

<b>SANYO</b>	No.2757	<b>2SC4404</b>
		NPN Epitaxial Planar Silicon Transistor

**UHF Local Oscillator,  
Wide-Band Amplifier Applications**

**Applications**

- UHF OSC, wide-band amplifiers

**Features**

- High cutoff frequency :  $f_T = 5.0\text{GHz typ}$
- High power gain :  $\text{MAG} = 14\text{dB typ}$  ( $f = 0.9\text{GHz}$ )
- Small noise figure :  $\text{NF} = 2.2\text{dB typ}$  ( $f = 0.9\text{GHz}$ )
- Very small-sized package permitting 2SC4404-applied sets to be made smaller and slimmer

**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	$I_C$	70	mA
Collector Dissipation	$P_C$	150	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	$\mu\text{A}$
Emitter Cutoff Current	$I_{EB0}$	$V_{EB} = 2\text{V}, I_C = 0$			10	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE} = 10\text{V}, I_C = 20\text{mA}$	$\approx 40$		$\approx 200$	
Gain-Bandwidth Product	$f_T$	$V_{CE} = 10\text{V}, I_C = 20\text{mA}$		5.0		GHz
Output Capacitance	$c_{ob}$	$V_{CB} = 10\text{V}, f = 1\text{MHz}$		0.75	1.1	pF
Reverse Transfer Capacitance	$c_{re}$	$V_{CB} = 10\text{V}, f = 1\text{MHz}$		0.5		pF
Forward Transfer Gain	$ S_{21e} ^2$	$V_{CE} = 10\text{V}, I_C = 20\text{mA}, f = 0.9\text{GHz}$		14		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	$V_{CE} = 10\text{V}, I_C = 5\text{mA}, f = 0.9\text{GHz}$		2.2		dB

See specified Test Circuit.

※ The 2SC4404 is classified by 20mA  $h_{FE}$  as follows:

40	2	80	60	3	120	100	4	200
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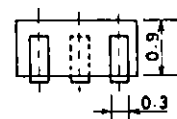
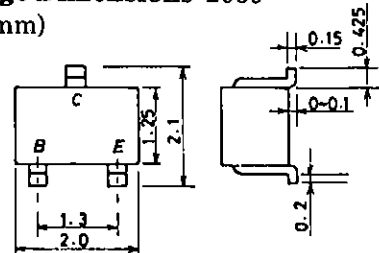
(Note) Marking: NY

$h_{FE}$  rank: 2,3,4

● For CP package version, use the 2SC3774.

**Package Dimensions 2059**

(unit: mm)



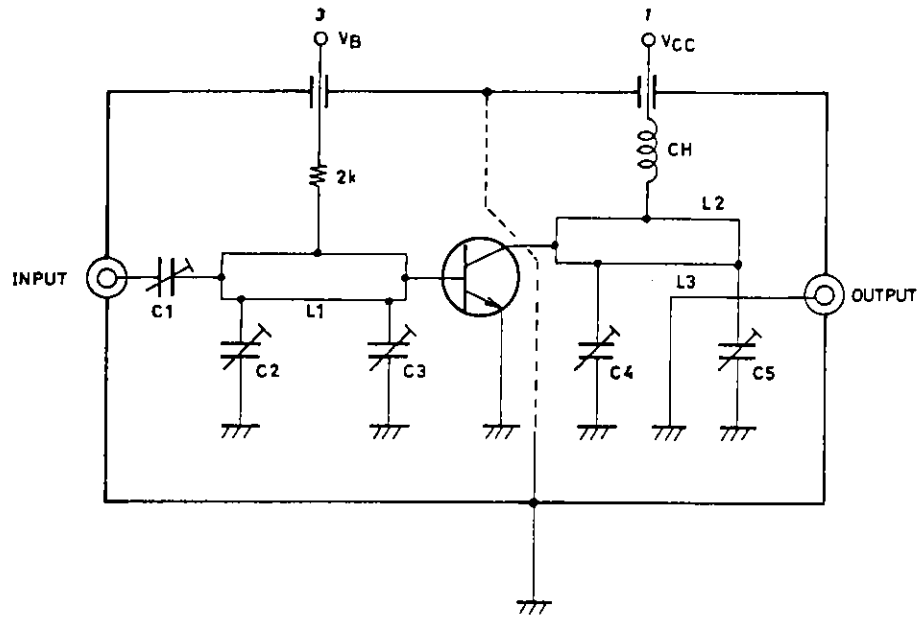
SANYO: MCP

B: Base

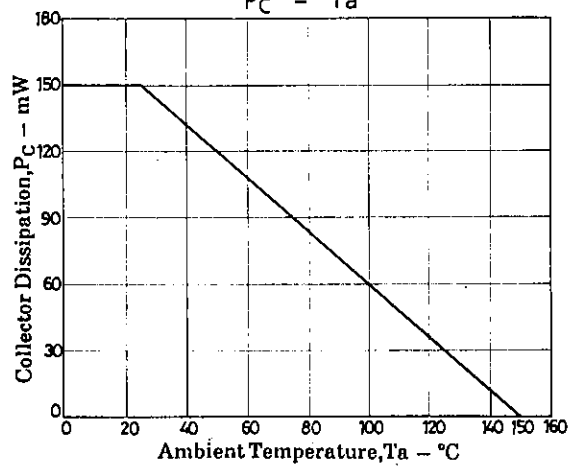
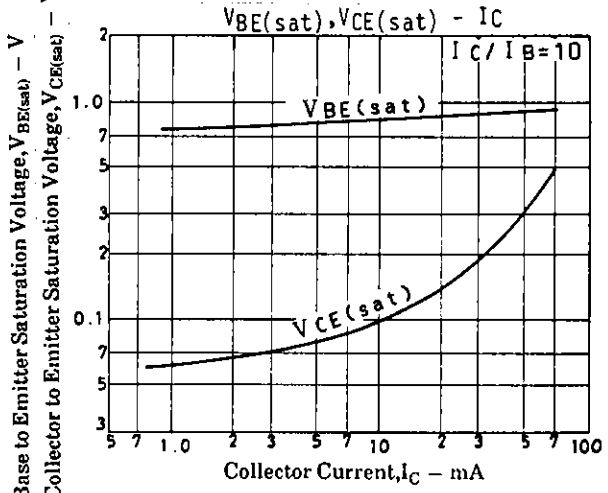
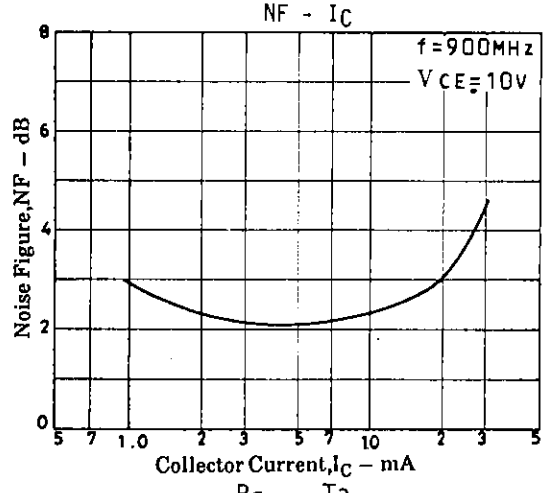
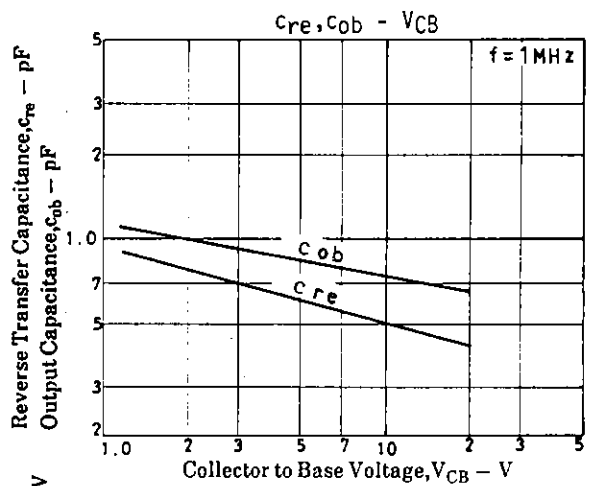
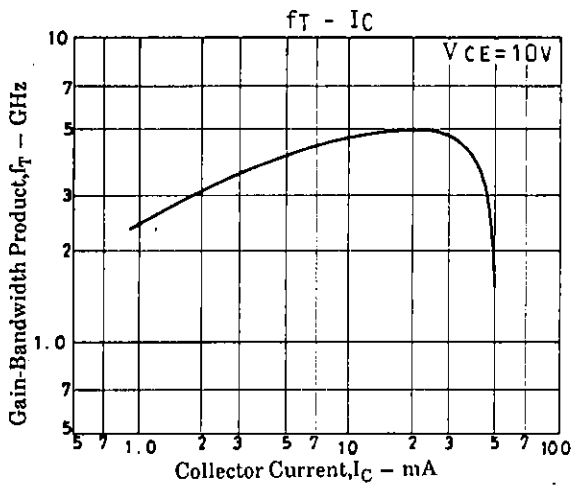
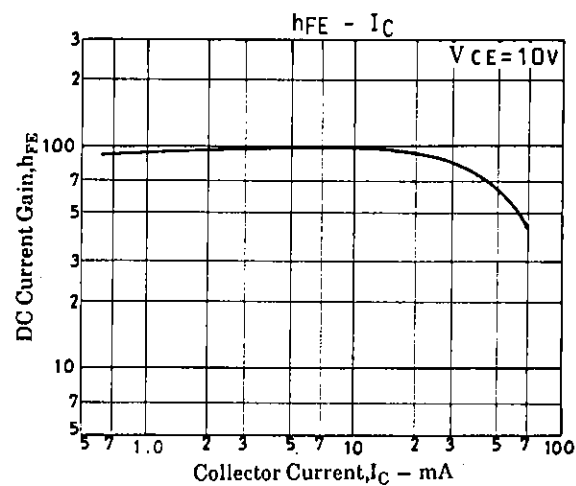
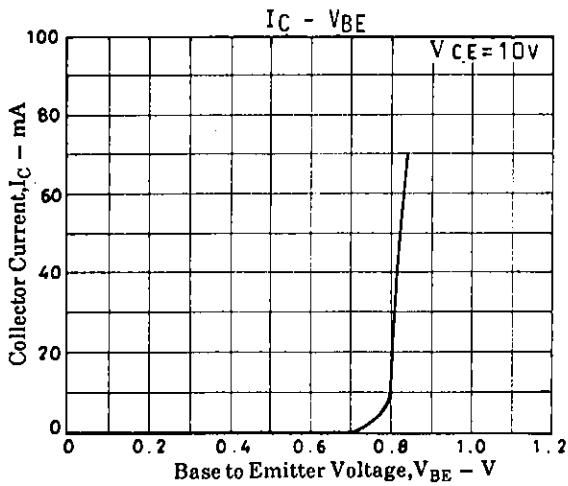
C: Collector

E: Emitter

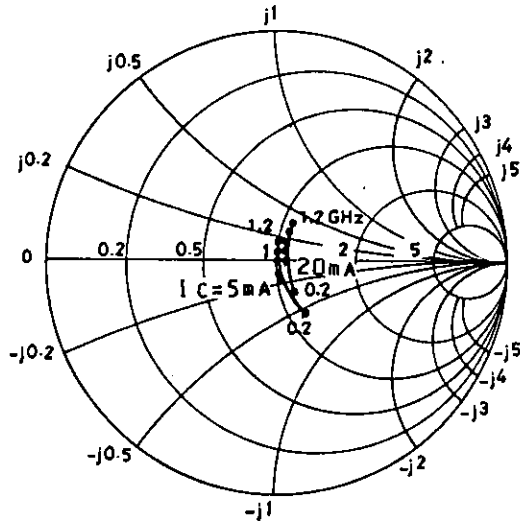
## NF Test Circuit

Unit (Resistance :  $\Omega$ )

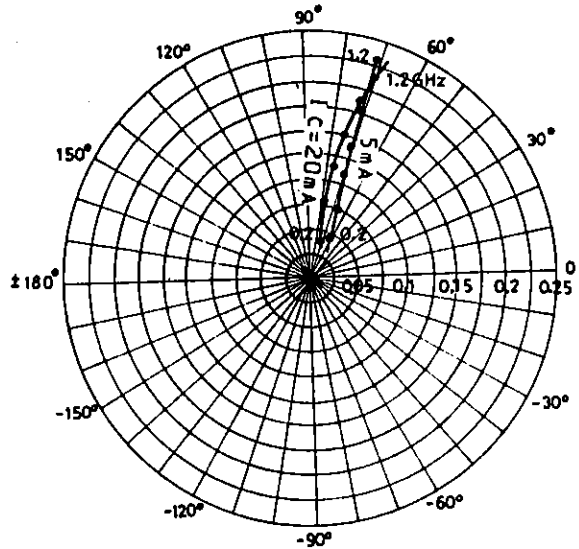
900MHz	
C 1	~5 pF
C 2	~10 pF
C 3	~10 pF
C 4	~10 pF
C 5	~10 pF
L 1	W $\doteq$ 1.5mm, l $\doteq$ 25mm strip line
L 2	W $\doteq$ 4mm, l $\doteq$ 25mm strip line
L 3	0.5 $\phi$ , l $\doteq$ 40mm
CH	2t + bead core



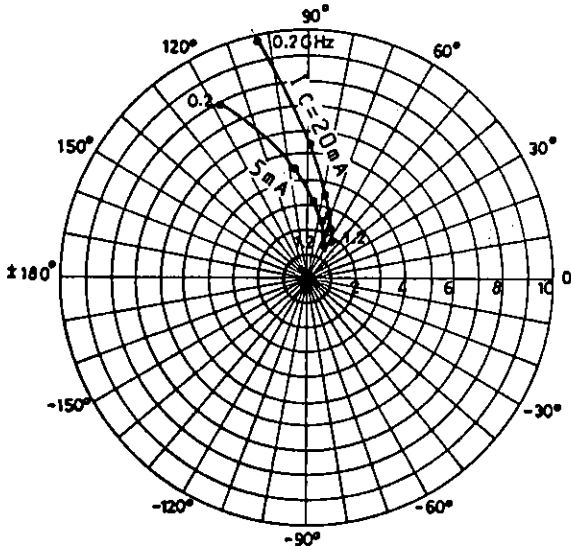
S11e : VCE=10V  
f=200MHz step



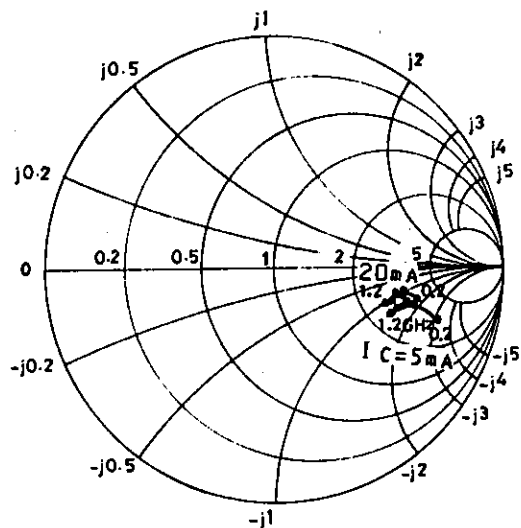
S12e : VCE=10V  
f=200MHz step



S21e : VCE=10V  
f=200MHz step



S22e : VCE=10V  
f=200MHz step



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