Ordering number:EN866C

NPN Epitaxial Planar Silicon Transistor

2SC3000

HF Amplifier Applications

Features

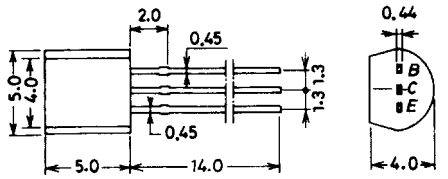
· FBET series.
· High f_T and small C_{re}.

Package Dimensions

unit:mm

2003A

[2SC3000]



JEDEC : TO-92
EIAJ : SC-43

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

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		30	V
Collector-to-Emitter Voltage	V_{CEO}		20	V
Emitter-to-Base Voltage	V_{EBO}		5	V
Collector Current	I_C		30	mA
Collector Dissipation	P_C		250	mW
Junction Temperature	Tj		125	˚C
Storage Temperature	Tstg		–55 to +125	˚C

Electrical Characteristics at Ta = 25˚C

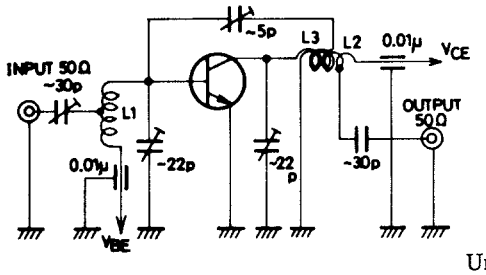
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=10V, I_E=0			0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=4V, I_C=0			0.1	μA
DC Current Gain	h_{FE}	V_{CE}=6V, I_C=1mA	60*		320*	
Gain-Bandwidth Product	f_T	V_{CE}=6V, I_C=1mA	200	320		MHz
Reverse Transfer Capacitance	C_{re}	V_{CB}=6V, f=1MHz	0.7	1.1	1.4	pF
Base-to-Collector Time Constant	rbb'C_C	V_{CE}=6V, I_C=1mA, f=31.9MHz		15	22	ps
Noise Figure	NF	V_{CE}=6V, I_C=1mA, f=100MHz		3.0		dB
Power Gain	PG	V_{CE}=6V, I_C=1mA, f=100MHz		25		dB

* : The 2SC2300 are classified by 1mA h_{FE} as follows :

60	D	120	100	E	200	160	F	320

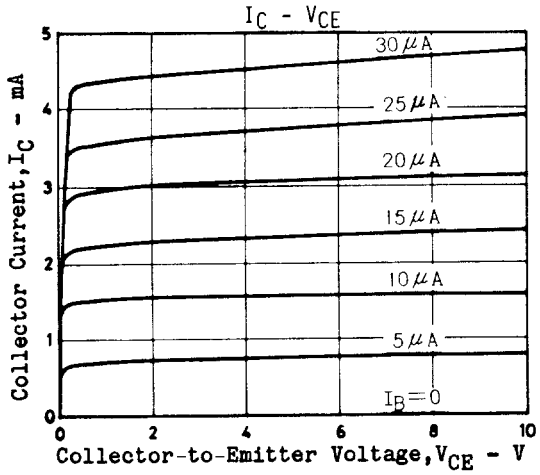
SANYO Electric Co.,Ltd. Semiconductor Bussiness Headquaters
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

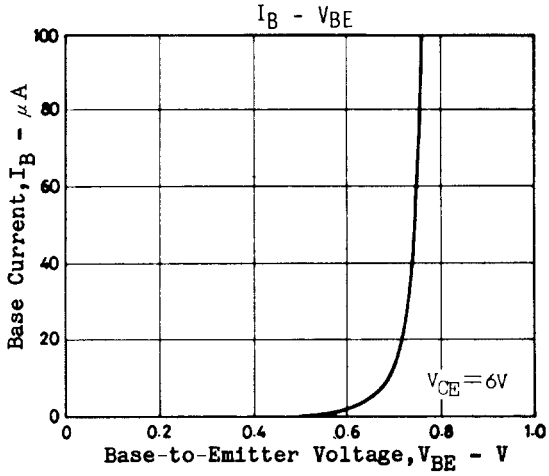
NF, PG Test Circuit

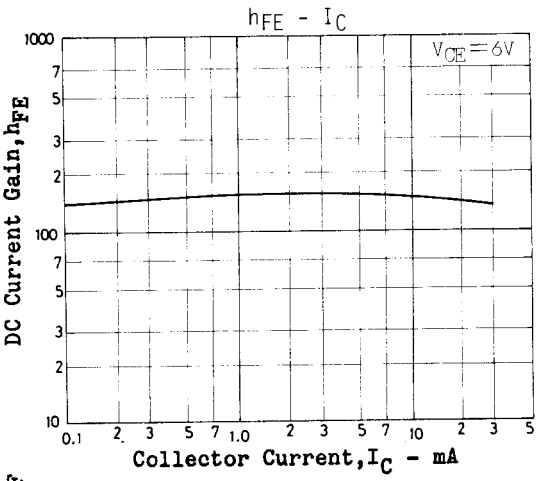


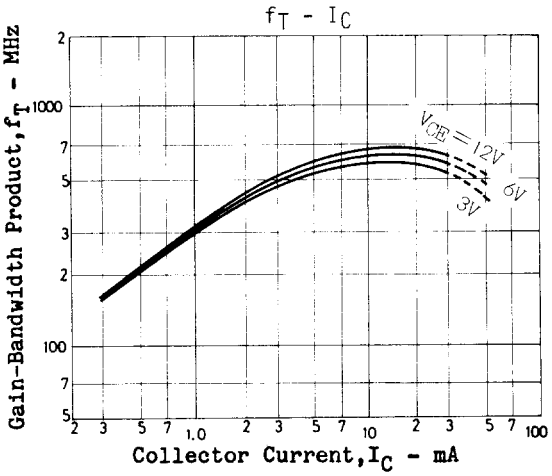
Unit(capacitance : F)

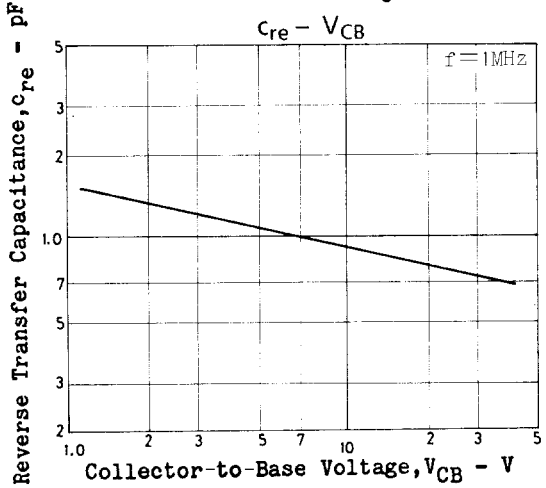
L1: 1mmφ plated wire, 10mmφ 5T, tapped at 2T from V_{BE}.
L2: 1mmφ plated wire, 10mmφ 7T, tapped at 1T from V_{CE}.
L3: 1mmφ enameled wire, 10mmφ 3T.

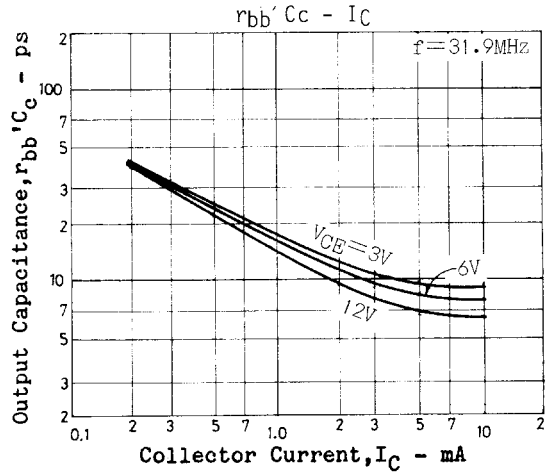


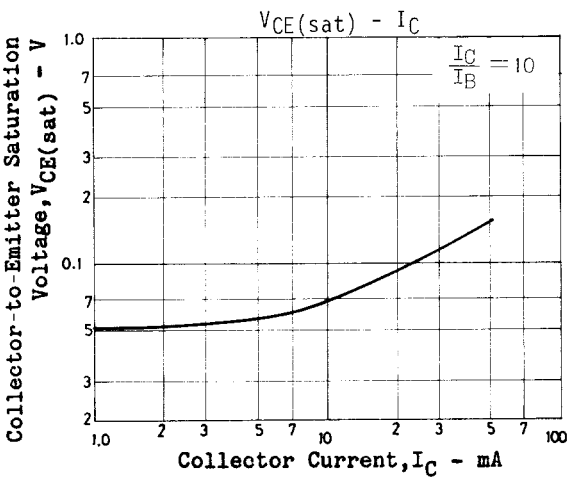


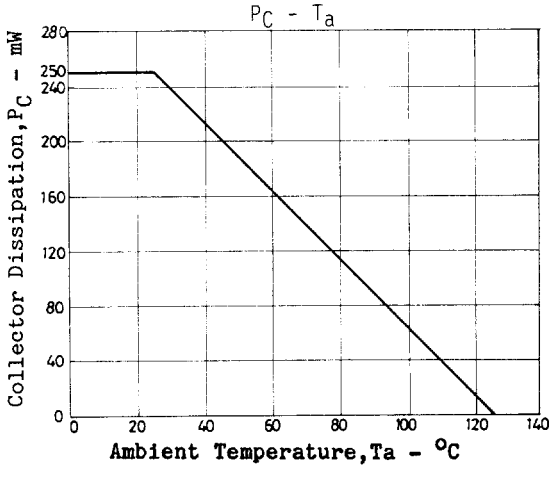


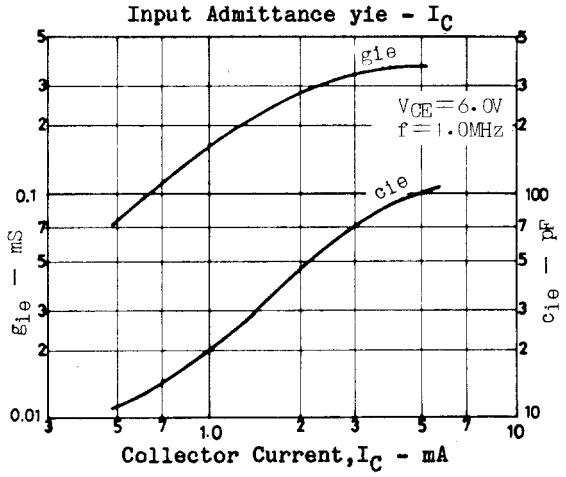


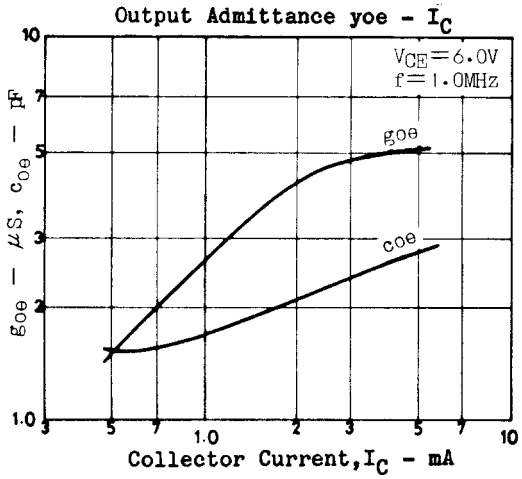


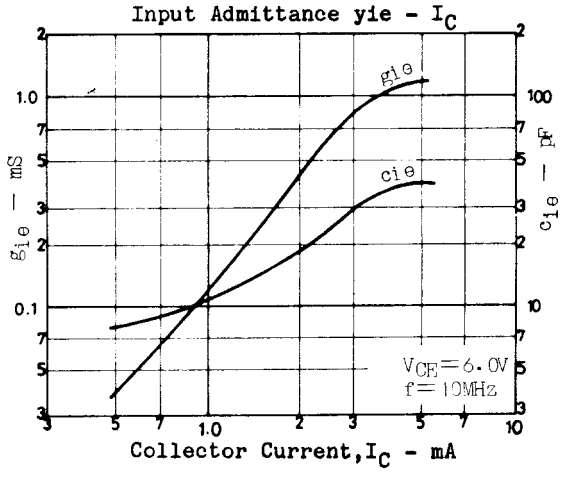


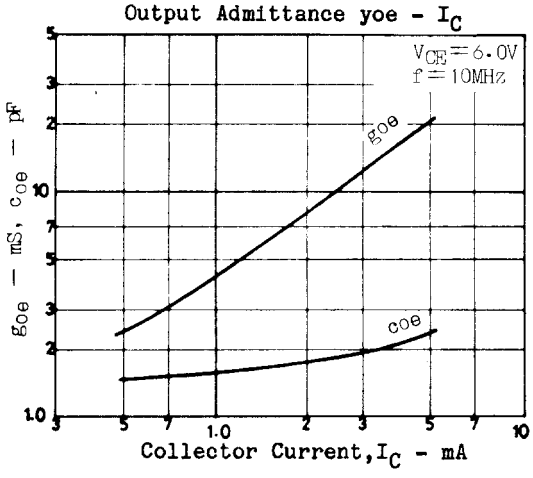

$V_{CE(sat)}$ - I_C
$\frac{I_C}{I_B}$ = 10
Collector-to-Emitter Saturation Voltage, $V_{CE(sat)}$ - V
Collector Current, I_C - mA

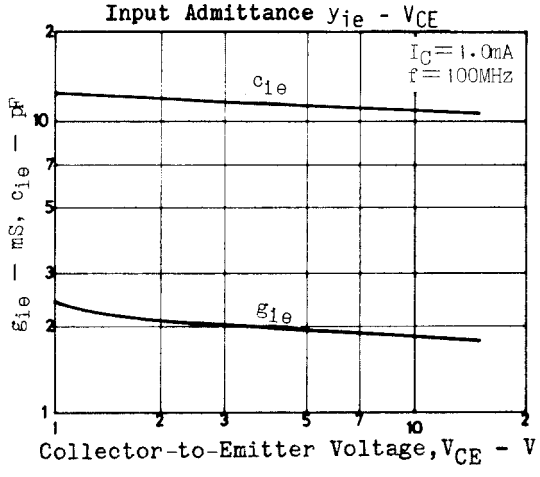

P_C - T_a
Collector Dissipation, P_C - mW
Ambient Temperature, Ta - °C

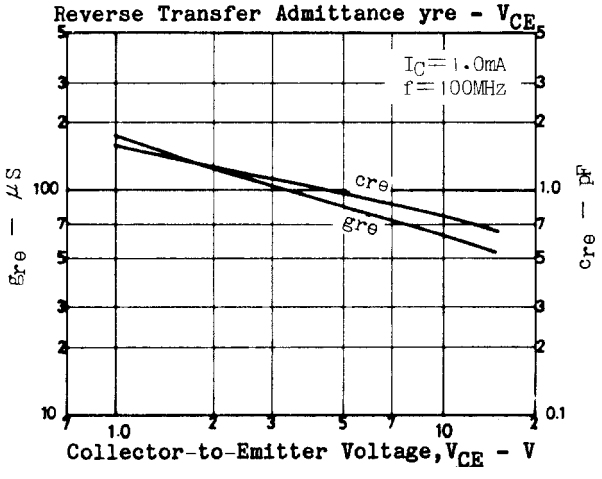

Input Admittance yie - I_C
gie
cie
V_{CE} = 6.0V
f = 1.0MHz
g_{ie} - mS
c_{ie} - pF
Collector Current, I_C - mA


Output Admittance yoe - I_C
V_{CE} = 6.0V
f = 1.0MHz
goe
coe
g_{oe} - μS, c_{oe} - pF
Collector Current, I_C - mA

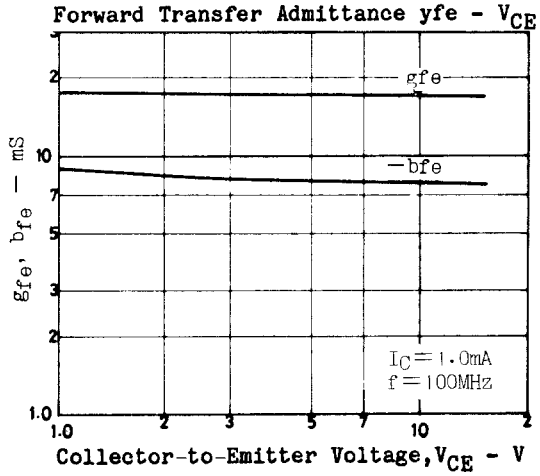

Input Admittance yie - I_C
gie
cie
V_{CE} = 6.0V
f = 10MHz
g_{ie} - mS
c_{ie} - pF
Collector Current, I_C - mA


Output Admittance yoe - I_C
V_{CE} = 6.0V
f = 10MHz
goe
coe
g_{oe} - mS, c_{oe} - pF
Collector Current, I_C - mA

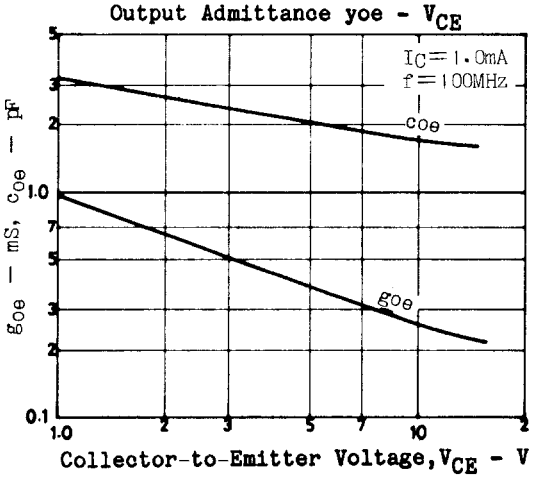

Input Admittance y_{ie} - V_{CE}
I_C = 1.0mA
f = 100MHz
c_{ie}
g_{ie}
g_{ie} - mS, c_{ie} - pF
Collector-to-Emitter Voltage, V_{CE} - V


Reverse Transfer Admittance yre - V_{CE}
I_C = 1.0mA
f = 100MHz
cre
gre
g_{re} - μS
c_{re} - pF
Collector-to-Emitter Voltage, V_{CE} - V

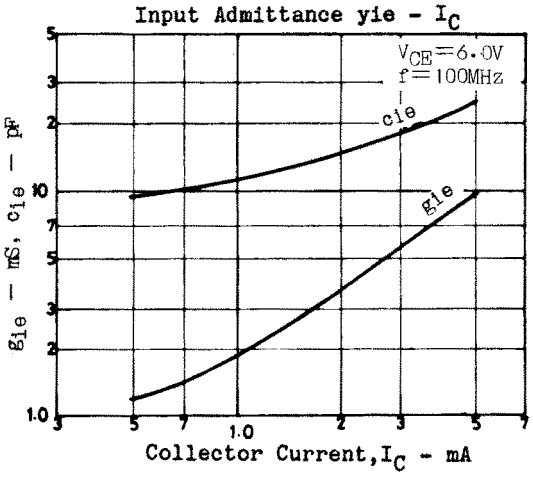
Forward Transfer Admittance yfe - V_{CE}



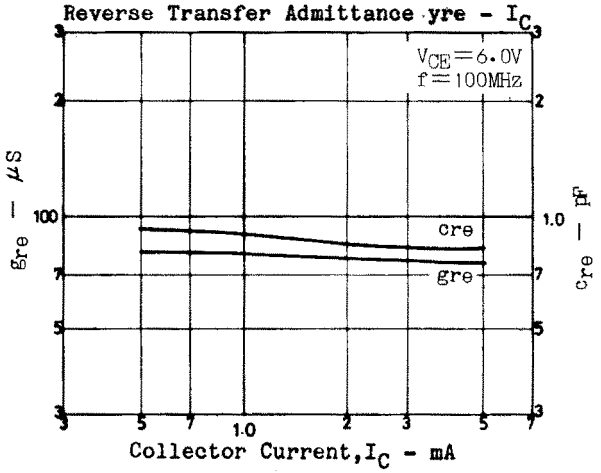
Output Admittance yoe - V_{CE}



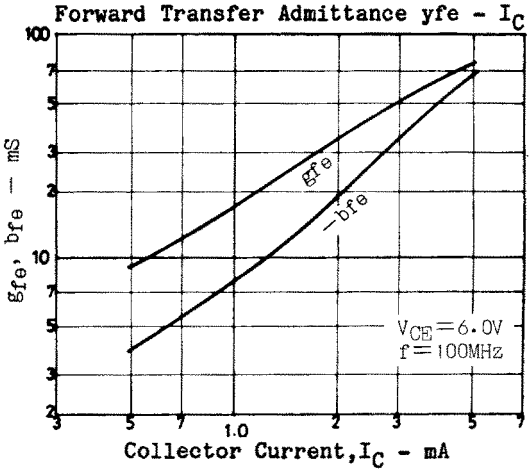
Input Admittance yie - I_C



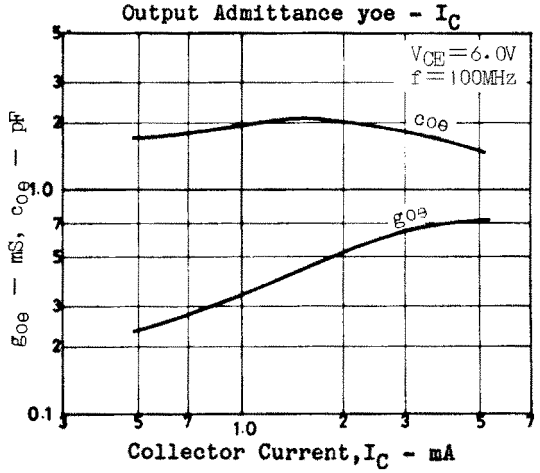
Reverse Transfer Admittance yre - I_C



Forward Transfer Admittance yfe - I_C



Output Admittance yoe - I_C



PG, NF - I_C