Ordering number: EN 2754

SANYO | No.2754

2SC4401

NPN Epitaxial Planar Silicon Transistor

VHF/UHF Mixer, Local Oscillator, Low-Voltage Amp Applications

Applications

- VHF/UHF MIX/OSC, low-voltage high-frequency amplifiers

Features

- Low-voltage operation : f_T = 3.0GHz typ (V_{CE} = 3V)
  : MAG = 11dB typ (V_{CE} = 3V, I_C = 3mA)
  : NF = 3.0dB typ (V_{CE} = 3V, I_C = 3mA)
- Very small-sized package permitting 2SC4401-applied sets to be made smaller and slimmer

Absolute Maximum Ratings at Ta = 25°C

			unit
Collector to Base Voltage	V_{CBO}	25	V
Collector to Emitter Voltage	V_{CEO}	15	V
Emitter to Base Voltage	V_{EBO}	3	V
Collector Current	I_C	30	mA
Collector Dissipation	P_C	150	mW
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	−55 to +150	°C

Electrical Characteristics at Ta = 25°C

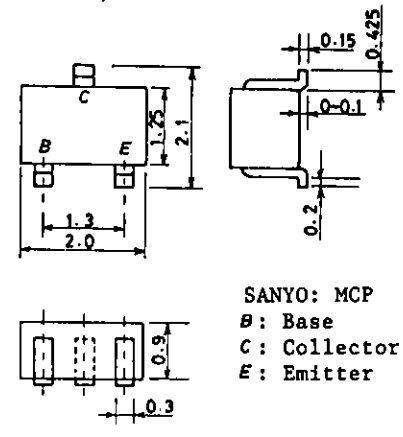
			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	V_{CB} = 15V, I_E = 0			1.0	μA
Emitter Cutoff Current	I_{EBO}	V_{EB} = 2V, I_C = 0			1.0	μA
DC Current Gain	h_{FE}	V_{CE} = 3V, I_C = 3mA	※40		※200	
Gain-Bandwidth Product	f_T	V_{CE} = 3V, I_C = 3mA		3.0		GHz
Output Capacitance	c_{ob}	V_{CB} = 3V, f = 1MHz		0.7	1.3	pF
Reverse Transfer Capacitance	c_{re}	V_{CB} = 3V, f = 1MHz		0.65		pF
Forward Transfer Gain	$\|S21e\|^2$	V_{CE} = 3V, I_C = 3mA, f = 0.9GHz		7		dB
Maximum Available Power Gain	MAG	V_{CE} = 3V, I_C = 3mA, f = 0.9GHz		11		dB
Noise Figure	NF	V_{CE} = 3V, I_C = 3mA, f = 0.9GHz See specified Test Circuit.		3.0	5.0	dB

※ The 2SC4401 is classified by 3mA h_{FE} as follows:

40 2 80	60 3 120	100 4 200

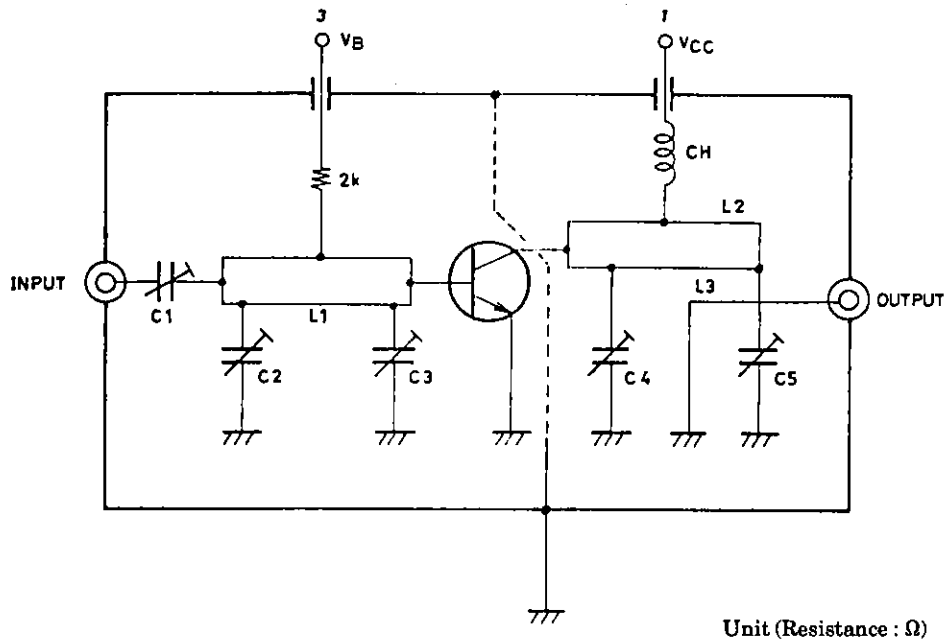
(Note) Marking : OT
h_{FE} rank : 2,3,4
●For CP package version, use the 2SC4364.

Package Dimensions 2059
(unit : mm)



SANYO: MCP
B : Base
C : Collector
E : Emitter

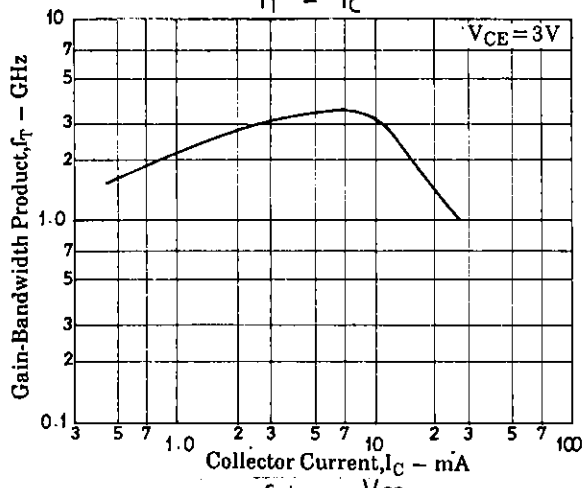
NF Test Circuit



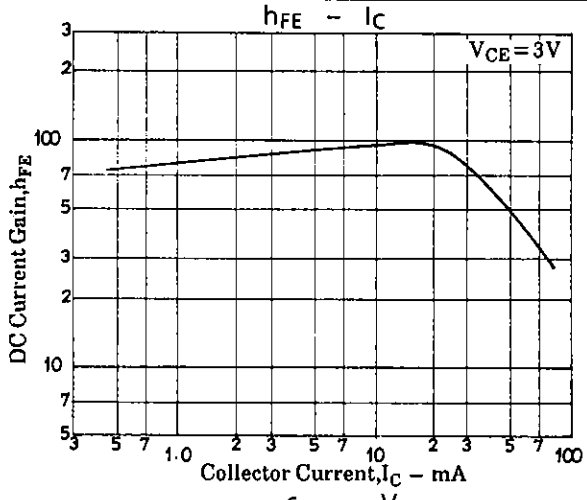
Unit (Resistance : Ω)

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

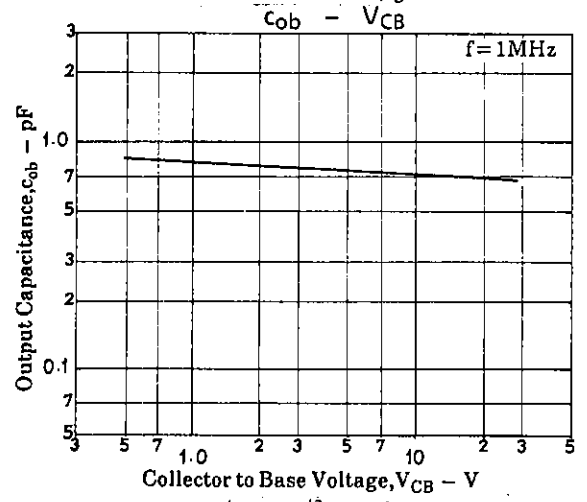
f_T – I_C



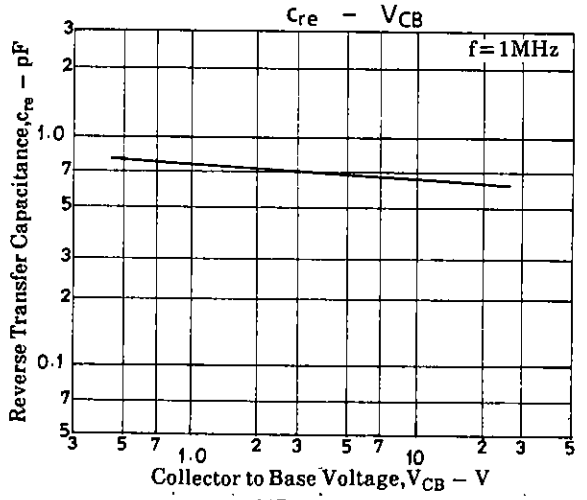
h_{FE} – I_C



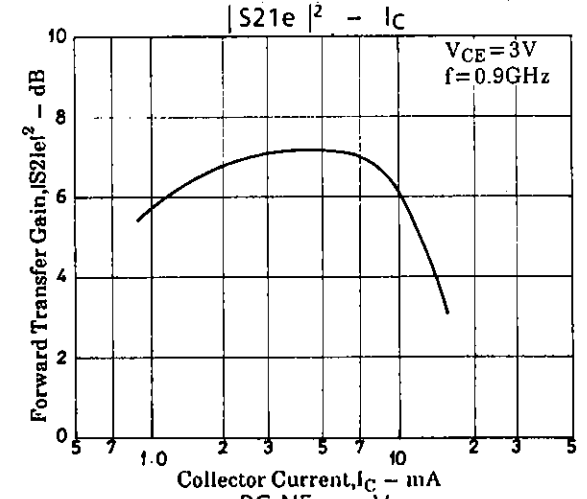
C_{ob} – V_{CB}



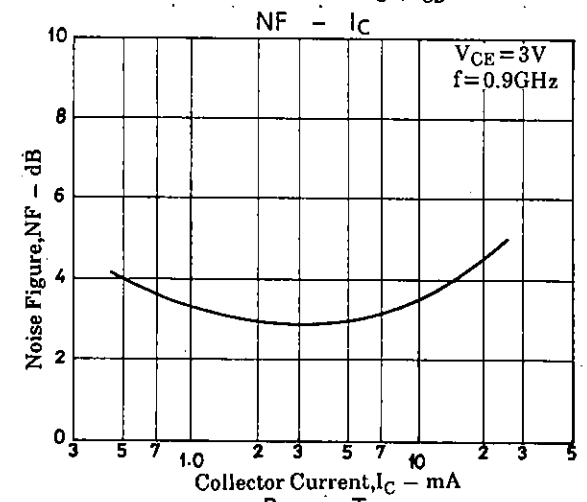
C_{re} – V_{CB}



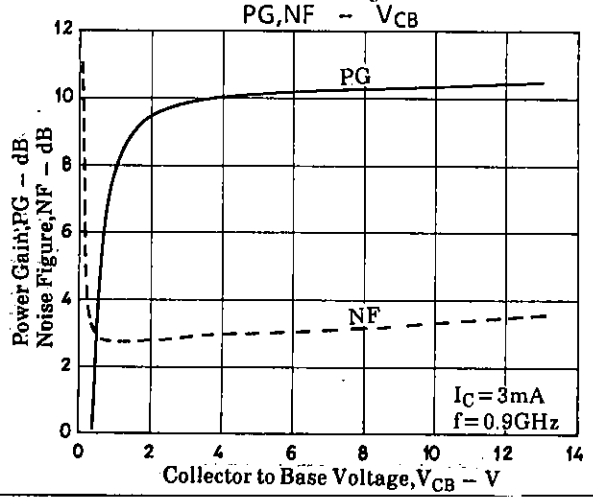
$|S21e|^2$ – I_C



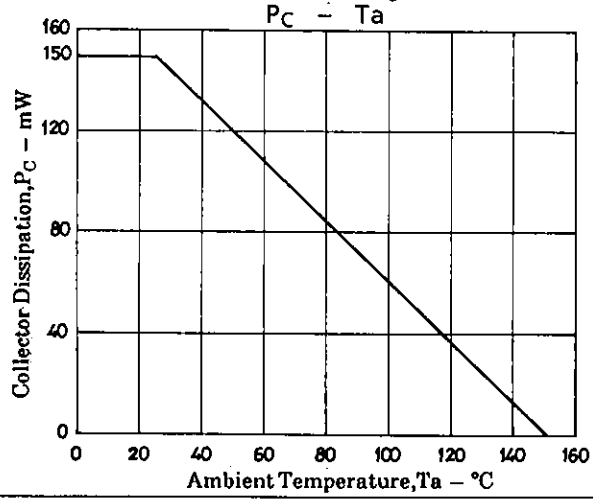
NF – I_C



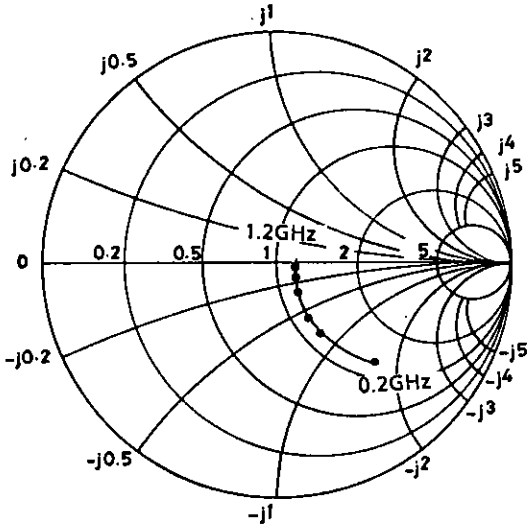
PG,NF – V_{CB}



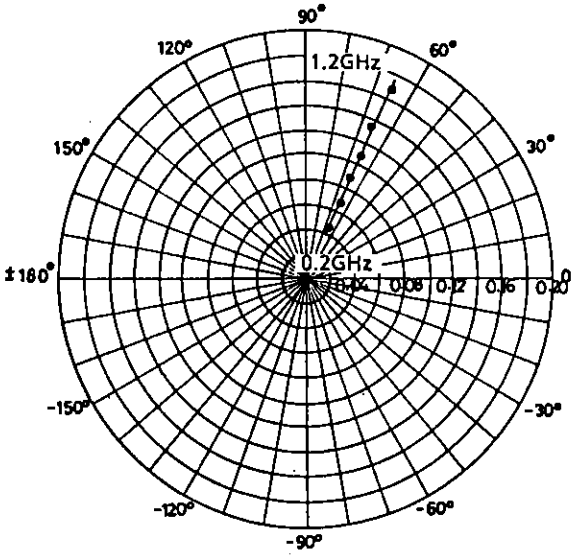
P_C – Ta



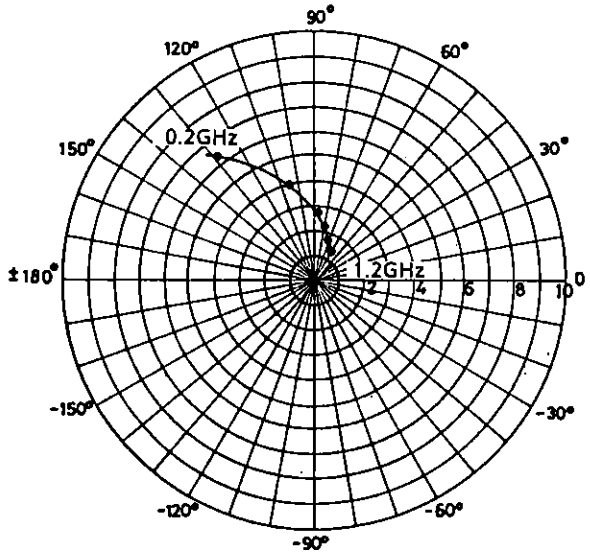
S11e: V_{CE} = 3V
I_C = 3mA
f = 0.2GHz step



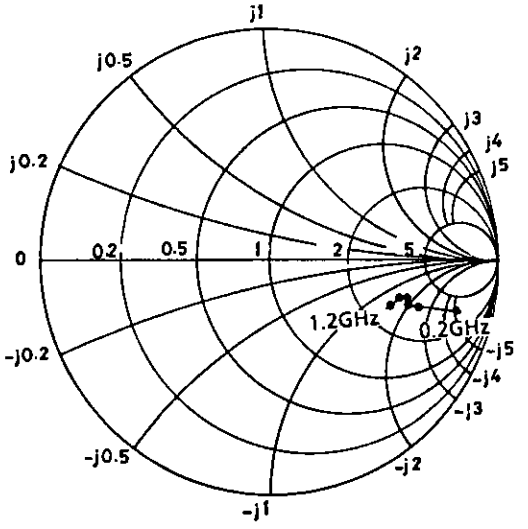
S12e: V_{CE} = 3V
I_C = 3mA
f = 0.2GHz step



S21e: V_{CE} = 3V
I_C = 3mA
f = 0.2GHz step



S22e: V_{CE} = 3V
I_C = 3mA
f = 0.2GHz step



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