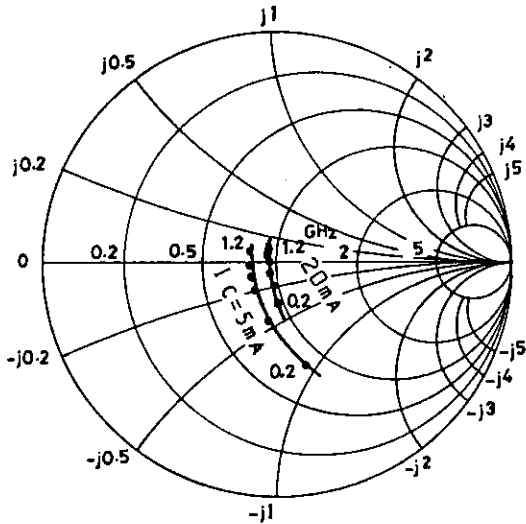
NF Test Circuit

Unit (Resistance : Ω)

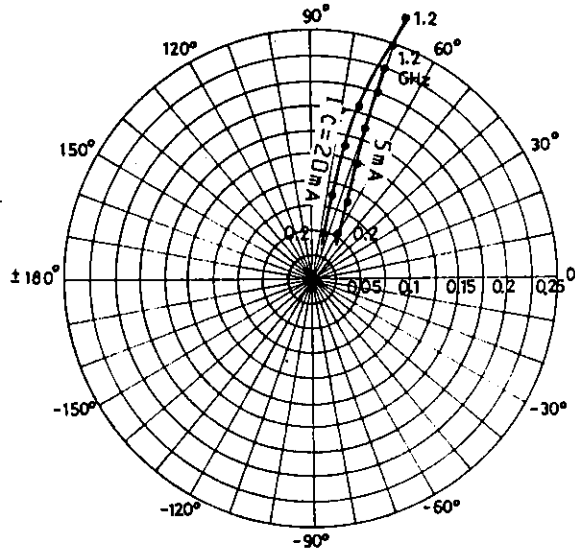
900MHz	
C1	~5 pF
C2	~10 pF
C3	~10 pF
C4	~10 pF
C5	~10 pF
L1	W \div 1.5mm, l \div 25mm strip line
L2	W \div 4mm, l \div 25mm strip line
L3	0.5 ϕ , l \div 40mm
CH	2t+bead core



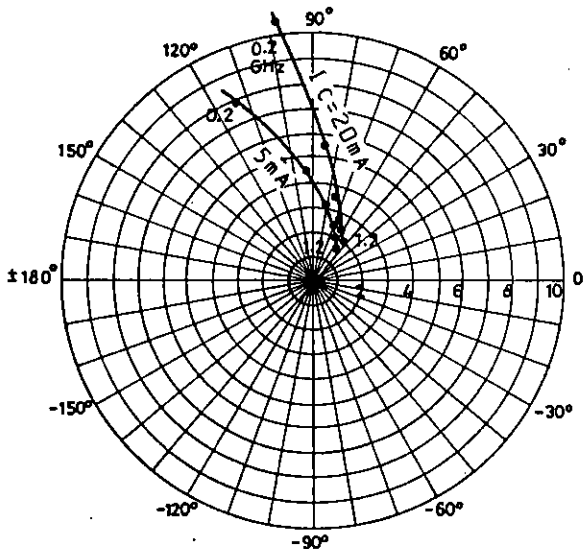
S11e : V_{CE}=10V
f=200MHz step



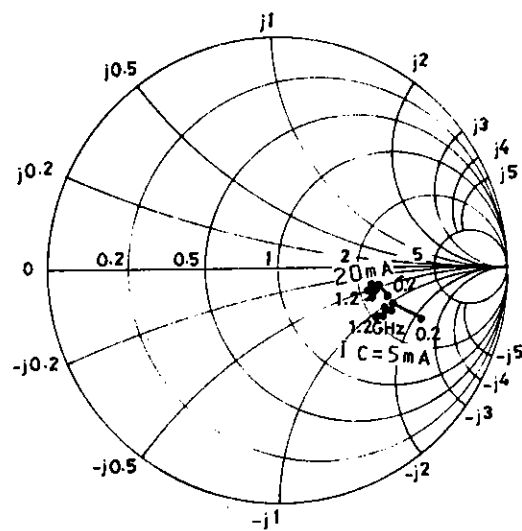
S12e : V_{CE}=10V
f=200MHz step



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



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



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