Ordering number:EN693F

NPN Epitaxial Planar Silicon Transistor

2SC2814

High-Friquency General-Purpose Amplifier Applications

Features

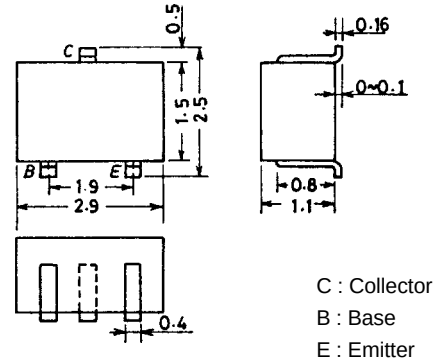
- Very small package enabiling compactness and slimness of sets.
- High f_T and small c_{re} (f_T=320MHz typ, c_{re}=0.95pF typ).

Package Dimensions

unit:mm

2018A

[2SC2814]



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

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		150	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	40*		270*	
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	0.95	1.2	pF
Base-to-Collector Time Constant	rbb'C_C	V_{CE}=6V, I_C=1mA, f=31.9MHz		12	20	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 2SC2814 are classified as follows by h_{FE} at 1mA :

40	2	80	60	3	120	90	4	180	135	5	270

(Note) Marking : F
h_{FE} rank : 2, 3, 4, 5

SANYO Electric Co.,Ltd. Semiconductor Bussiness Headquaters
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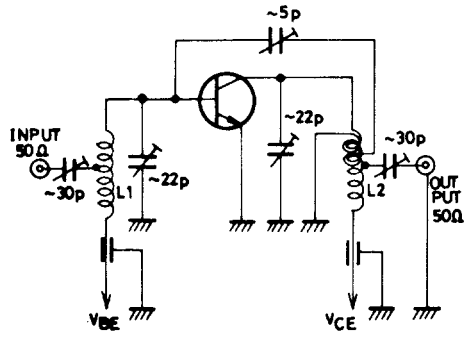
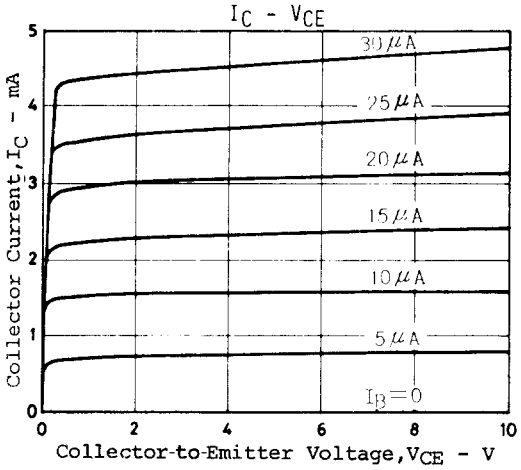
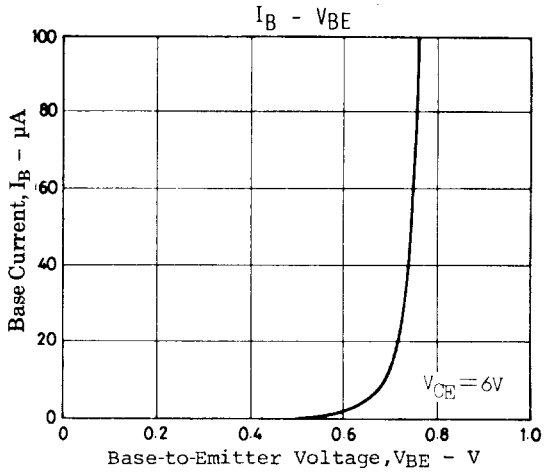
NF, PG Test Circuit

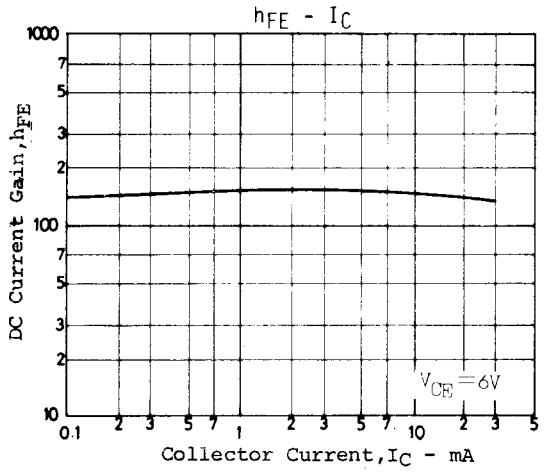


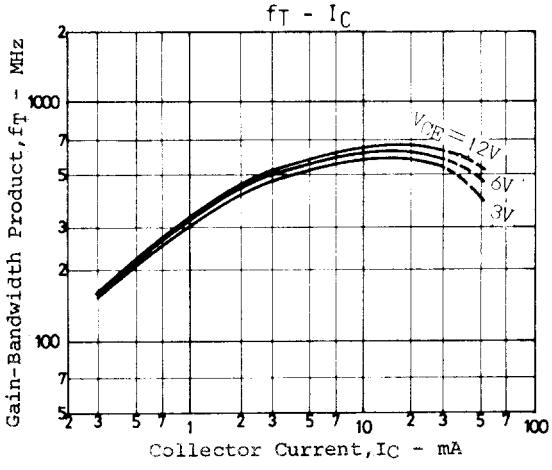
L1: 1mmϕ plated wire 10mmϕ 4T, tap: 2T from V_{BE} side.
L2: 1mmϕ plated wire 10mmϕ 7T, tap: 1T from V_{CE} side.
L3: 1mmϕ enameled wire 10mmϕ 3T.

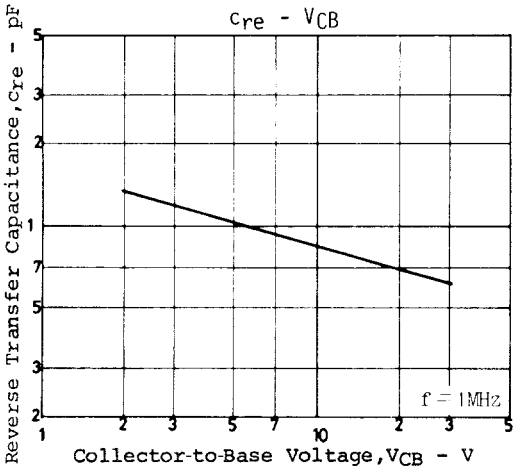
Unit (capacitance : F)

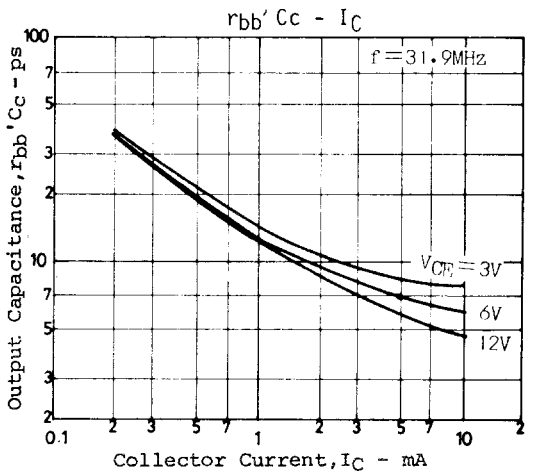


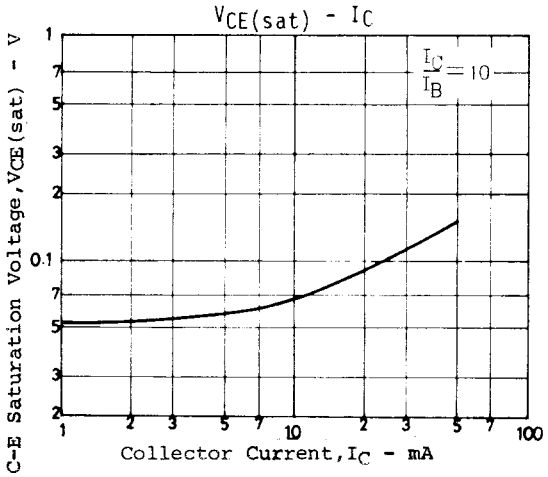


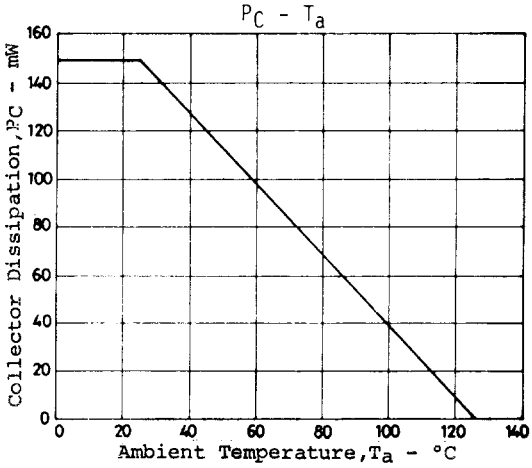


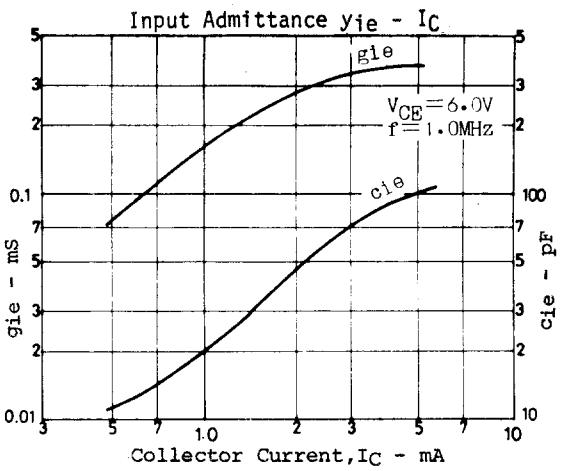


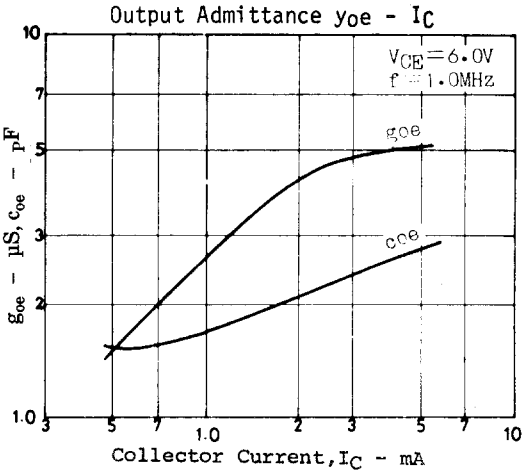


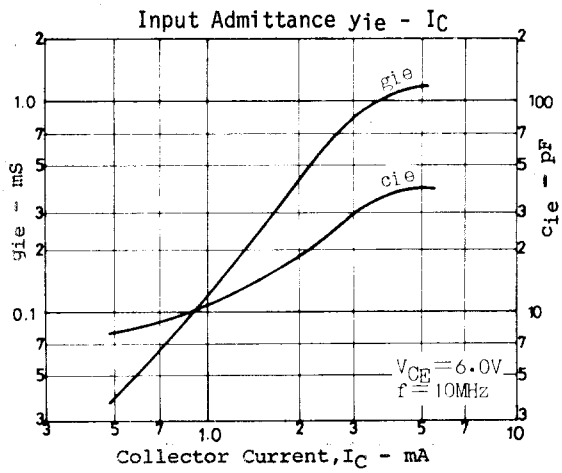


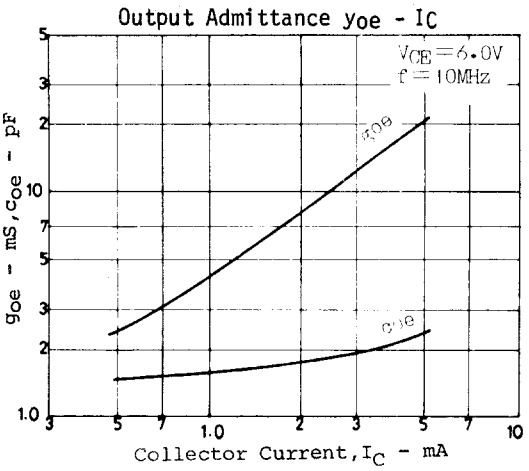

VCE(sat) - IC
IC/IB=10
C-E Saturation Voltage,VCE(sat) - V
Collector Current,IC - mA

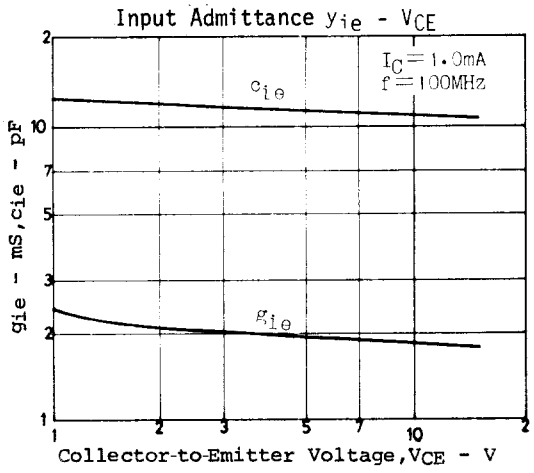

PC - Ta
Collector Dissipation,PC - mW
Ambient Temperature,Ta - °C

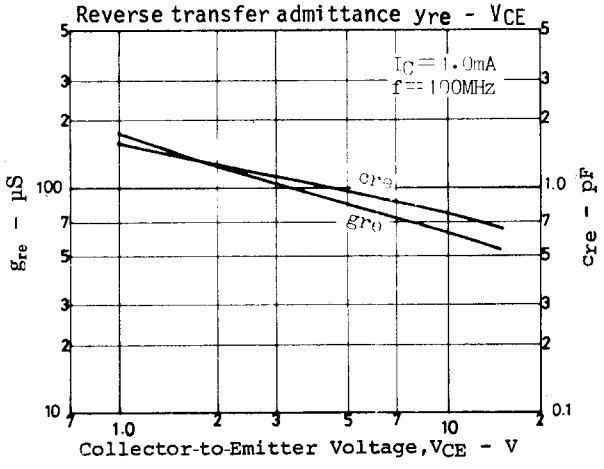

Input Admittance yie - IC
gie
cie
VCE=6.0V
f=1.0MHz
gie - mS
cie - pF
Collector Current,IC - mA


Output Admittance yoe - IC
VCE=6.0V
f=1.0MHz
goe
coe
goe - μS, coe - pF
Collector Current,IC - mA

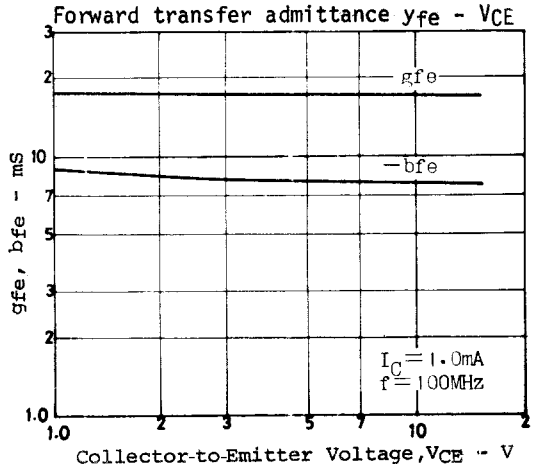

Input Admittance yie - IC
gie
cie
VCE=6.0V
f=10MHz
gie - mS
cie - pF
Collector Current,IC - mA


Output Admittance yoe - IC
VCE=6.0V
f=10MHz
goe
coe
goe - mS, coe - pF
Collector Current,IC - mA

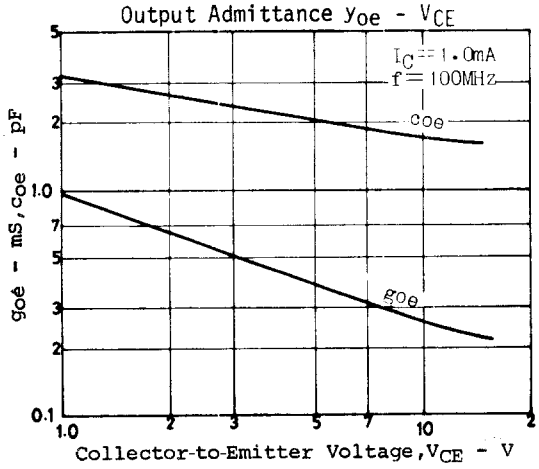

Input Admittance yie - VCE
IC=1.0mA
f=100MHz
cie
gie
gie - mS, cie - pF
Collector-to-Emitter Voltage,VCE - V


Reverse transfer admittance yre - VCE
IC=1.0mA
f=100MHz
cre
gro
gre - μS
cre - pF
Collector-to-Emitter Voltage,VCE - V

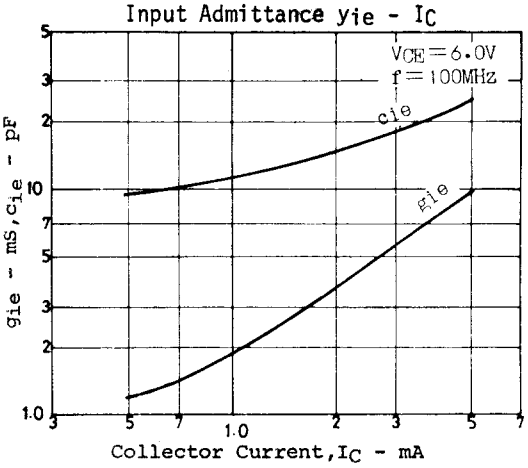
Forward transfer admittance y_{fe} - V_{CE}



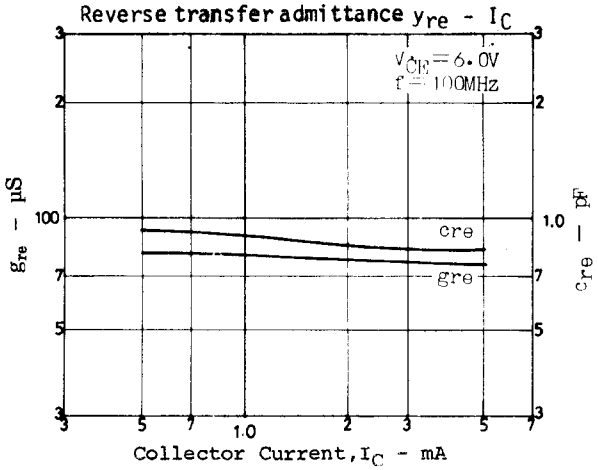
Output Admittance y_{oe} - V_{CE}



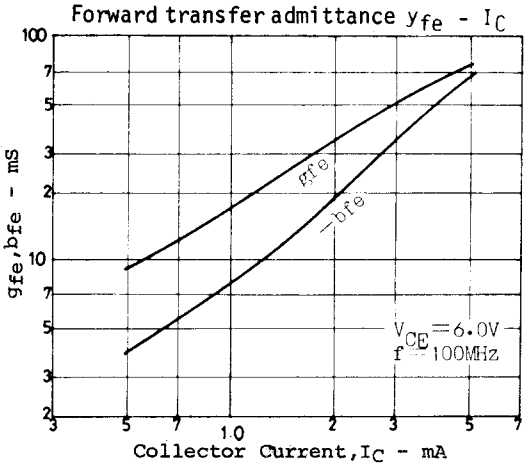
Input Admittance y_{ie} - I_C



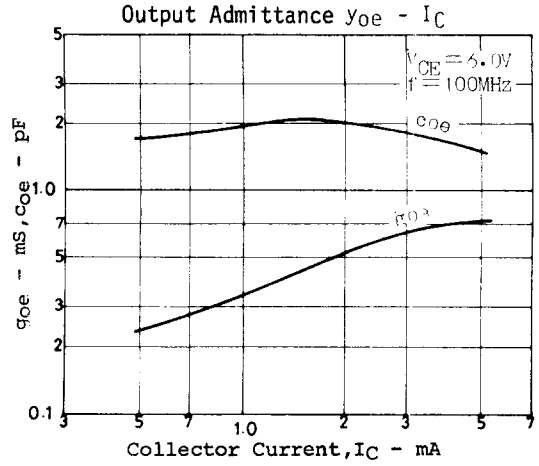
Reverse transfer admittance y_{re} - I_C



Forward transfer admittance y_{fe} - I_C



Output Admittance y_{oe} - I_C



PG, NF - I_C