

# SILICON NPN EPITAXIAL PLANAR TYPE

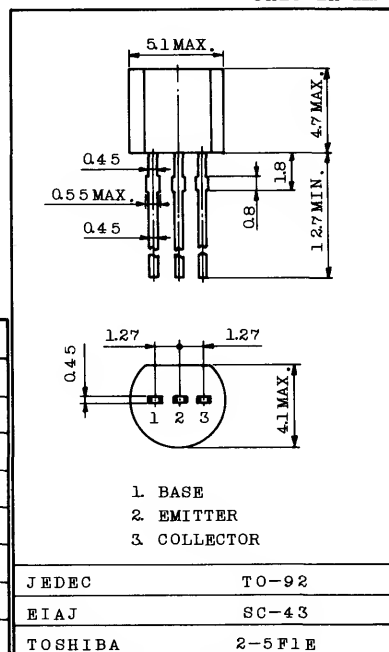
# 2SC2499

VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS.

Unit in mm

### FEATURES:

- Low Noise Figure
- $NF=1.7dB, |S_{21e}|^2=15dB (f=500MHz)$
- $NF=2.5dB, |S_{21e}|^2=9.5dB (f=1000MHz)$



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

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	$^{\circ}C$
Storage Temperature Range	$T_{stg}$	-55 ~ 125	$^{\circ}C$

Weight : 0.21g

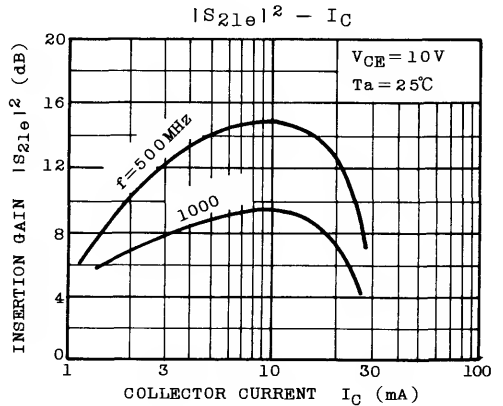
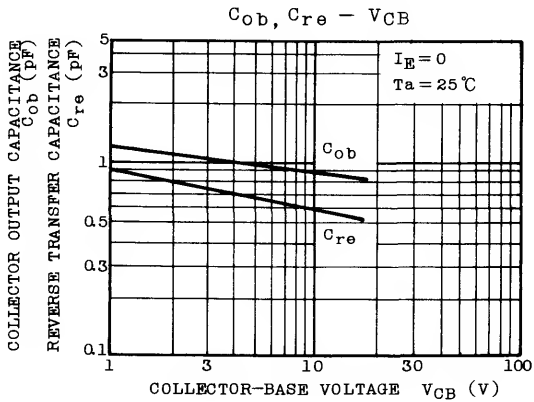
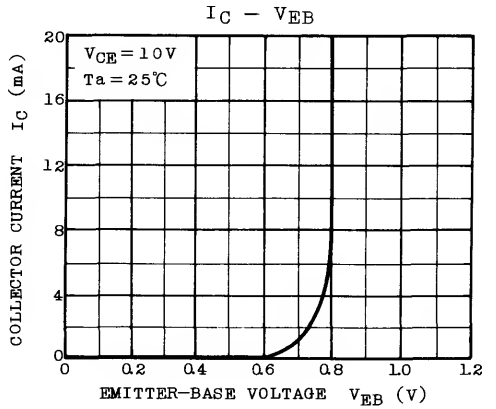
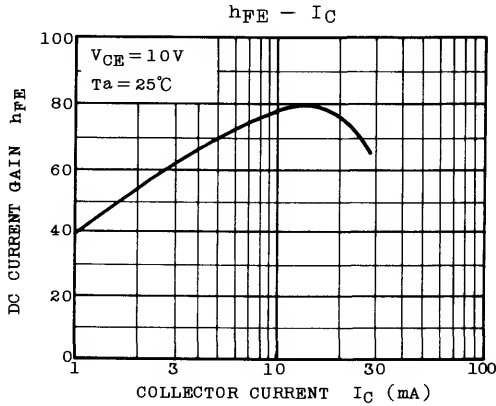
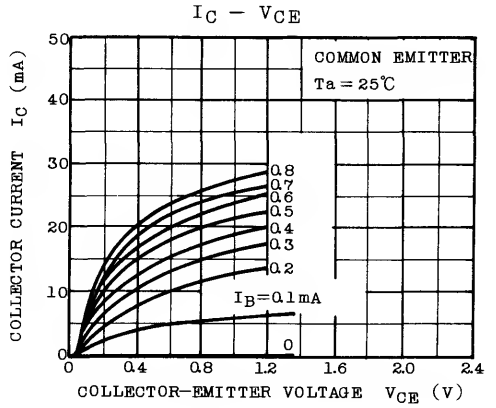
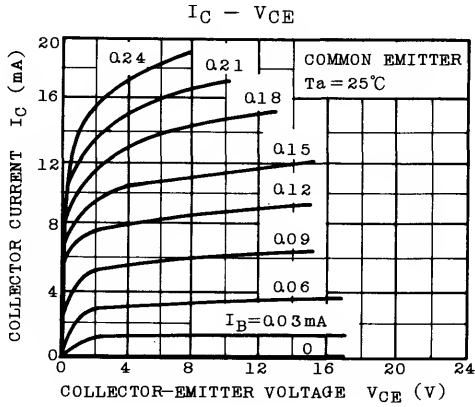
### MICROWAVE CHARACTERISTICS ( $T_a=25^{\circ}C$ )

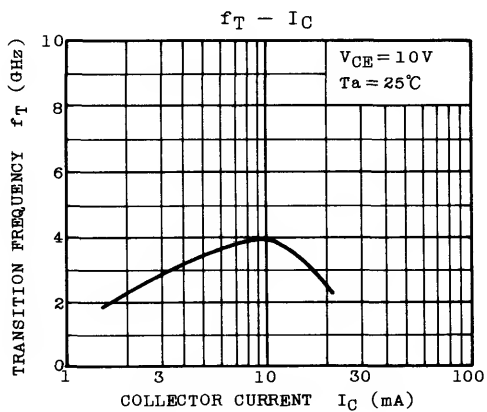
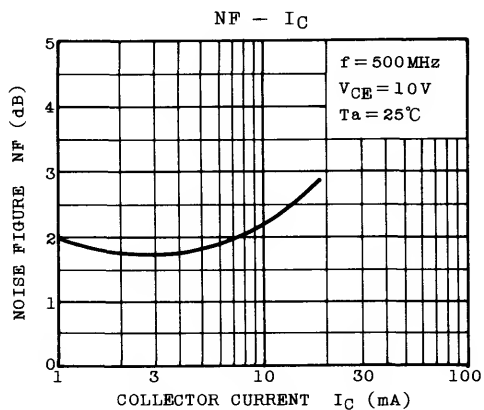
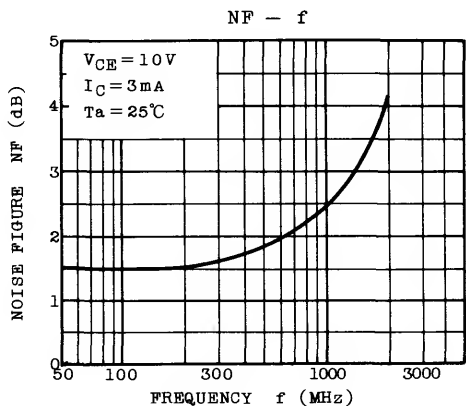
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Transition Frequency	$f_T$	$V_{CE}=10V, I_C=10mA$	-	4.0	-	GHz
Insertion Gain	$ S_{21e} ^2(1)$	$V_{CE}=10V, I_C=10mA, f=500MHz$	-	15.0	-	dB
	$ S_{21e} ^2(2)$	$V_{CE}=10V, I_C=10mA, f=1000MHz$	-	9.5	-	dB
Noise Figure	NF (1)	$V_{CE}=10V, I_C=3mA,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

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	$I_{CBO}$	$V_{CB}=10V, I_E=0$	-	-	0.1	$\mu A$
Emitter Cut-off Current	$I_{EBO}$	$V_{EB}=1.0V, I_C=0$	-	-	1.0	$\mu A$
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

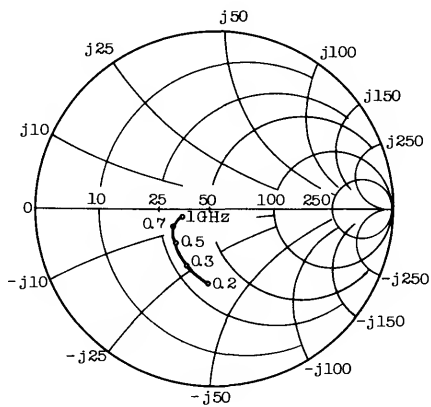
Note :  $C_{re}$  is measured by 3 terminal method with Capacitance Bridge.



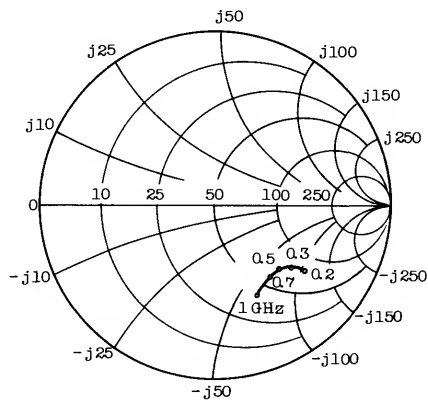


## COMMON EMITTER SMALL SIGNAL S-PARAMETERS OF 2SC2499.

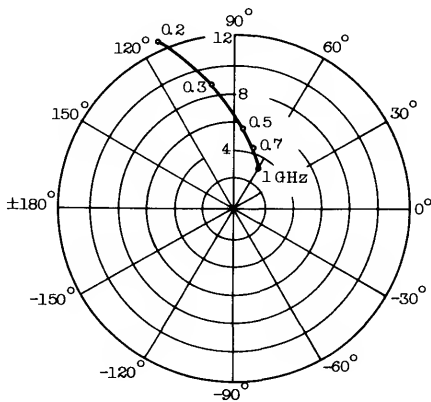
$V_{CE}=10V, I_C=10mA$



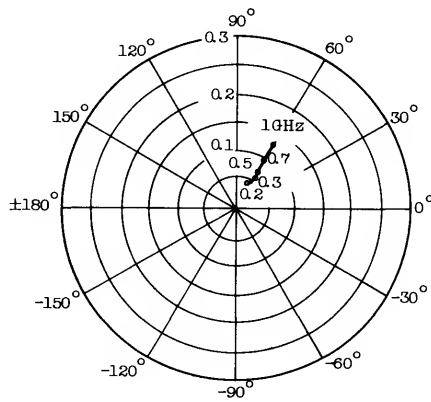
$S_{11e}$  (UNIT :  $\Omega$ )



$S_{22e}$  (UNIT :  $\Omega$ )



$S_{21e}$



$S_{12e}$