Ordering number: EN 1954C

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=1.5dB typ(f=0.9GHz).
. High power gain: MAG=14dB typ(f=0.9GHz).
. High cutoff frequency: f_T=5GHz typ.

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
Base Current	I_B	40	mA
Collector Dissipation	P_C	600	mW
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55 to +150	°C

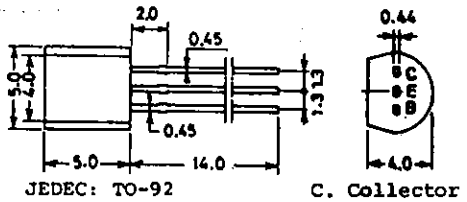
Electrical Characteristics at Ta=25°C

			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		1.0		pF
Reverse Transfer Capacitance	c_{re}	V_{CB}=10V, f=1MHz		0.7		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	3.0	dB

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

40 C 80	60 D 120	100 E 200

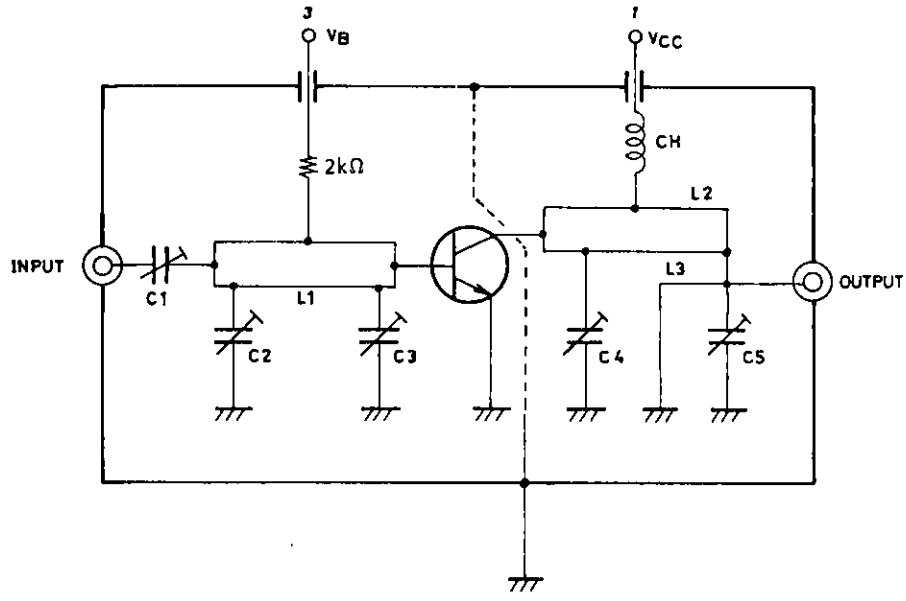
Package Dimensions 2004A
(unit: mm)



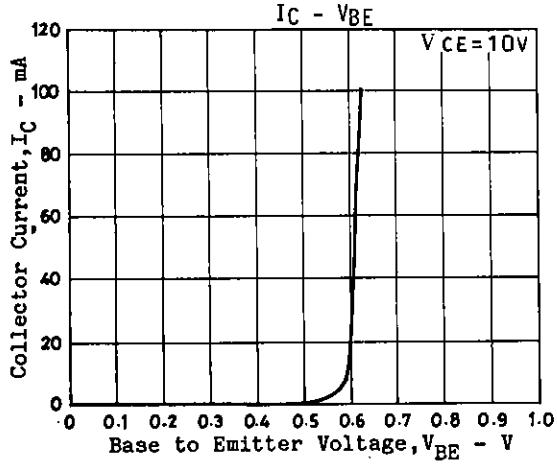
JEDEC: TO-92
EIAJ : SC-43
SANYO: NP

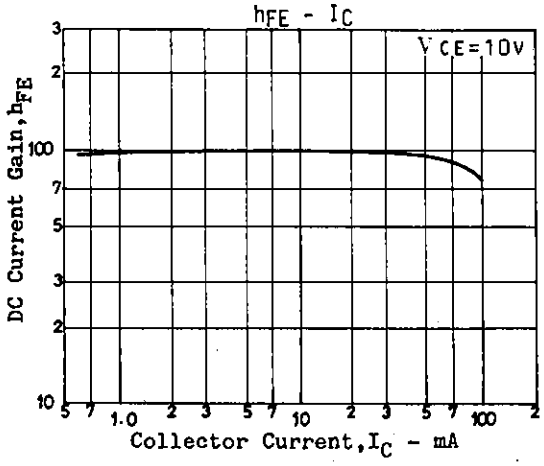
C. Collector
E. Emitter
B. Base

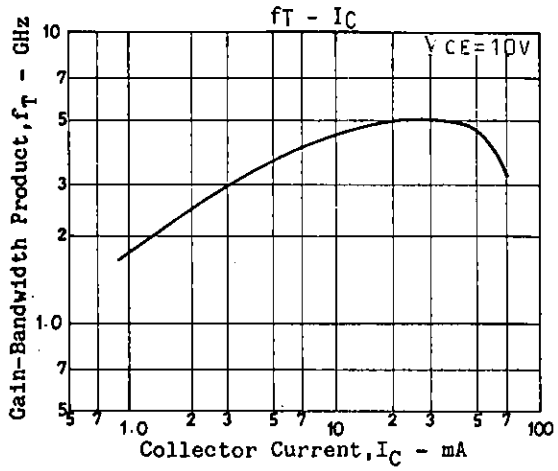
NF Test Circuit

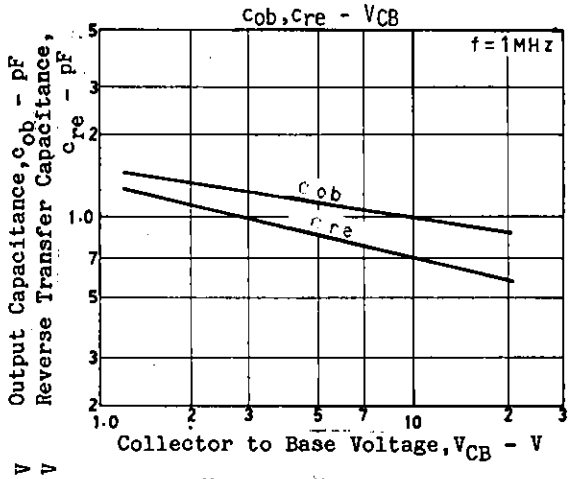


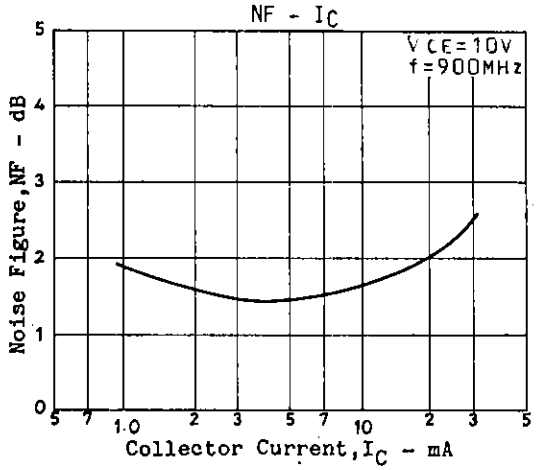
	f=900MHz
C1	~5pF
C2	~10pF
C3	~10pF
C4	~10pF
C5	~10pF
L1	W=1.5mm, l=25mm
L2	W=4.0mm, l=25mm
L3	0.5φ, l=40mm

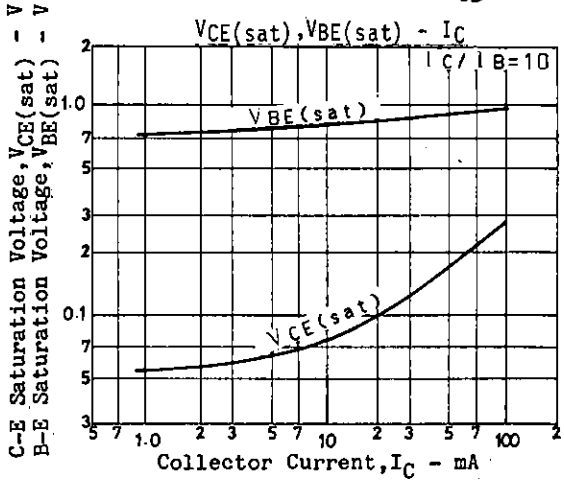


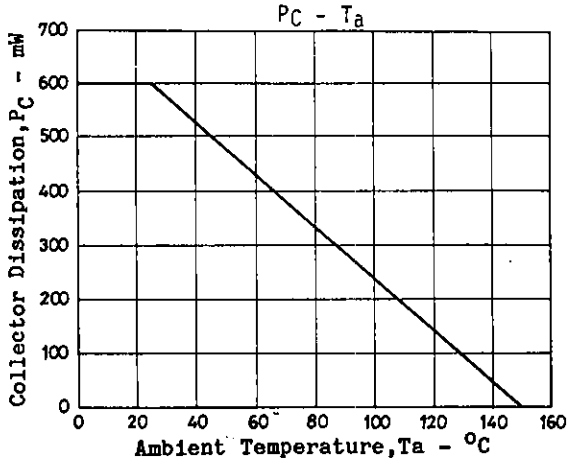



fT - IC
VCE=10V
Gain-Bandwidth Product, fT - GHz
Collector Current, IC - mA

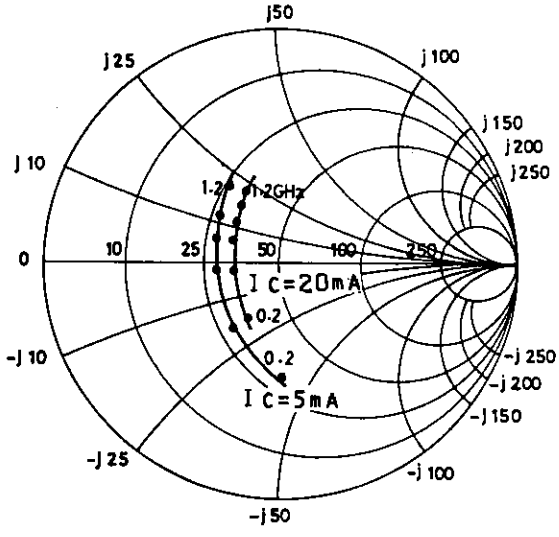

Cob, Cre - VCB
f=1MHz
Output Capacitance, Cob - pF
Reverse Transfer Capacitance, Cre - pF
Cob
Cre
Collector to Base Voltage, VCB - V


NF - IC
VCE=10V
f=900MHz
Noise Figure, NF - dB
Collector Current, IC - mA

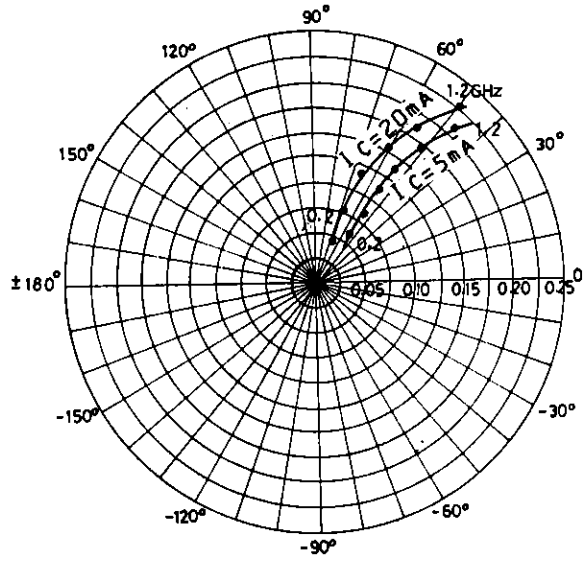

VCE(sat), VBE(sat) - IC
IC/IB=10
C-E Saturation Voltage, VCE(sat) - V
B-E Saturation Voltage, VBE(sat) - V
VBE(sat)
VCE(sat)
Collector Current, IC - mA


PC - Ta
Collector Dissipation, PC - mW
Ambient Temperature, Ta - °C

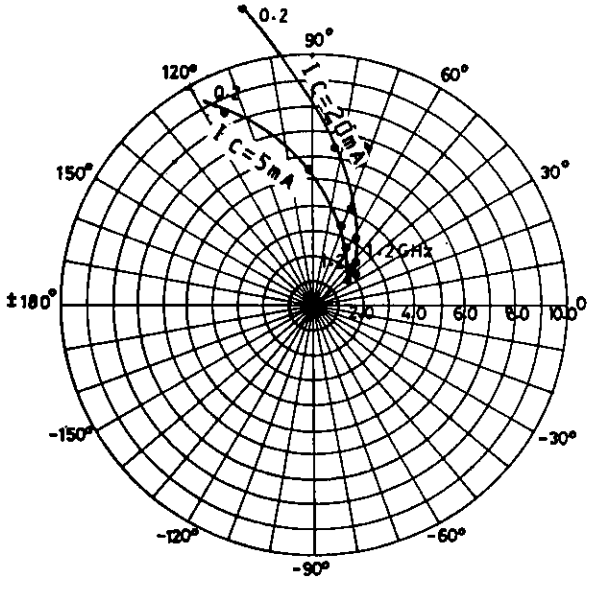
S11e : VCE=10V
f=200MHz step



S12e : VCE=10V
f=200MHz step



S21e : VCE=10V
f=200MHz step



S22e : VCE=10V
f=200MHz step