SILICON NPN EPITAXIAL PLANAR TYPE

2SC2499

VHF ~ UHF BAND LOW NOISE AMPLIFIER APPLICATIONS.

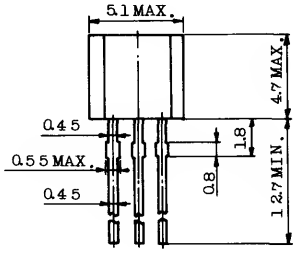
Unit in mm

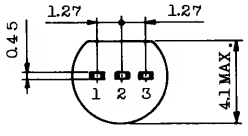
FEATURES:

. Low Noise Figure

. NF=1.7dB, $|S_{21e}|^2$=15dB (f=500MHz)

. NF=2.5dB, $|S_{21e}|^2$=9.5dB (f=1000MHz)





1. BASE
2. EMITTER
3. COLLECTOR

JEDEC	TO-92
EIAJ	SC-43
TOSHIBA	2-5F1E

Weight : 0.21g

MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	20	V
Collector-Emitter Voltage	V_{CEO}	20	V
Emitter-Base Voltage	V_{EBO}	3.0	V
Collector Current	I_C	30	mA
Emitter Current	I_E	-30	mA
Collector Power Dissipation	P_C	300	mW
Junction Temperature	T_j	125	°C
Storage Temperature Range	T_{stg}	-55 ~ 125	°C

MICROWAVE CHARACTERISTICS (Ta=25°C)

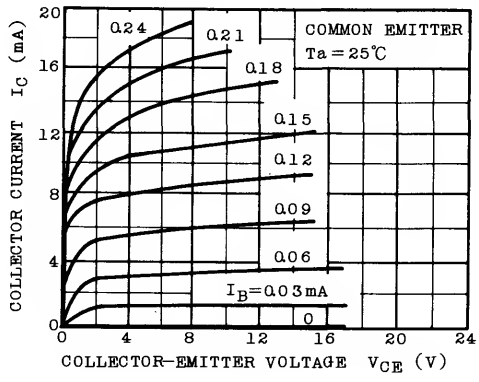
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Transition Frequency	f_T	V_{CE}=10V, I_C=10mA	-	4.0	-	GHz
Insertion Gain	$\|S_{21e}\|^2$(1)	V_{CE}=10V, I_C=10mA, f=500MHz	-	15.0	-	dB
	$\|S_{21e}\|^2$(2)	V_{CE}=10V, I_C=10mA, f=1000MHz	-	9.5	-	dB
Noise Figure	NF (1)	V_{CE}=10V, I_C=3mA, f=500MHz	-	1.7	-	dB
	NF (2)	V_{CE}=10V, I_C=3mA, f=1000MHz	-	2.5	-	dB

ELECTRICAL CHARACTERISTICS (Ta=25°C)

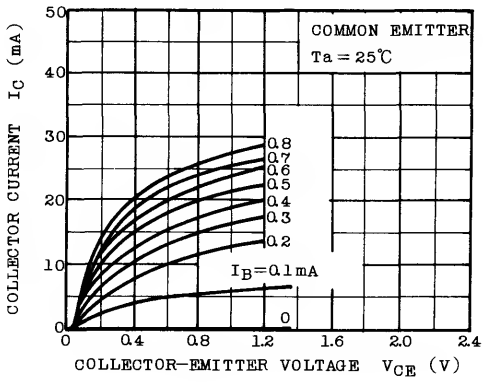
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	V_{CB}=10V, I_E=0	-	-	0.1	μA
Emitter Cut-off Current	I_{EBO}	V_{EB}=1.0V, I_C=0	-	-	1.0	μA
DC Current Gain	h_{FE}	V_{CE}=10V, I_C=5mA	30	-	-	
Collector Output Capacitance	C_{ob}	V_{CB}=10V, I_E=0, f=1MHz (Note)	-	0.9	-	pF
Reverse Transfer Capacitance	C_{re}		-	0.6	-	pF

Note : Cre is measured by 3 terminal method with Capacitance Bridge.

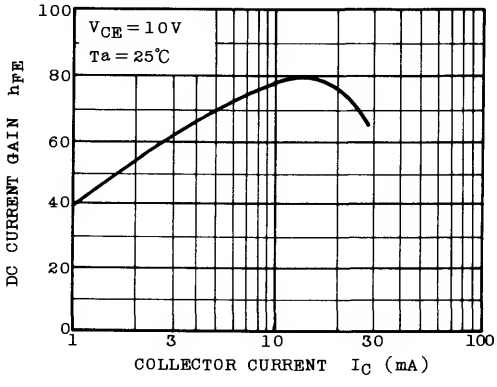
$I_C - V_{CE}$



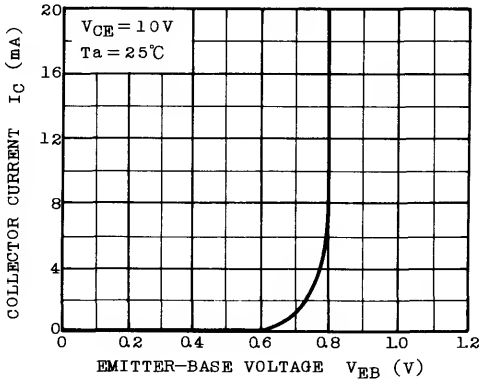
$I_C - V_{CE}$



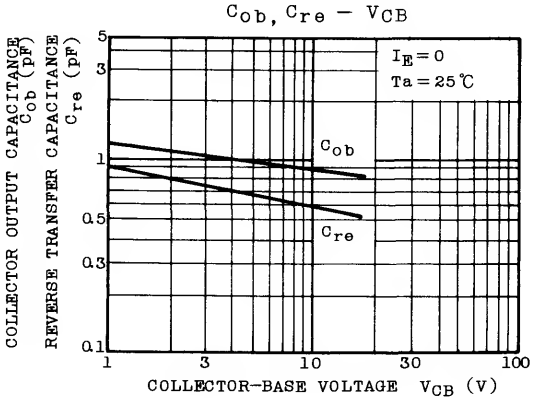
$h_{FE} - I_C$



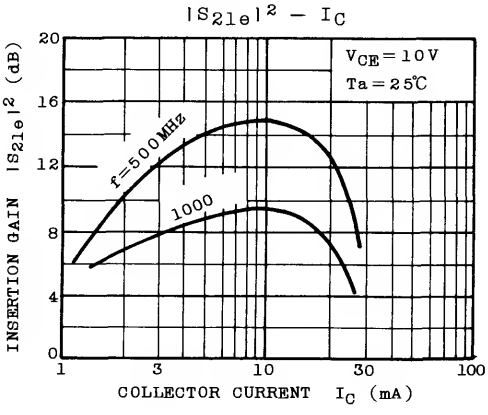
$I_C - V_{EB}$



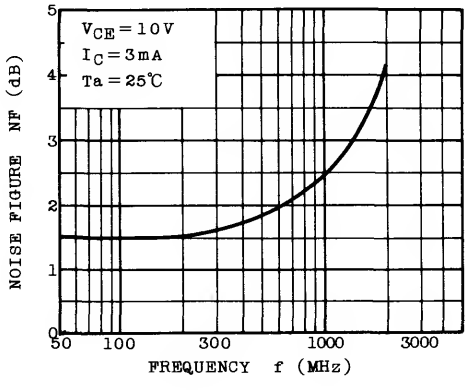
$C_{ob}, C_{re} - V_{CB}$



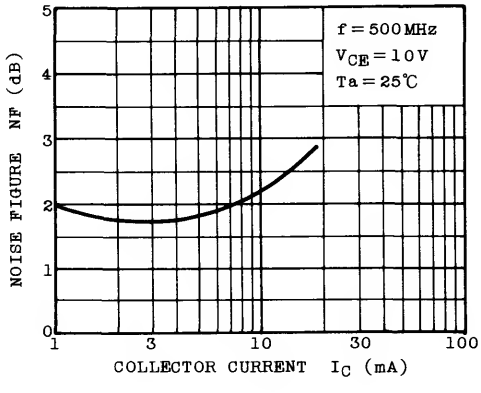
$|S_{21e}|^2 - I_C$



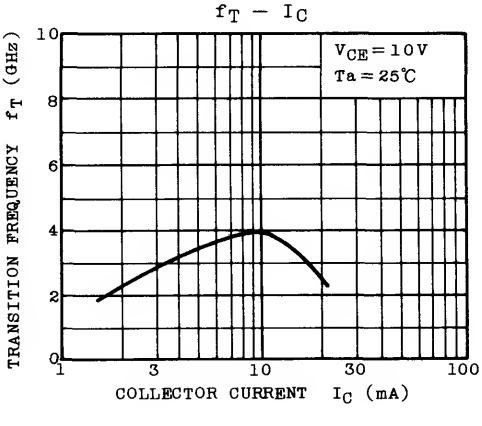
NF — f



NF — I_C

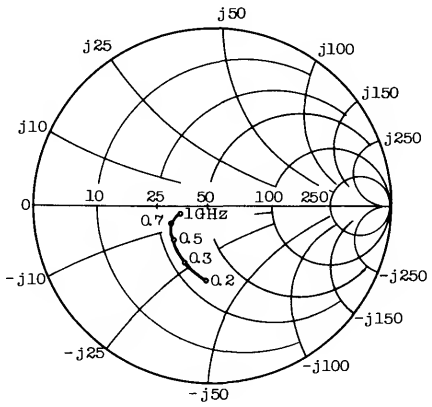


f_T — I_C

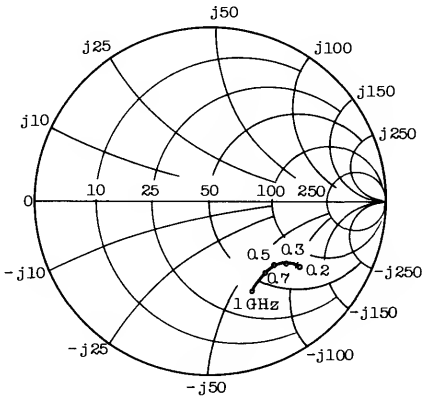


COMMON EMITTER SMALL SIGNAL S-PARAMETERS OF 2SC2499.

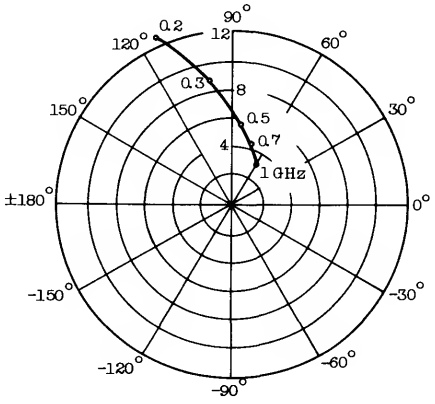
V_{CE}=10V, I_C=10mA



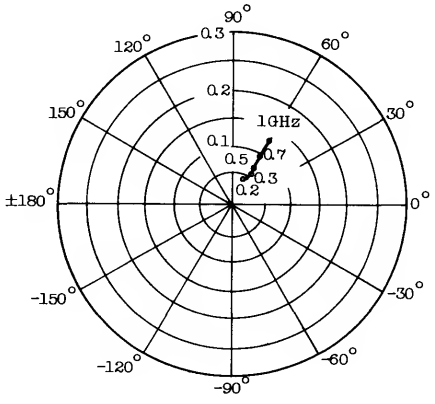
S_{11e} (UNIT : Ω)



S_{22e} (UNIT : Ω)



S_{21e}



S_{12e}