Ordering number: EN 2758

SANYO

No.2758

2SC4405

NPN Epitaxial Planar Silicon Transistor

UHF, Low-Noise, Wide-Band Amplifier Applications

Applications

- UHF, low-noise amplifiers, wide-band amplifiers

Features

- High cutoff frequency : f_T = 5.0GHz typ
- High power gain : MAG = 14dB typ (f = 0.9GHz)
- Small noise figure : NF = 1.5dB typ (f = 0.9GHz)
- Very small-sized package permitting 2SC4405-applied sets to be made smaller and slimmer

Absolute Maximum Ratings at Ta = 25°C

			unit
Collector to Base Voltage	V_{CBO}	20	V
Collector to Emitter Voltage	V_{CEO}	12	V
Emitter to Base Voltage	V_{EBO}	3	V
Collector Current	I_C	100	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

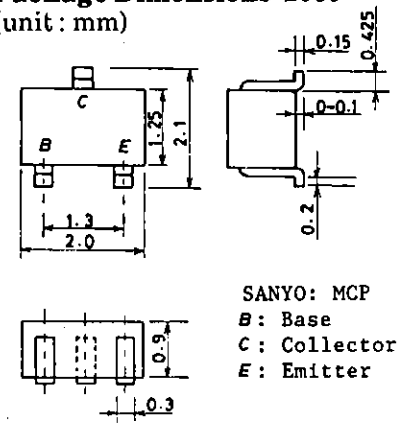
			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	V_{CB} = 12V, I_E = 0			1.0	μA
Emitter Cutoff Current	I_{EBO}	V_{EB} = 2V, I_C = 0			10	μA
DC Current Gain	h_{FE}	V_{CE} = 10V, I_C = 20mA	※40		※200	
Gain-Bandwidth Product	f_T	V_{CE} = 10V, I_C = 20mA		5.0		GHz
Output Capacitance	c_{ob}	V_{CB} = 10V, f = 1MHz		0.9	1.5	pF
Reverse Transfer Capacitance	c_{re}	V_{CB} = 10V, f = 1MHz		0.6		pF
Forward Transfer Gain	$\|S21e\|^2$	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 See specified Test Circuit.		1.5		dB

※ The 2SC4405 is classified by 20mA h_{FE} as follows:

40 2 80	60 3 120	100 4 200

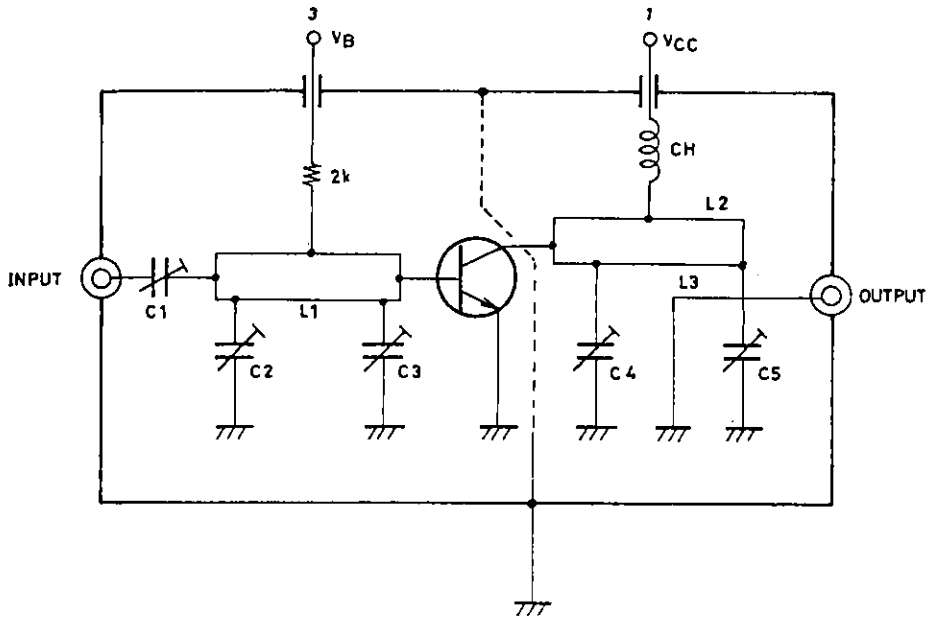
(Note) Marking : OY
h_{FE} rank : 2,3,4
●For CP package version, use the 2SC3775.

Package Dimensions 2059
(unit : mm)



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

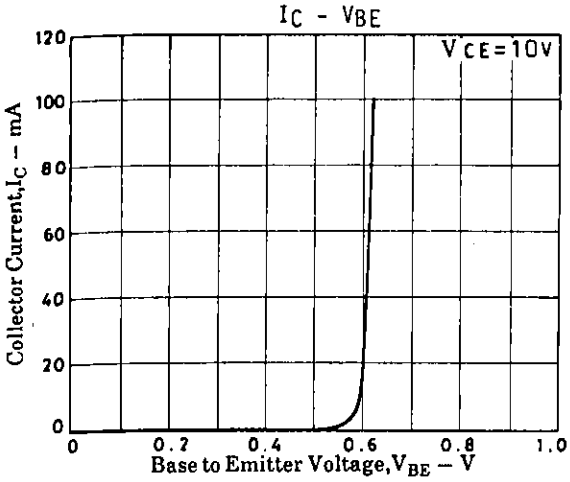
NF Test Circuit



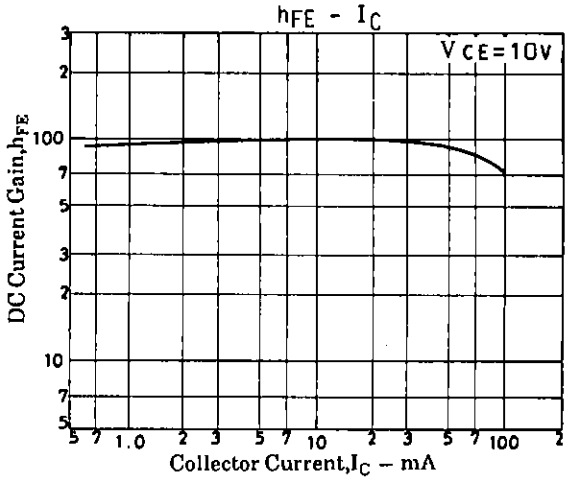
Unit (Resistance : Ω)

	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

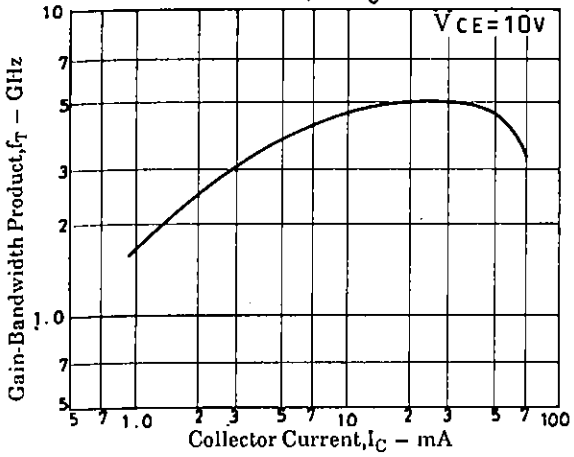
I_C - V_{BE}



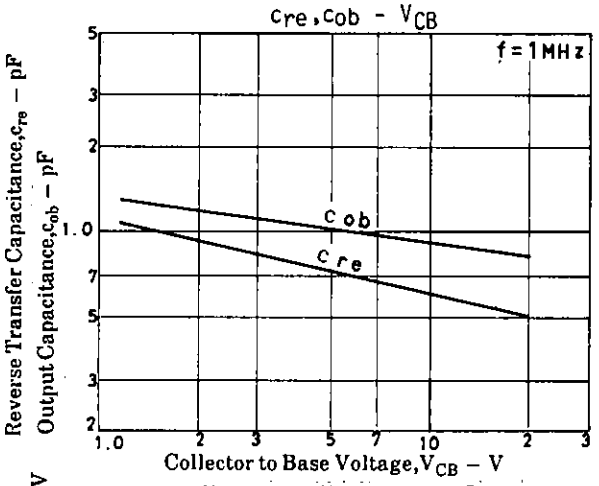
h_{FE} - I_C



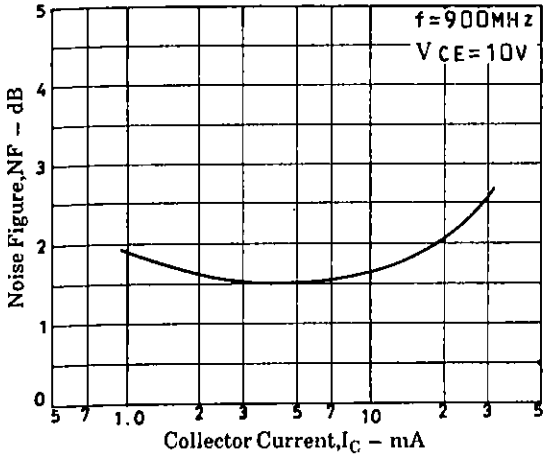
f_T - I_C



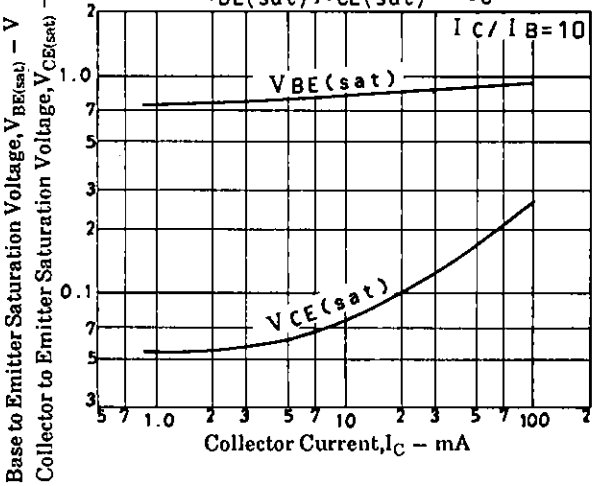
Cre, Cob - V_{CB}



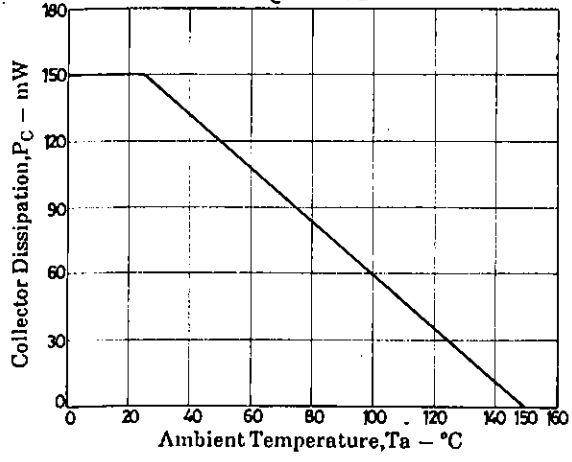
NF - I_C



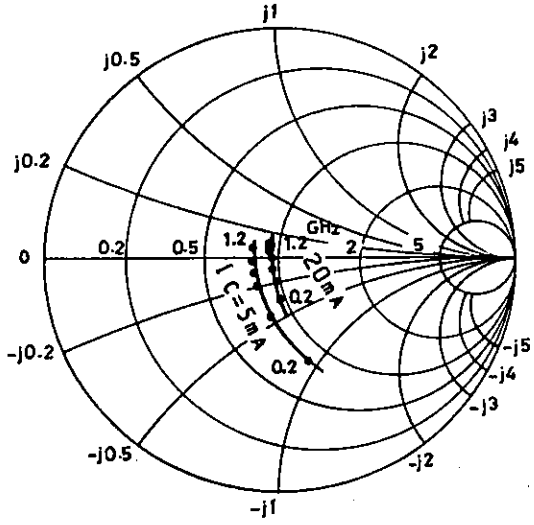
$V_{BE(sat)}$, $V_{CE(sat)}$ - I_C



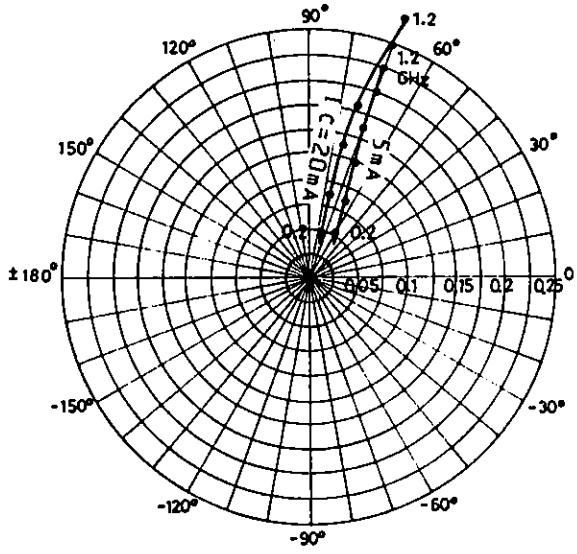
P_C - Ta



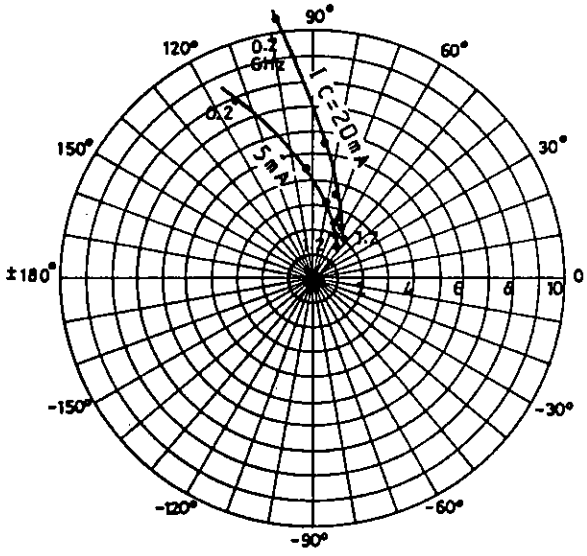
S11e : VCE=10V
f=200MHz step



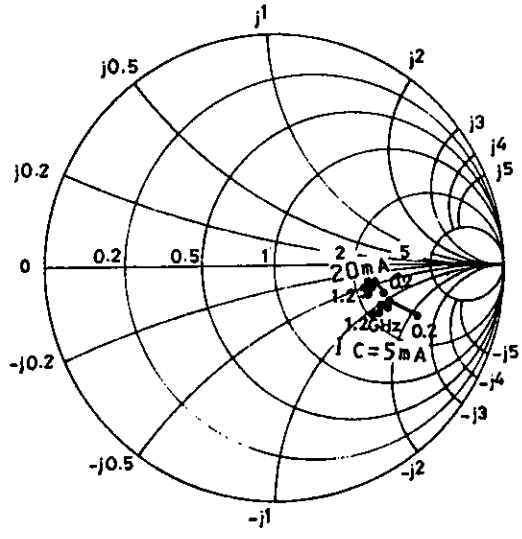
S12e : VCE=10V
f=200MHz step



S21e : VCE=10V
f=200MHz step



S22e : VCE=10V
f=200MHz step



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