



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

### Absolute Maximum Ratings at Ta=25°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	°C
Storage Temperature	$T_{stg}$	-55 to +150	°C

### Electrical Characteristics at Ta=25°C

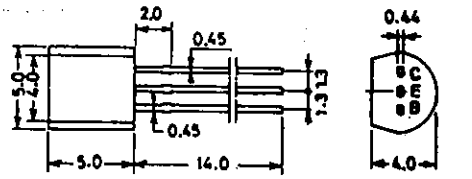
		min	typ	max	unit
Collector Cutoff Current	$I_{CB0}$ $V_{CB}=12\text{V}, I_E=0$			1.0	$\mu\text{A}$
Emitter Cutoff Current	$I_{EB0}$ $V_{EB}=2\text{V}, I_C=0$			10	$\mu\text{A}$
DC Current Gain	$h_{FE}$ $V_{CE}=10\text{V}, I_C=20\text{mA}$	40*		200*	
Gain-Bandwidth Product	$f_T$ $V_{CE}=10\text{V}, I_C=20\text{mA}$		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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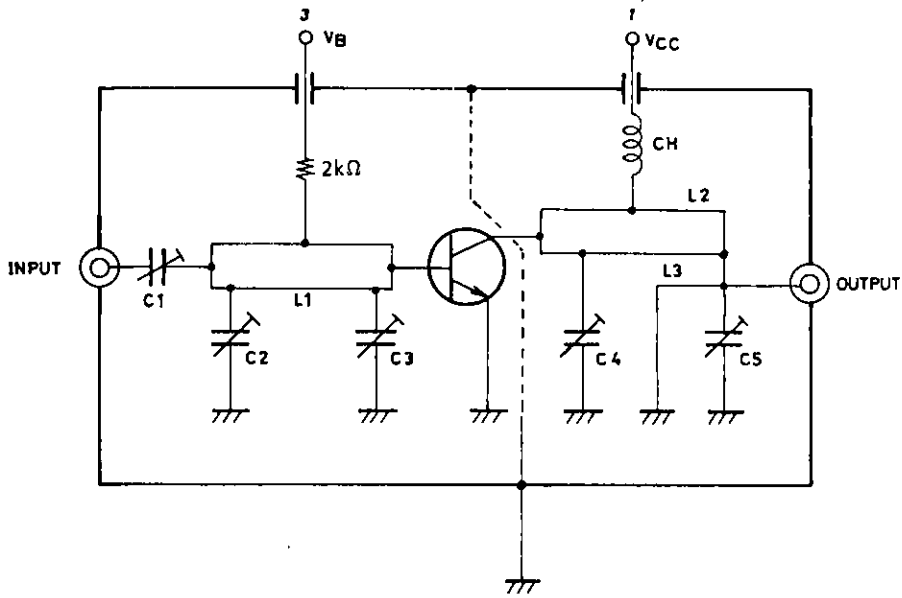
### Package Dimensions 2004A (unit: mm)



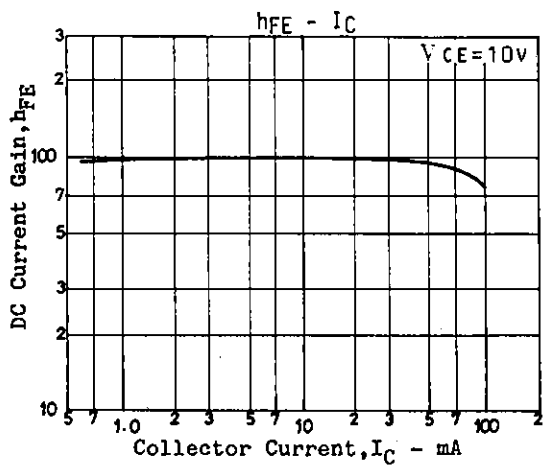
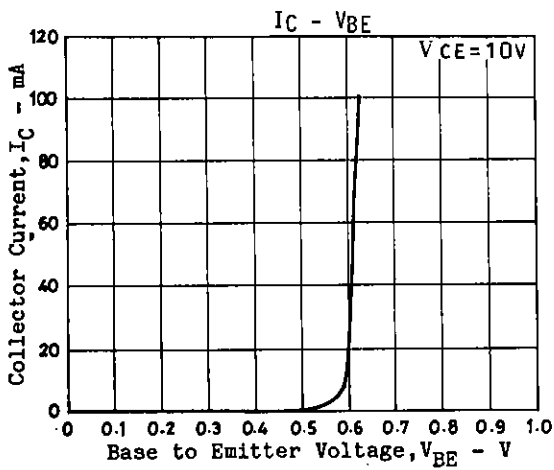
JEDEC: TO-92  
 EIAJ: SC-43  
 SANYO: NP

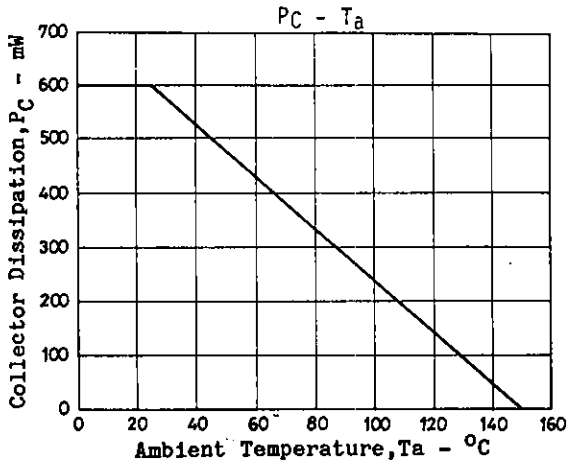
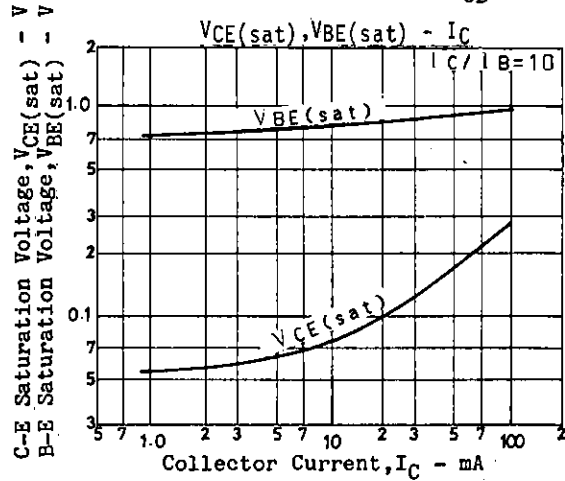
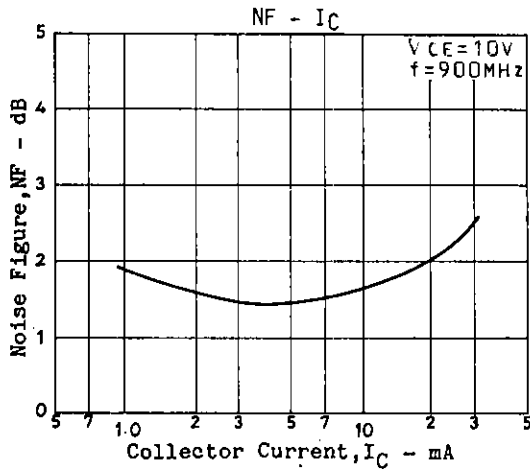
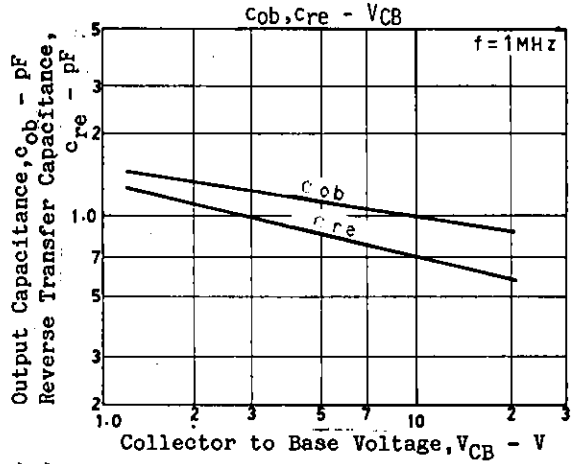
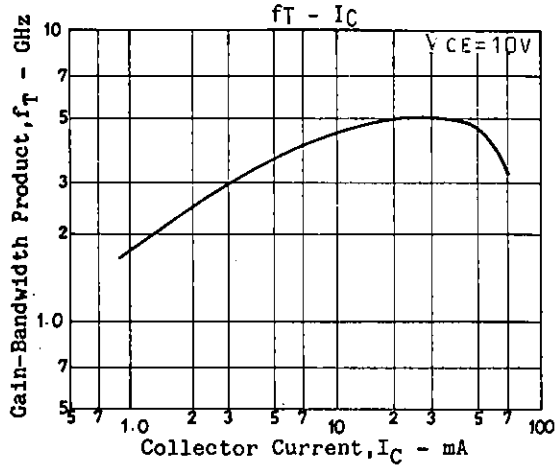
C. Collector  
 E. Emitter  
 B. Base

NF Test Circuit

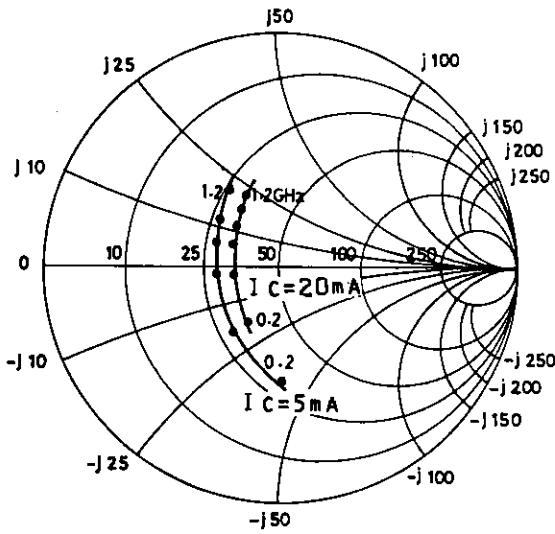


f = 900 MHz	
C1	~5 pF
C2	~10 pF
C3	~10 pF
C4	~10 pF
C5	~10 pF
L1	W = 1.5 mm, l = 2.5 mm
L2	W = 4.0 mm, l = 2.5 mm
L3	0.5 φ, l = 4.0 mm

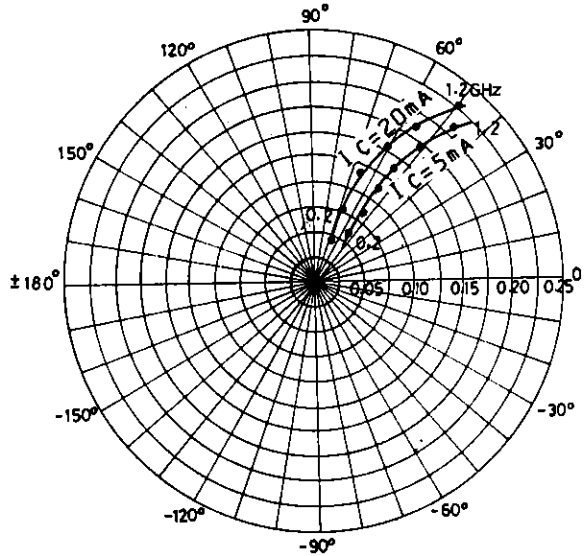




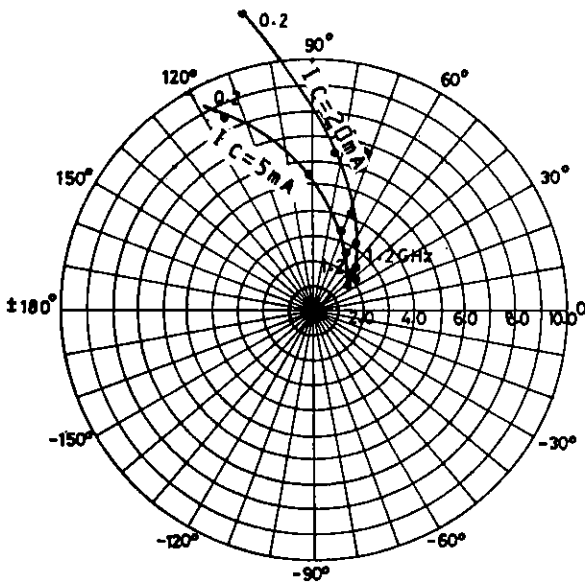
S11e :  $V_{CE}=10V$   
 $f=200MHz$  step



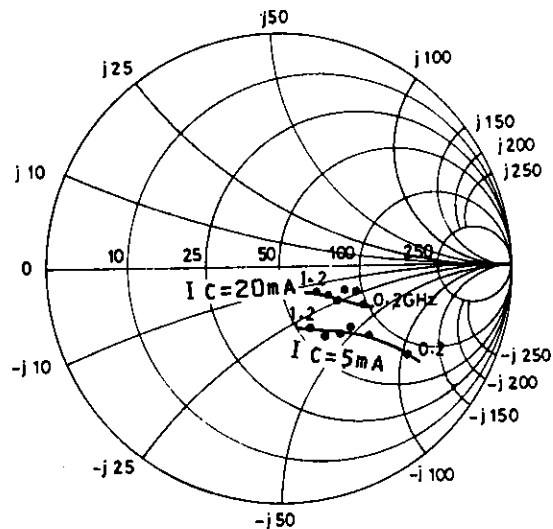
S12e :  $V_{CE}=10V$   
 $f=200MHz$  step



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



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



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