

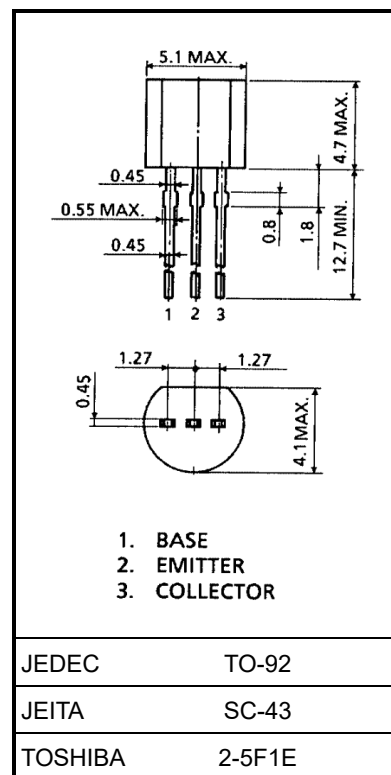
2SC2498 Datasheet

TOSHIBA Transistor Silicon NPN Epitaxial Planar Type
VHF~UHF Band Low Noise Amplifier Application

Unit: mm

Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CB0}	30	V
Collector-emitter voltage	V_{CEO}	20	V
Emitter-base voltage	V_{EBO}	3	V
Collector current	I_C	50	mA
Base current	I_B	25	mA
Collector power dissipation	P_C	300	mW
Junction temperature	T_j	125	°C
Storage temperature range	T_{stg}	-55~125	°C



Weight: 0.21 g (typ.)

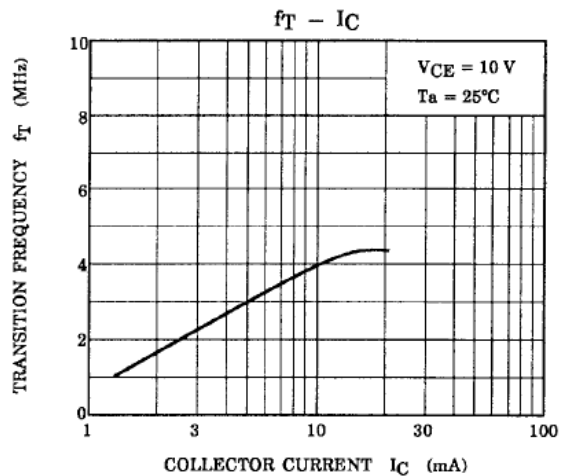
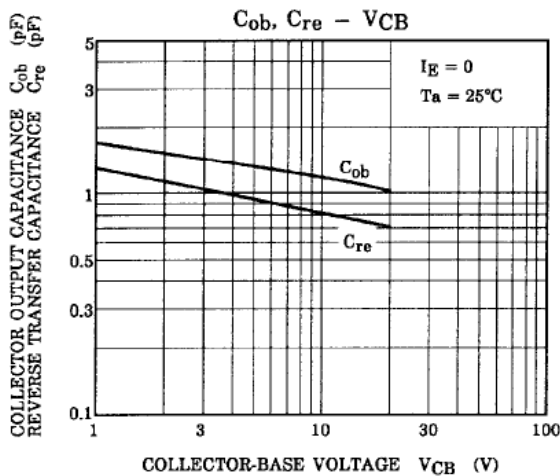
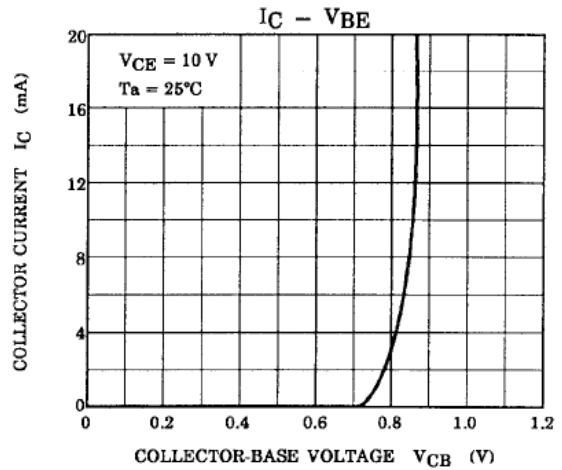
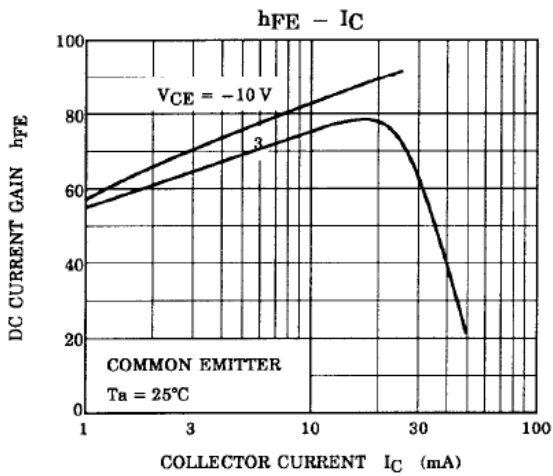
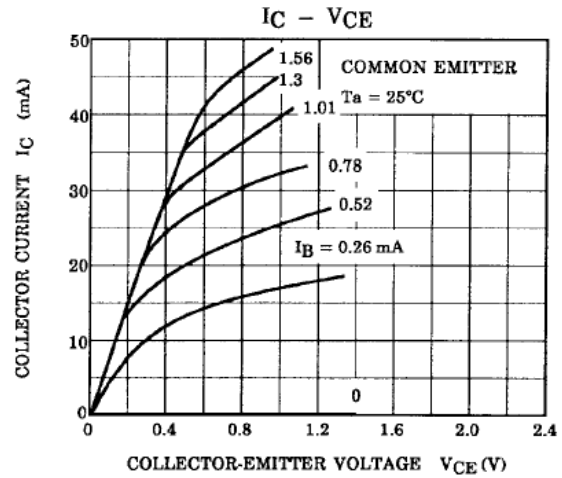
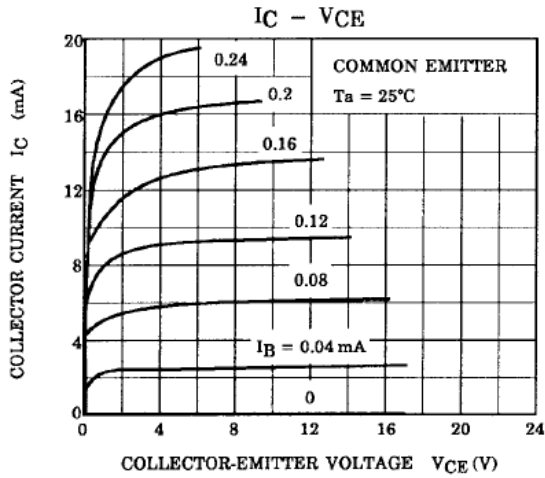
Microwave Characteristics (Ta = 25°C)

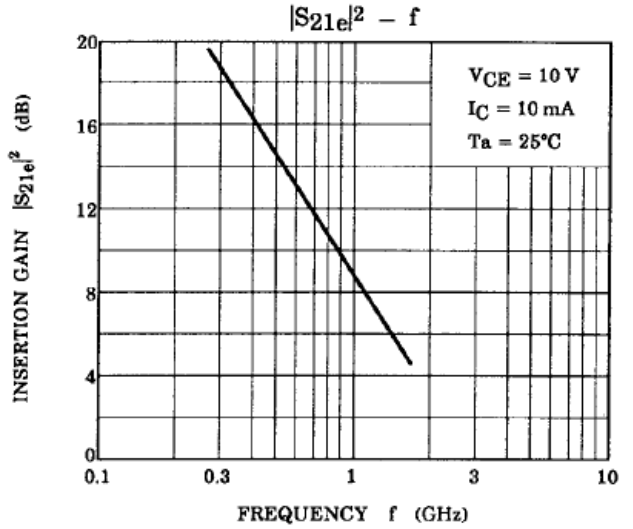
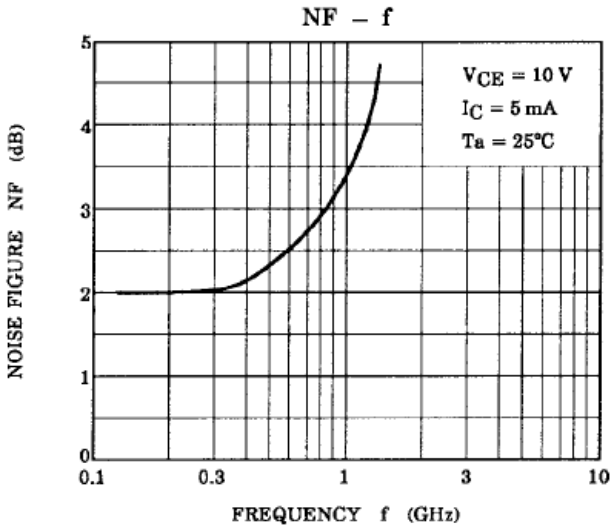
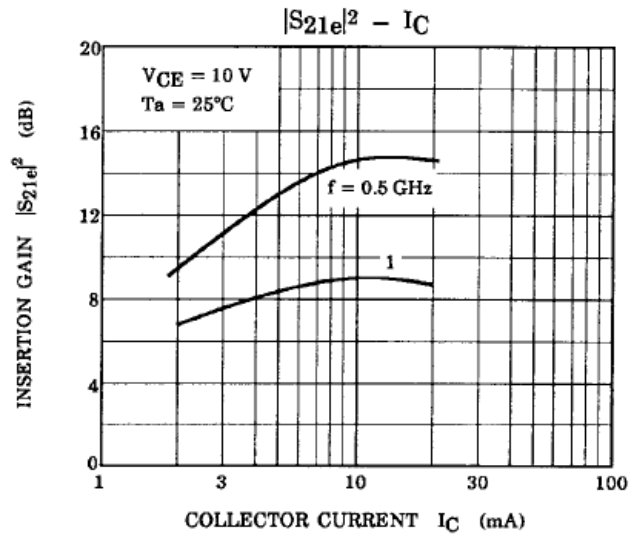
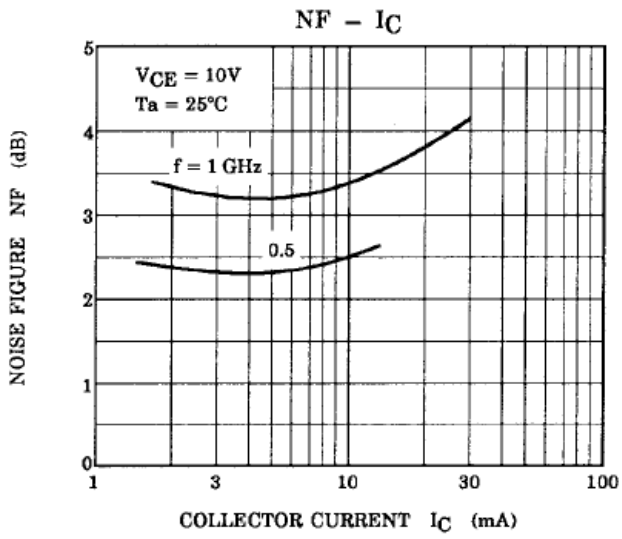
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Transition frequency	f_T	$V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}$	$\frac{3}{4}$	3.5	$\frac{3}{4}$	GHz
Insertion gain	$\bar{i} S_{21e} \bar{i}^2 (1)$	$V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}, f = 500 \text{ MHz}$	$\frac{3}{4}$	14.5	$\frac{3}{4}$	dB
	$\bar{i} S_{21e} \bar{i}^2 (2)$	$V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}, f = 1 \text{ GHz}$	$\frac{3}{4}$	9	$\frac{3}{4}$	
Noise figure	NF (1)	$V_{CE} = 10 \text{ V}, I_C = 5 \text{ mA}, f = 500 \text{ MHz}$	$\frac{3}{4}$	2.5	$\frac{3}{4}$	dB
	NF (2)	$V_{CE} = 10 \text{ V}, I_C = 5 \text{ mA}, f = 1 \text{ GHz}$	$\frac{3}{4}$	4	$\frac{3}{4}$	

Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	$V_{CB} = 10 \text{ V}, I_E = 0$	$\frac{3}{4}$	$\frac{3}{4}$	1	nA
Emitter cut-off current	I_{EBO}	$V_{EB} = 1 \text{ V}, I_C = 0$	$\frac{3}{4}$	$\frac{3}{4}$	1	nA
DC current gain	h_{FE}	$V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}$	30	80	300	
Collector output capacitance	C_{ob}	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$ (Note)	$\frac{3}{4}$	1.15	$\frac{3}{4}$	pF
Reverse transfer capacitance	C_{re}		$\frac{3}{4}$	0.75	$\frac{3}{4}$	pF

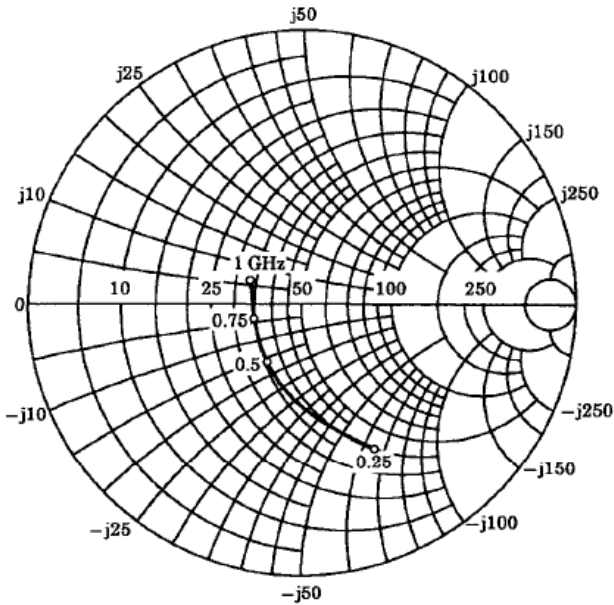
Note: C_{re} is measured by 3 terminal method with capacitance bridge.



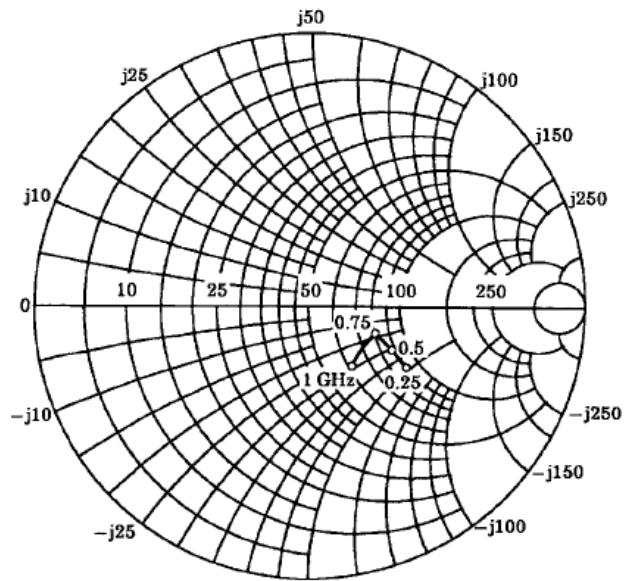


Common Emitter Small Signal S-Parameters of 2SC2498.

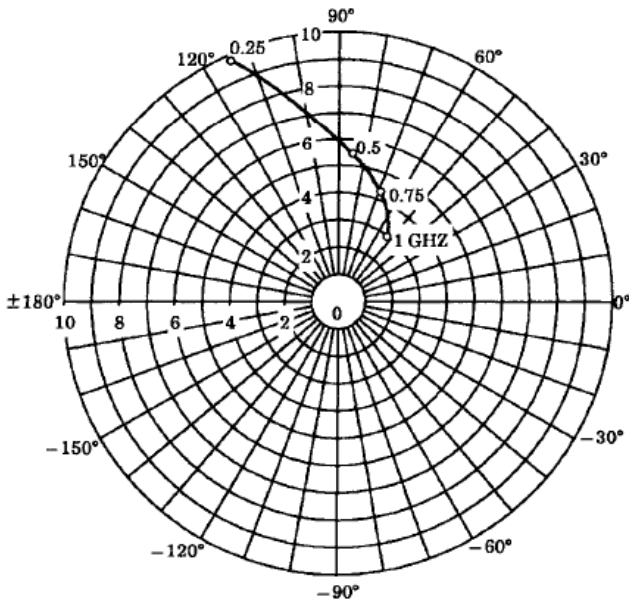
$V_{CE} = 10\text{ V}$, $I_C = 10\text{ mA}$



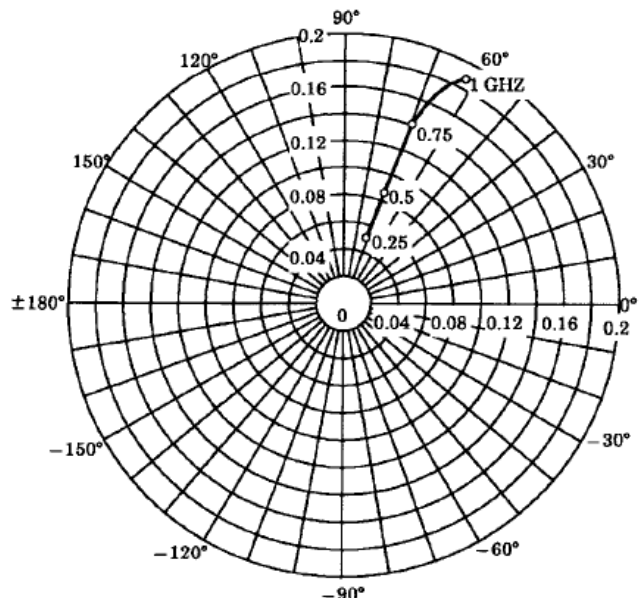
S_{11e} (UNIT : Ω)



S_{22e} (UNIT : Ω)



S_{21e}



S_{12e}

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