

SANYO

No.1954C

2SC3779

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: $NF=1.5\text{dB typ}(f=0.9\text{GHz})$.
- High power gain: $MAG=14\text{dB typ}(f=0.9\text{GHz})$.
- High cutoff frequency: $f_T=5\text{GHz typ}$.

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

			unit
Collector to Base Voltage	V_{CB0}	20	V
Collector to Emitter Voltage	V_{CE0}	12	V
Emitter to Base Voltage	V_{EB0}	3	V
Collector Current	I_C	100	mA
Base Current	I_B	40	mA
Collector Dissipation	P_C	600	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

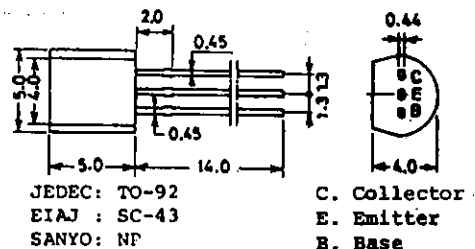
Electrical Characteristics at $T_a=25^\circ\text{C}$

			min	typ	max	unit
Collector Cutoff Current	I_{CB0}	$V_{CB}=12\text{V}, I_E=0$			1.0	μA
Emitter Cutoff Current	I_{EB0}	$V_{EB}=2\text{V}, I_C=0$			10	μA
DC Current Gain	h_{FE}	$V_{CE}=10\text{V}, I_C=20\text{mA}$	40*		200*	
Gain-Bandwidth Product	f_T	$V_{CE}=10\text{V}, I_C=20\text{mA}$		5.0		GHz
Output Capacitance	c_{ob}	$V_{CB}=10\text{V}, f=1\text{MHz}$		1.0		pF
Reverse Transfer Capacitance	c_{re}	$V_{CB}=10\text{V}, f=1\text{MHz}$		0.7		pF
Forward Transfer Gain	$ S_{21e} ^2$	$V_{CE}=10\text{V}, I_C=20\text{mA}, f=0.9\text{GHz}$	8.5	10		dB
Maximum Available Power Gain	MAG	$V_{CE}=10\text{V}, I_C=20\text{mA}, f=0.9\text{GHz}$		14		dB
Noise Figure	NF	$V_{CE}=10\text{V}, I_C=5\text{mA}, f=0.9\text{GHz}$	1.5	3.0		dB

See specified Test Circuit.

*: The 2SC3779 is classified by 20mA h_{FE} as follows:

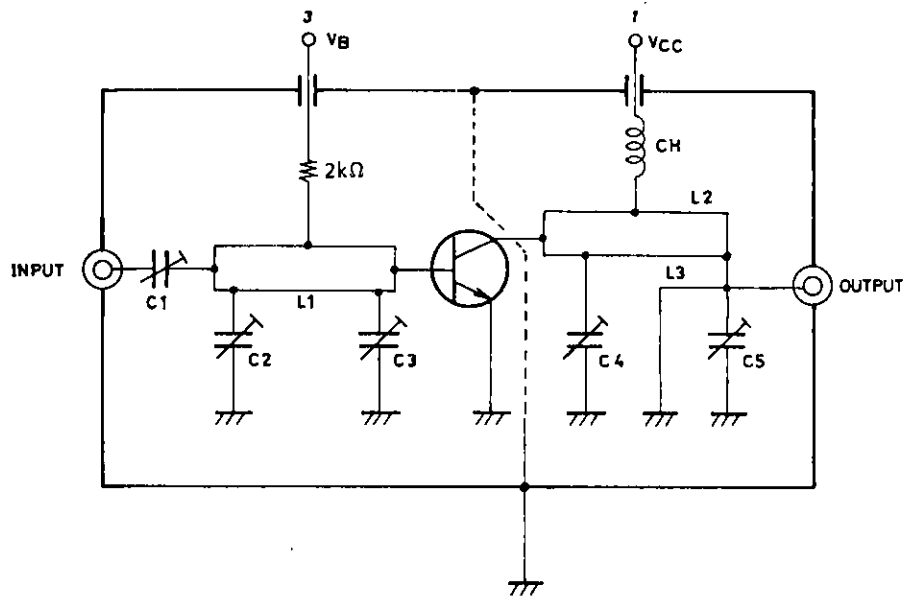
40	C	80	60	D	120	100	E	200
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Package Dimensions 2004A
(unit: mm)

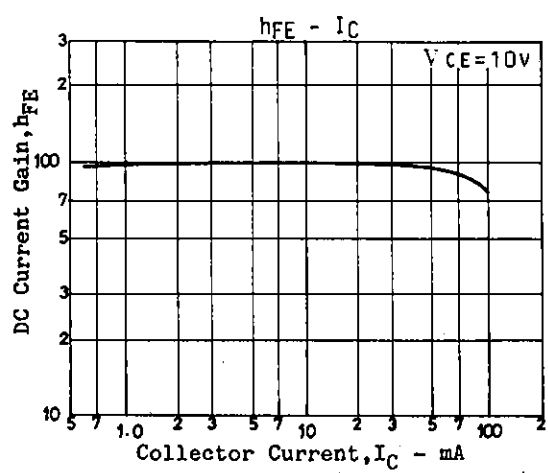
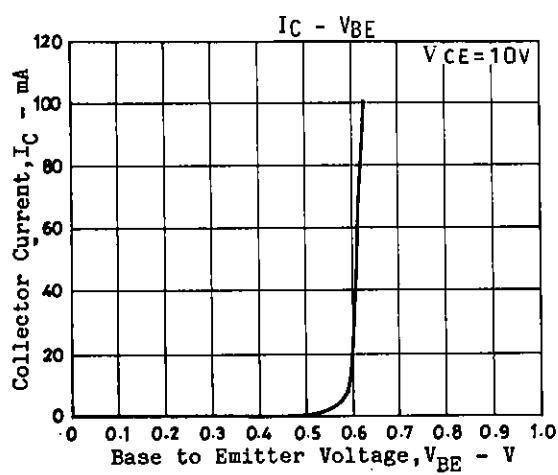
SANYO Electric Co., Ltd. Semiconductor Business Headquarters
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110 JAPAN

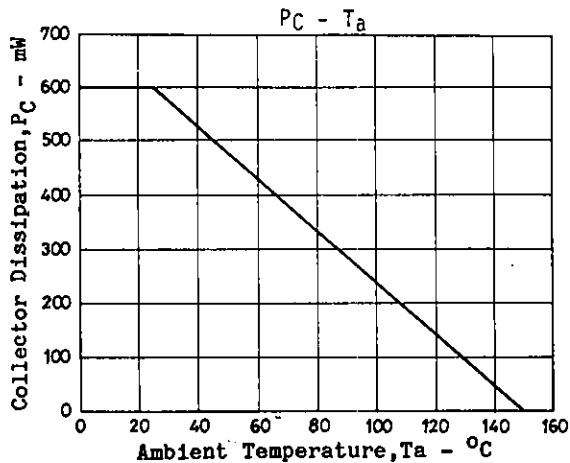
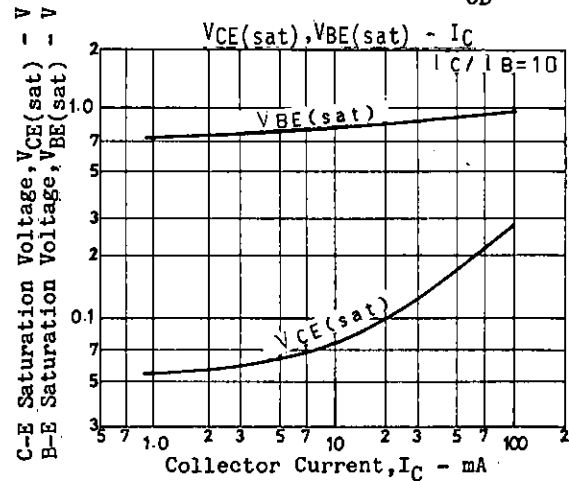
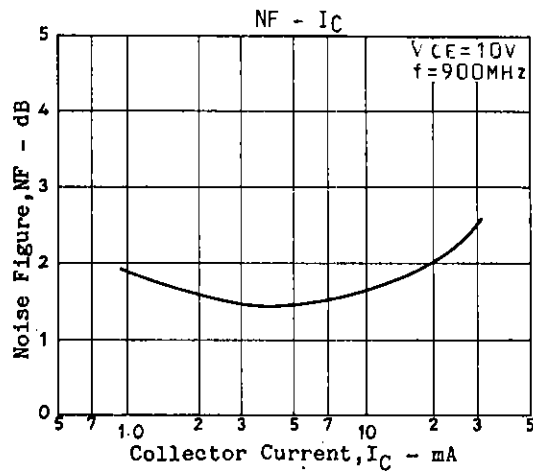
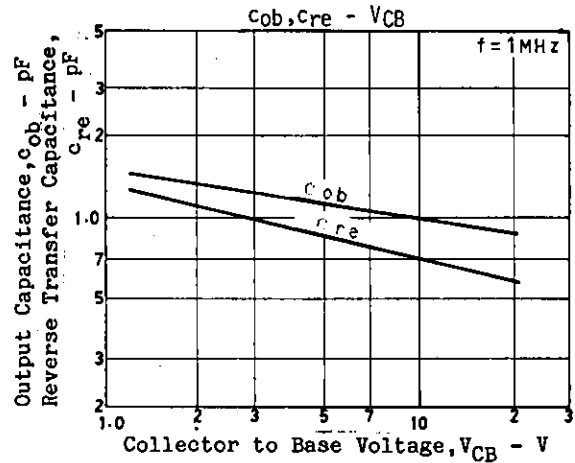
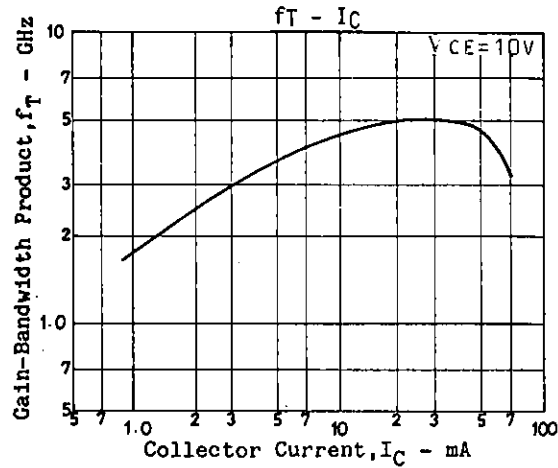
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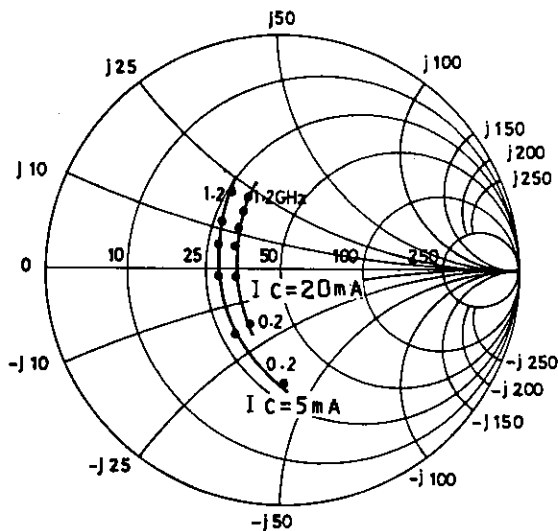
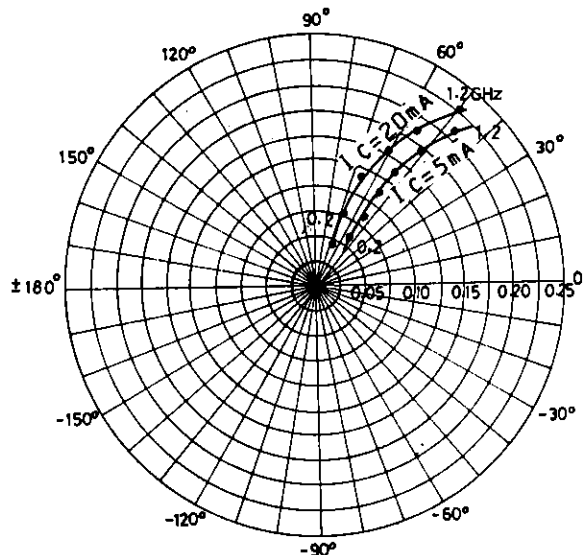
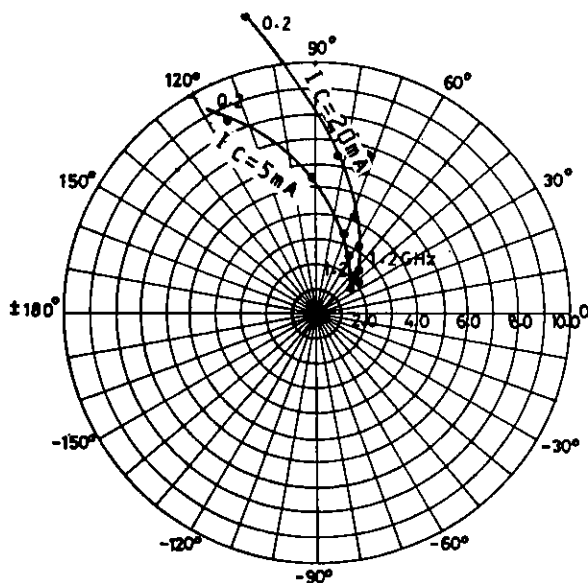
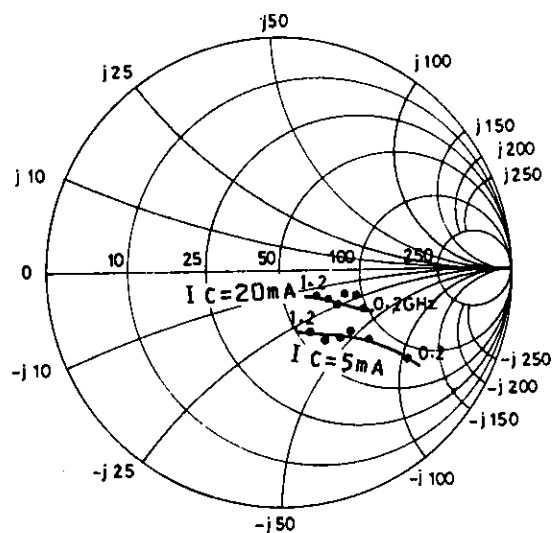
NF Test Circuit



	$f = 90.0 \text{ MHz}$
C1	$\sim 5 \text{ pF}$
C2	$\sim 10 \text{ pF}$
C3	$\sim 10 \text{ pF}$
C4	$\sim 10 \text{ pF}$
C5	$\sim 10 \text{ pF}$
L1	$W = 1.5 \text{ mm}, l = 25 \text{ mm}$
L2	$W = 4.0 \text{ mm}, l = 25 \text{ mm}$
L3	$0.5 \phi, l = 40 \text{ mm}$





S11e: $V_{CE}=10V$ $f=200MHz$ stepS12e: $V_{CE}=10V$ $f=200MHz$ stepS21e: $V_{CE}=10V$ $f=200MHz$ stepS22e: $V_{CE}=10V$ $f=200MHz$ step

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