Ordering number:ENN3020

NPN Epitaxial Planar Silicon Transistor

2SC4399

High-Frequency General-Purpose Amplifier Applications

Features

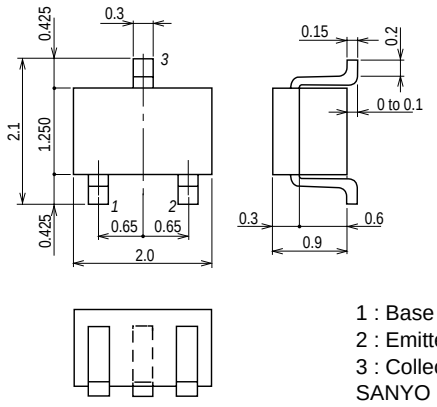
- High power gain : PG=25dB typ (f=100MHz).
- Ultrasmall-sized package permitting the 2SC4399-applied sets to be made small and slim.

Package Dimensions

unit:mm

2059B

[2SC4399]



1 : Base
2 : Emitter
3 : Collector
SANYO : MCP

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		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

Electrical Characteristics at Ta = 25˚C

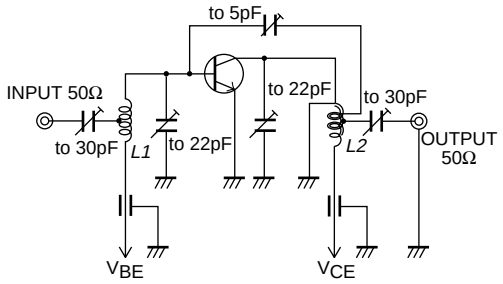
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=10V, I_E=0			0.1	µA
Emitter Cutoff Current	I_{EBO}	V_{EB}=4V, I_C=0			0.1	µA
DC Current Gain	h_{FE}	V_{CE}=6V, I_C=1mA	60*		270*	
Gain-Bandwidth Product	f_T	V_{CE}=6V, I_C=1mA	200	320		MHz
Reverse transfer Capacitance	C_{re}	V_{CB}=6V, f=1MHz		0.9	1.2	pF
Base-to-Collector Time Constant	$r_{bb}'C_c$	V_{CB}=6V, I_C=1mA, f=31.9MHz		12	20	ps
Power Gain	PG	V_{CB}=6V, I_C=1mA, f=100MHz		25		dB
Noise Figure	NF	V_{CB}=6V, I_C=1mA, f=100MHz		3.0		dB

* : The 2SC4399 is classified by 1mA h_{FE} as follows :
Marking : F
h_{FE} rank : 3, 4, 5

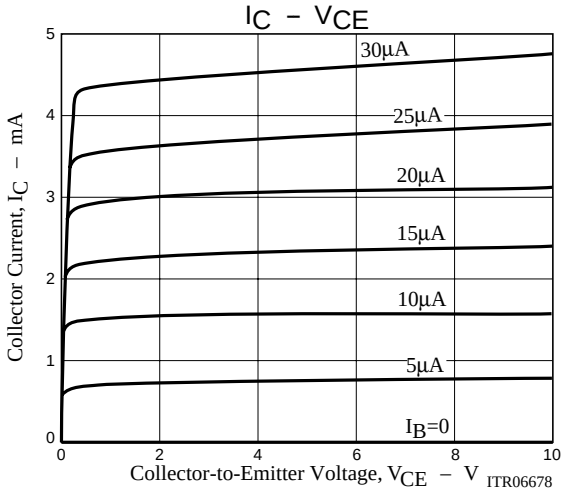
Rank	3	4	5
h_{FE}	60 to 120	90 to 180	135 to 270

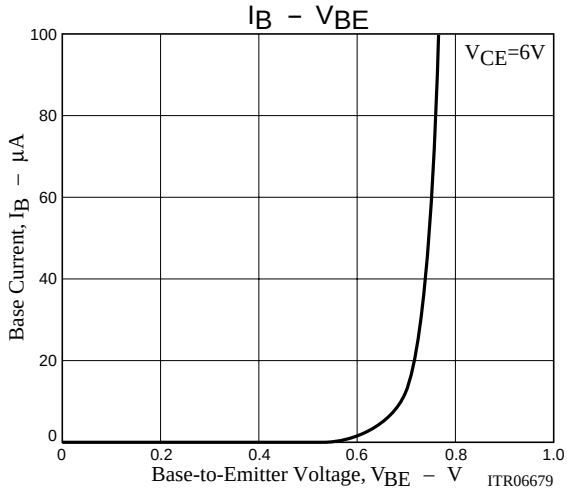
SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

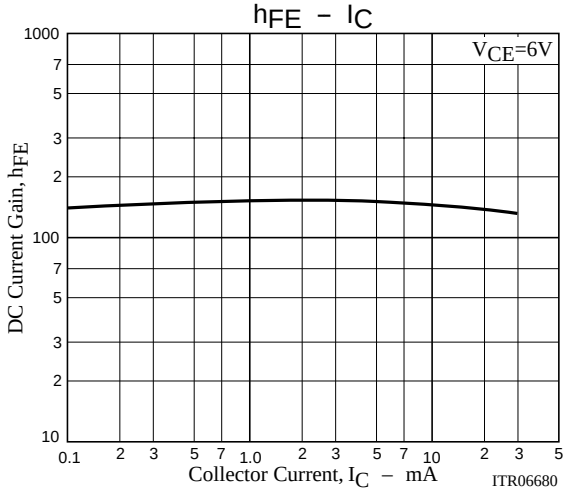
NF, PG Test Circuit

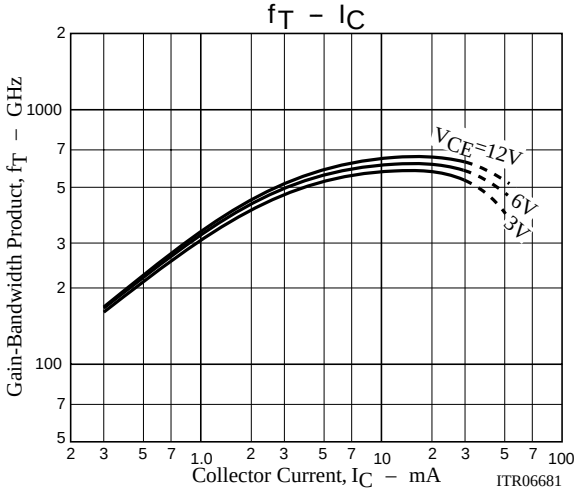


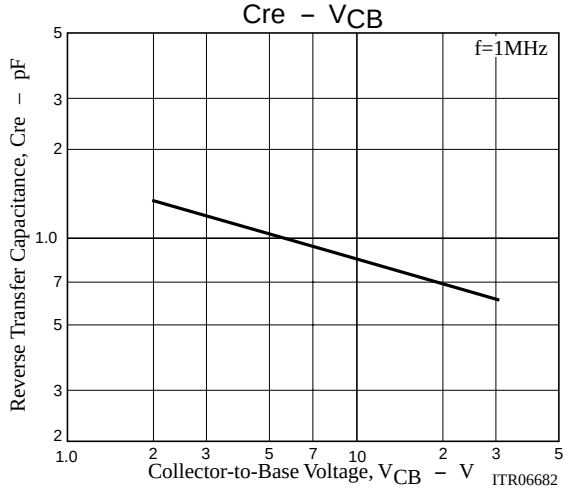
L1 : 1mmø plated wire 10mmø 4 T, tap : 2T from V_{BE} side.
L2 : 1mmø plated wire 10mmø 7 T, tap : 1T from V_{CE} side.
L3 : 1mmø enameled wire 10mmø 3 T

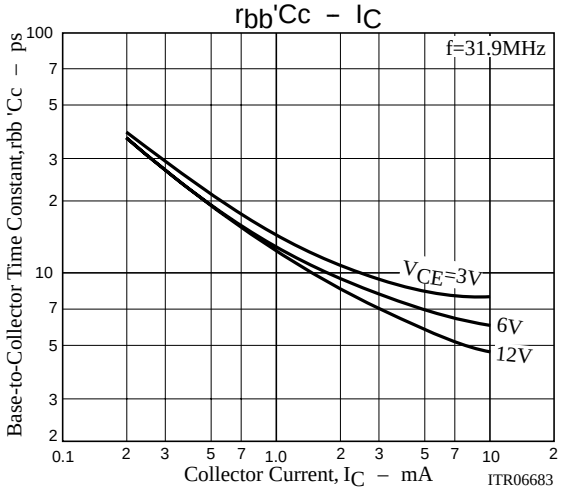




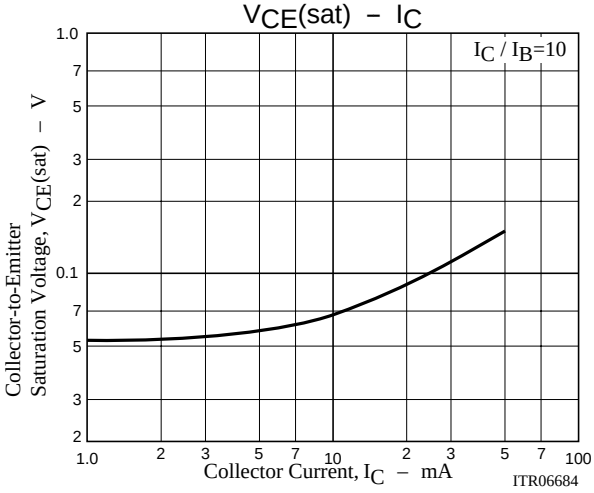




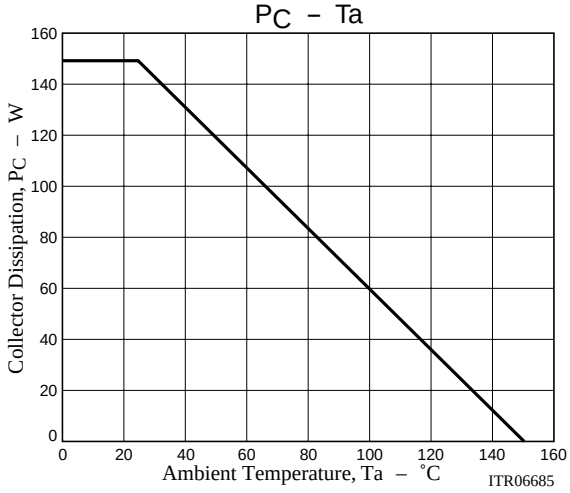




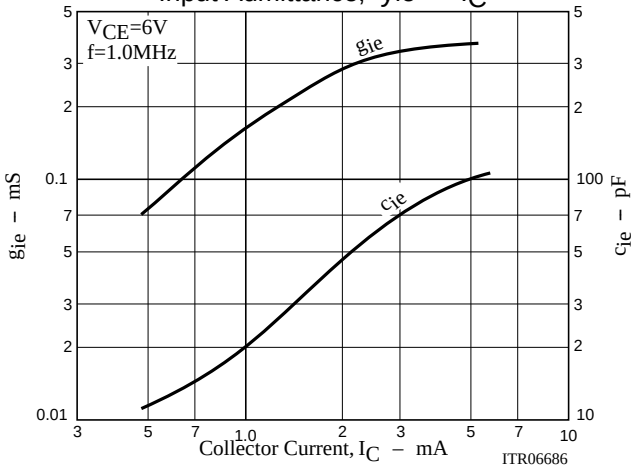
$V_{CE}(sat)$ – I_C



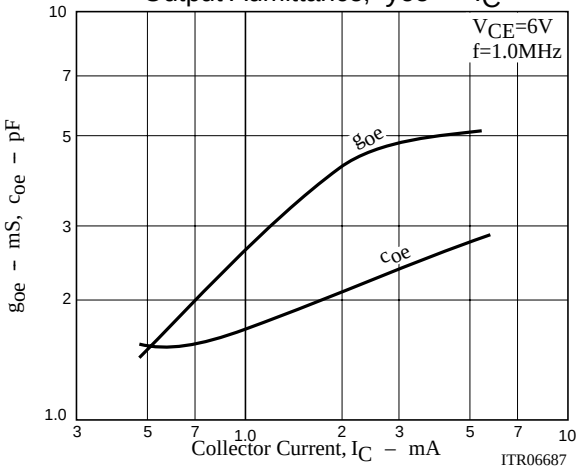
P_C – Ta



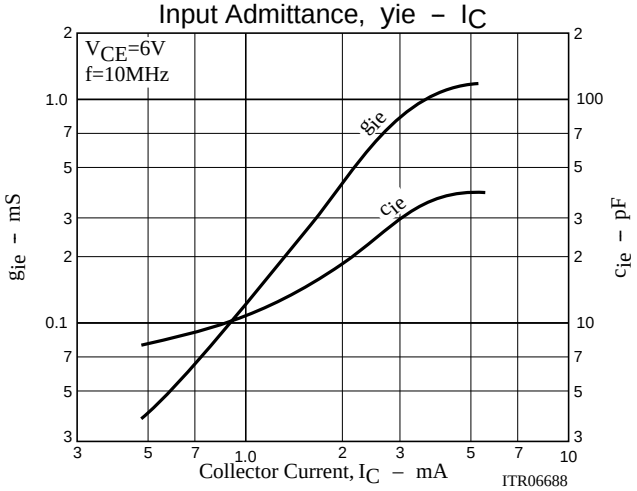
Input Admittance, yie – I_C



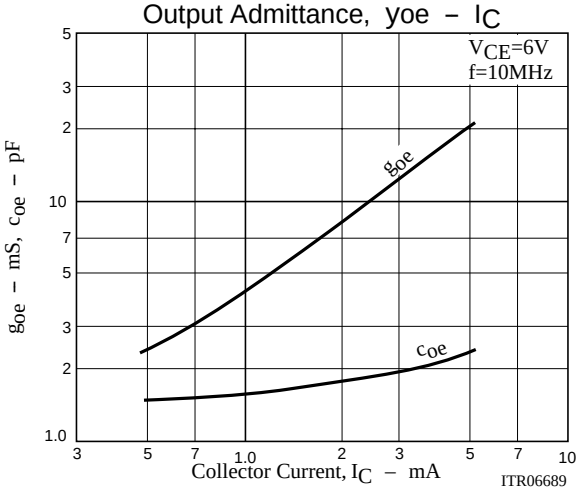
Output Admittance, yoe – I_C



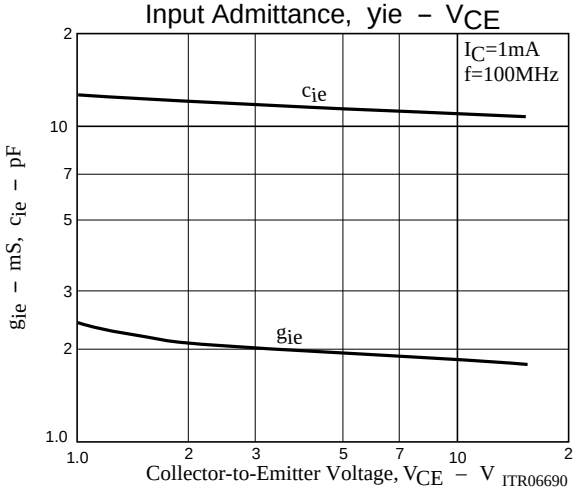
Input Admittance, yie – I_C



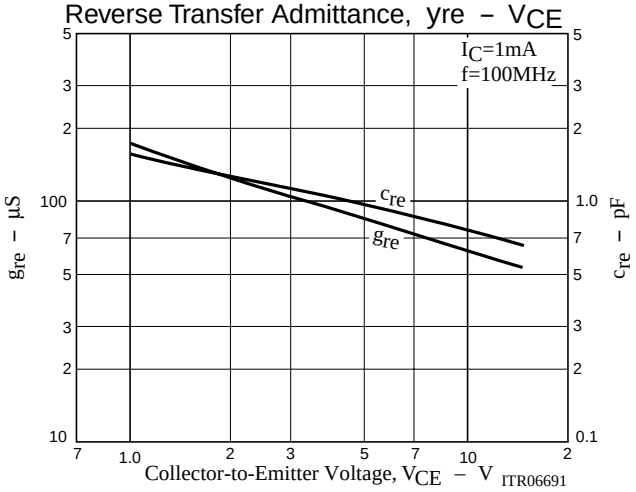
Output Admittance, yoe – I_C



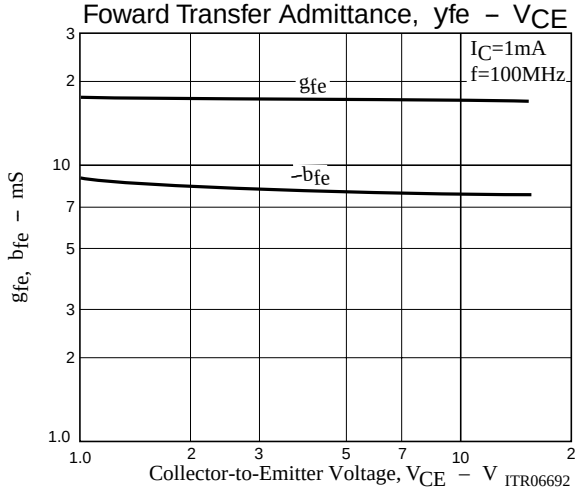
Input Admittance, yie – V_{CE}



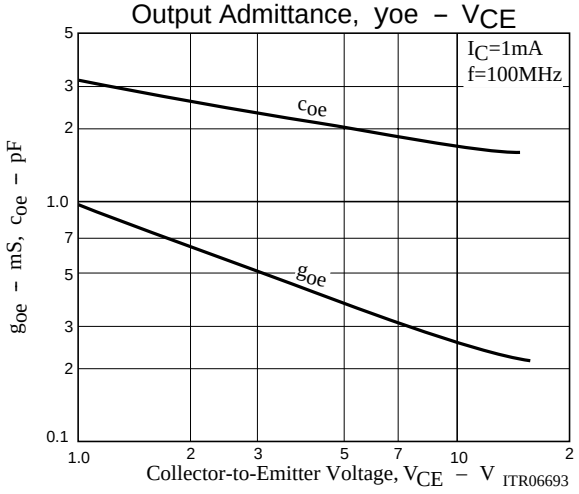
Reverse Transfer Admittance, yre – V_{CE}



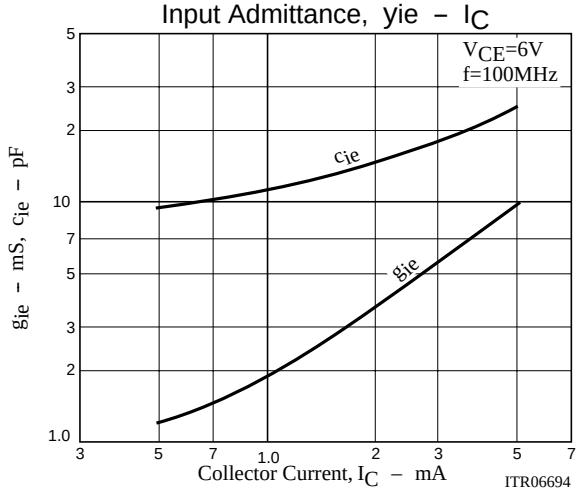
Foward Transfer Admittance, yfe – V_{CE}



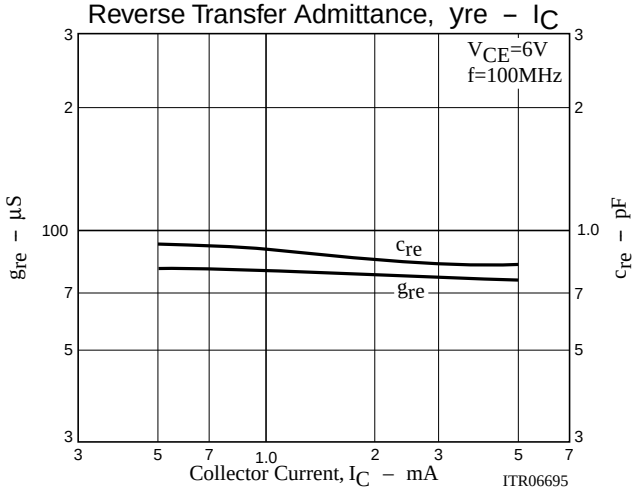
Output Admittance, yoe – V_{CE}



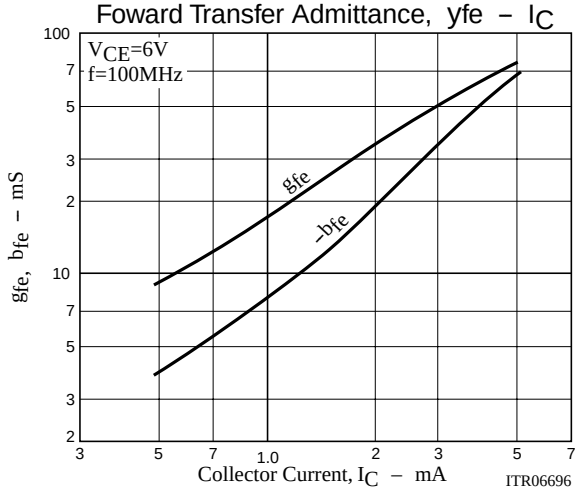
Input Admittance, yie – I_C



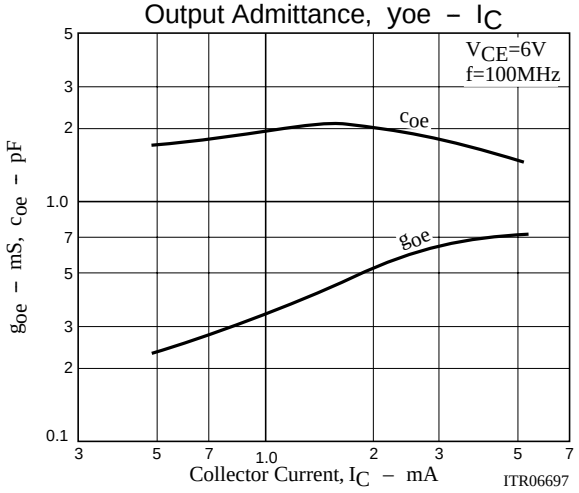
Reverse Transfer Admittance, yre – I_C



Foward Transfer Admittance, yfe – I_C



Output Admittance, yoe – I_C



PG, NF – I_C