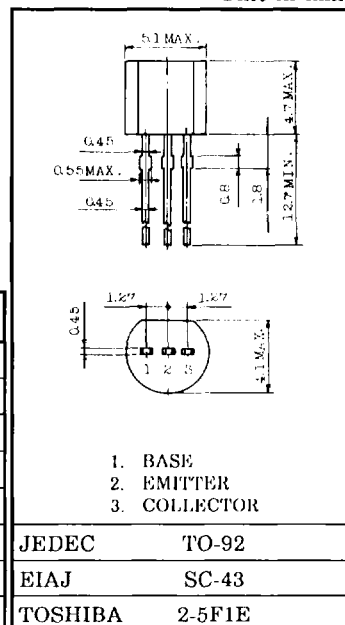


2SC2499 SILICON NPN EPITAXIAL PLANAR TYPE TRANSISTOR

VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATION.

Unit in mm

- Low Noise Figure
- $NF = 1.7\text{dB}$, $|S_{21e}|^2 = 15\text{dB}$ ($f = 500\text{MHz}$)
- $NF = 2.5\text{dB}$, $|S_{21e}|^2 = 9.5\text{dB}$ ($f = 1\text{GHz}$)



MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CB0}	20	V
Collector-Emitter Voltage	V_{CEO}	20	V
Emitter-Base Voltage	V_{EB0}	3.0	V
Collector Current	I_C	30	mA
Base Current	I_B	15	mA
Collector Power Dissipation	P_C	300	mW
Junction Temperature	T_j	125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55~125	$^\circ\text{C}$

Weight : 0.21g

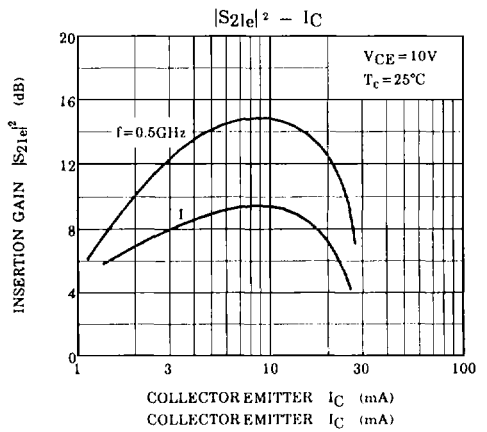
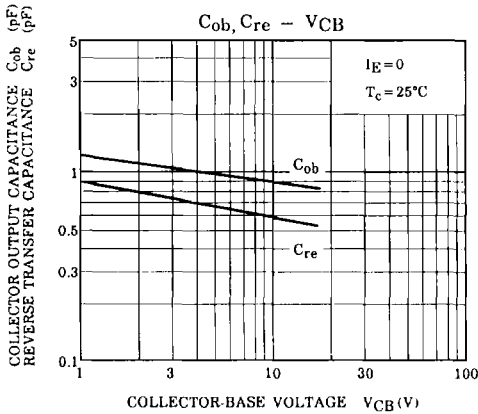
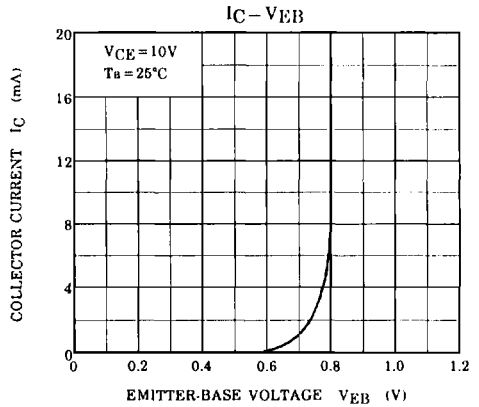
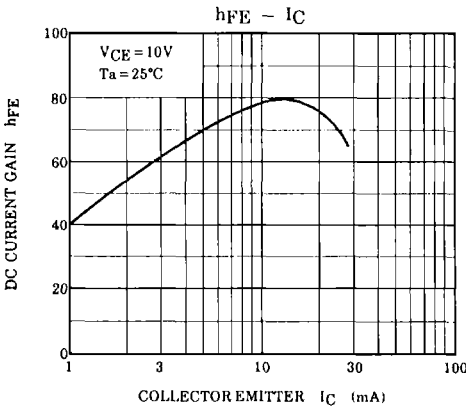
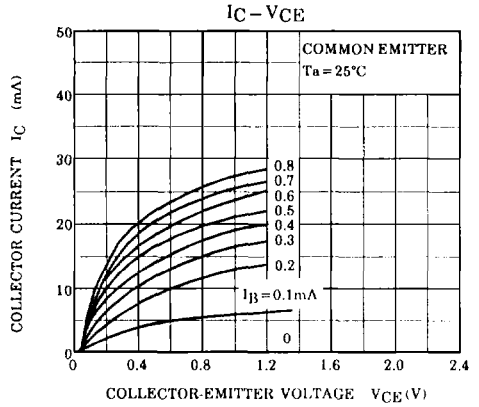
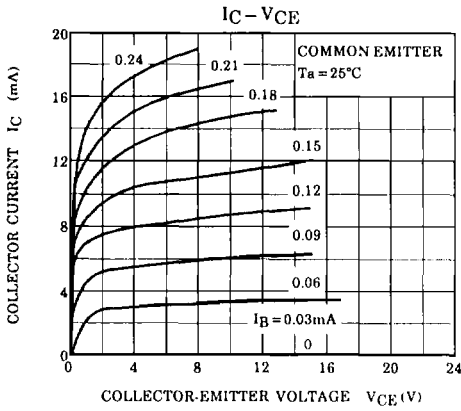
MICROWAVE CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

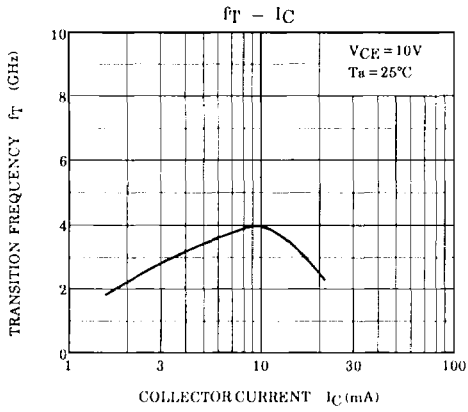
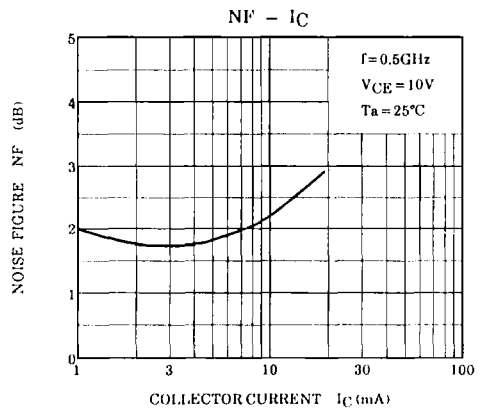
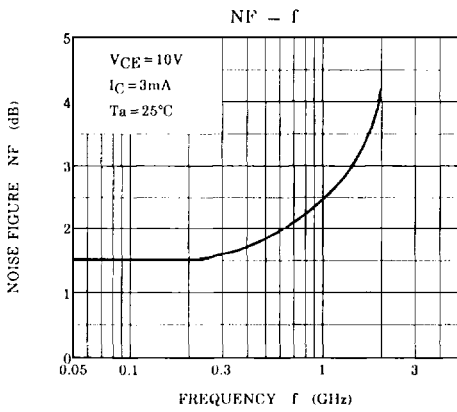
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Transition Frequency	f_T	$V_{CE} = 10\text{V}$, $I_C = 10\text{mA}$	—	4.0	—	GHz
Insertion Gain	$ S_{21e} ^2(1)$	$V_{CE} = 10\text{V}$, $I_C = 10\text{mA}$, $f = 500\text{MHz}$	—	15.0	—	dB
	$ S_{21e} ^2(2)$	$V_{CE} = 10\text{V}$, $I_C = 10\text{mA}$,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

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

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

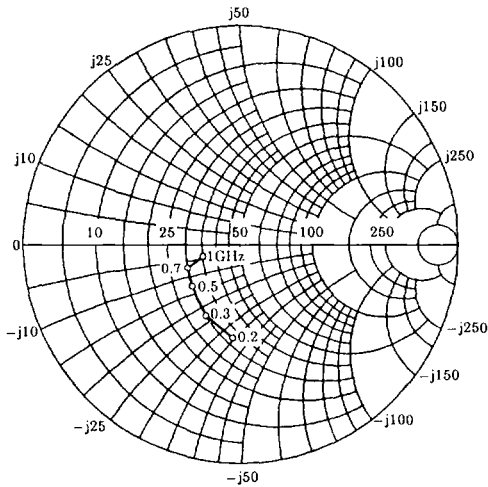
Note : C_{re} is measured by 3 terminal method with Capacitance Bridge.



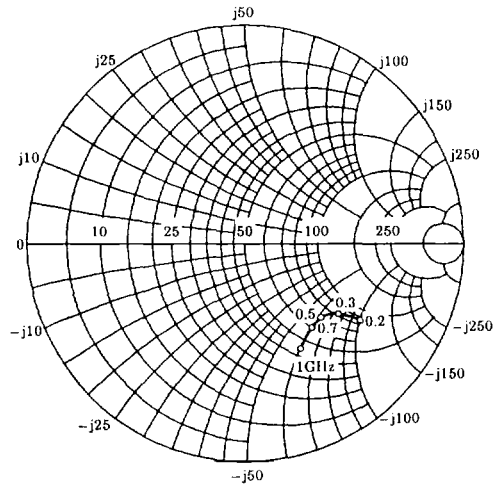


COMMON EMITTER SMALL SIGNAL S-PARAMETERS OF 2SC2499

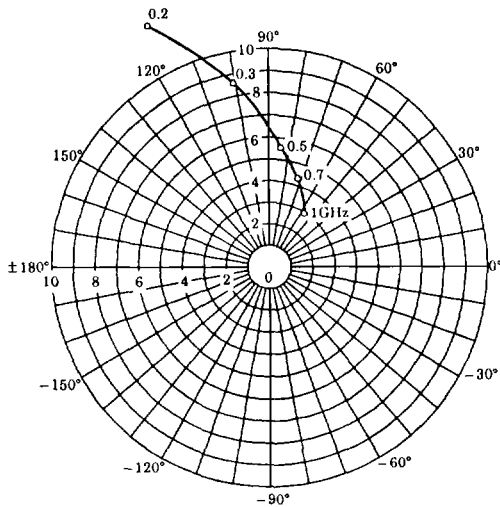
V_{CE} = 10V, I_C = 10mA



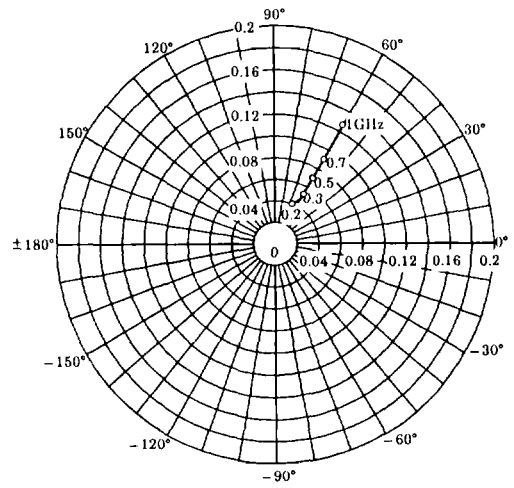
S_{11e} (UNIT : Ω)



S_{22e} (UNIT : Ω)



S_{21e}



S_{12e}