

VHF/UHF WIDE BAND AMPLIFIER APPLICATION.

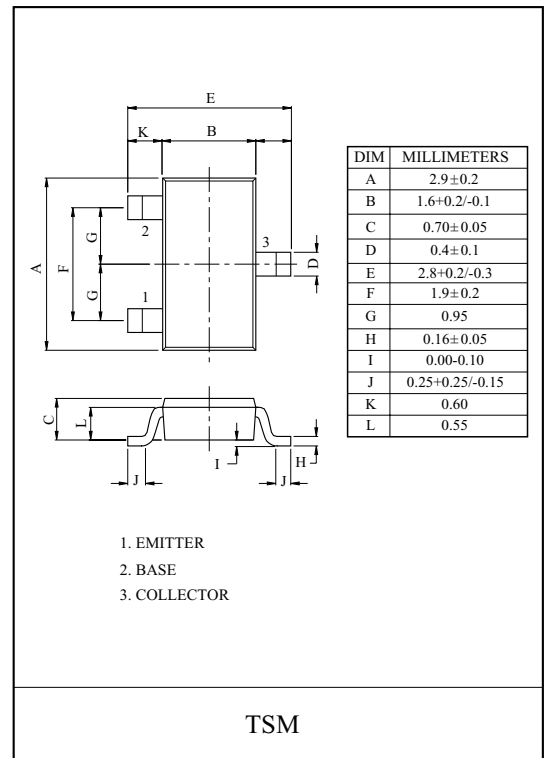
FEATURES

- Low Noise Figure, High Gain.
- NF=1.1dB, $|S_{21e}|^2=11\text{dB}$ (f=1GHz).

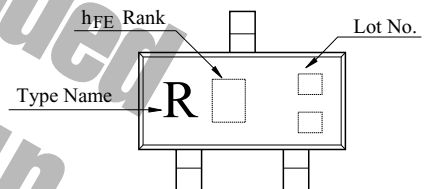
MAXIMUM RATING (Ta=25)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	20	V
Collector-Emitter Voltage	V_{CEO}	12	V
Emitter-Base Voltage	V_{EBO}	3	V
Collector Current	I_C	100	mA
Collector Power Dissipation	P_C^*	0.9	W
Junction Temperature	T_j	150	
Storage Temperature Range	T_{stg}	-55 150	

* Package mounted on a ceramic board (600mm² × 0.8mm)



Marking



ELECTRICAL CHARACTERISTICS (Ta=25)

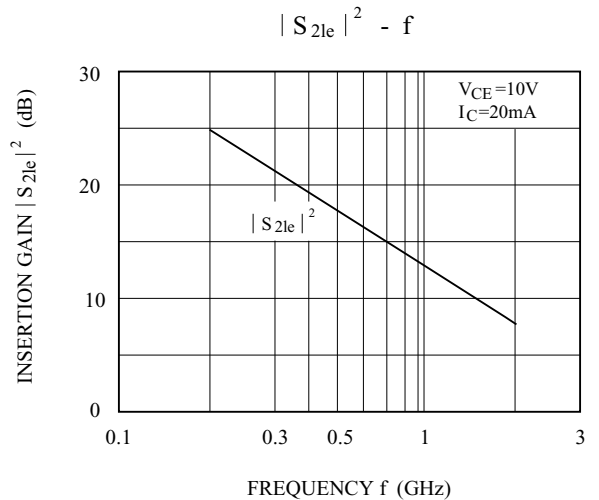
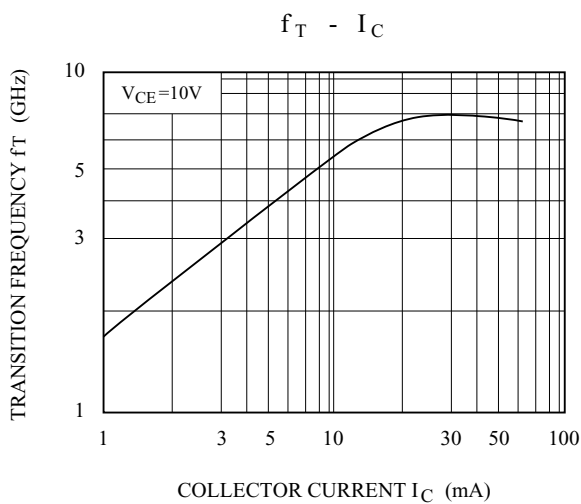
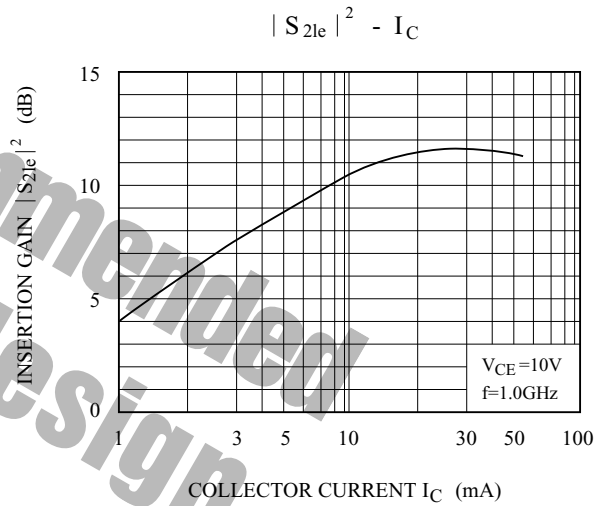
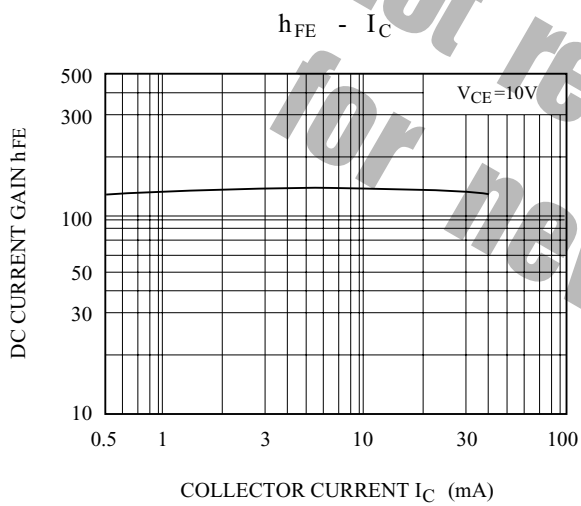
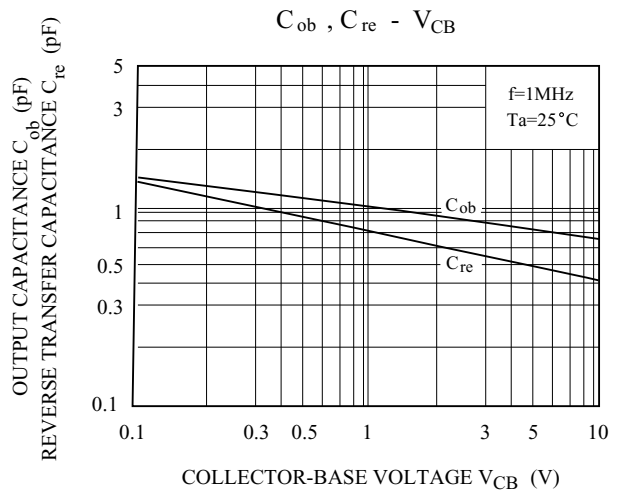
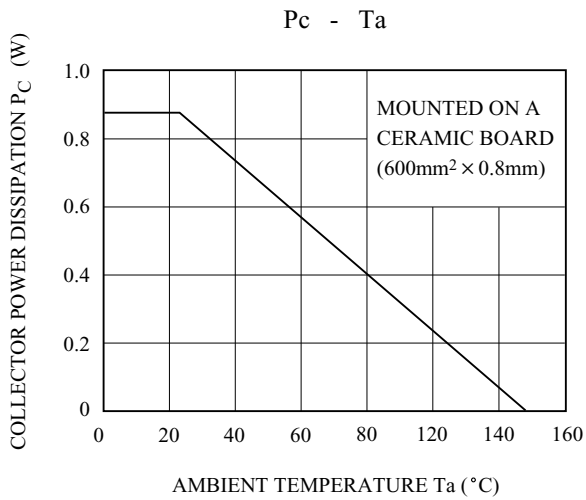
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	$V_{CB}=10\text{V}, I_E=0$	-	-	1	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB}=1\text{V}, I_C=0$	-	-	1	μA
DC Current Gain	h_{FE} (Note1)	$V_{CE}=10\text{V}, I_C=20\text{mA}$	50	-	250	
Collector Output Capacitance	C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$	-	-	1.0	pF
Reverse Transfer Capacitance	C_{re}	(Note2)	-	0.65	1.15	pF
Transition Frequency	f_T	$V_{CE}=10\text{V}, I_C=20\text{mA}$	5	7	-	GHz
Insertion Gain	$ S_{21e} ^2$	$V_{CE}=10\text{V}, I_C=20\text{mA}, f=1\text{GHz}$	7.5	11.5	-	dB
Noise Figure	NF	$V_{CE}=10\text{V}, I_C=7\text{mA}, f=1\text{GHz}$	-	1.1	2	dB

Note 1 : h_{FE} Classification A:50~100, B:80~160, C:125~250.

Note 2 : C_{re} is measured by 3 terminal method with capacitance bridge.

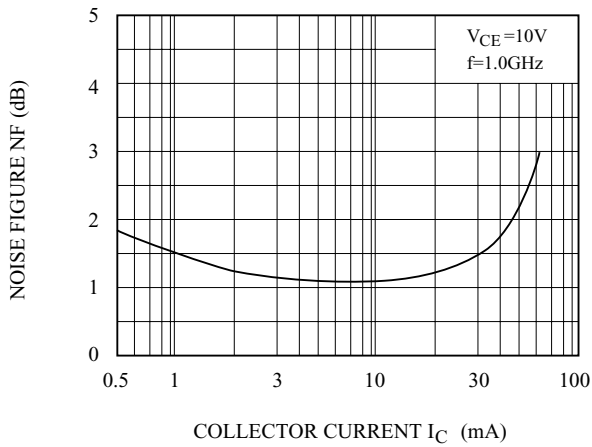
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TYPICAL CHARACTERISTICS (Ta=25°C)

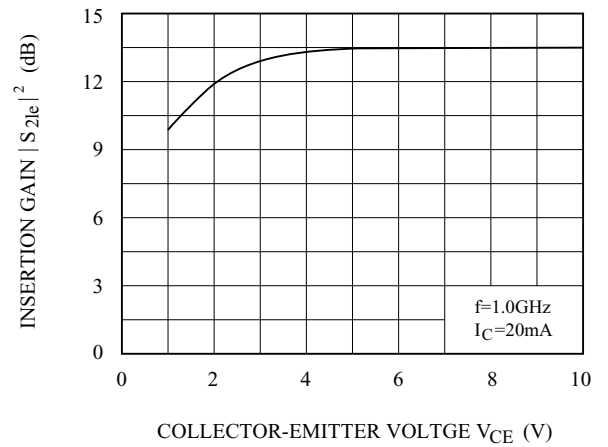


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NF - I_C



|S_{21e}|² - V_{CE}



S-PARAMETER

(V_{CE}=10V, I_C=5mA, Z_O=50)

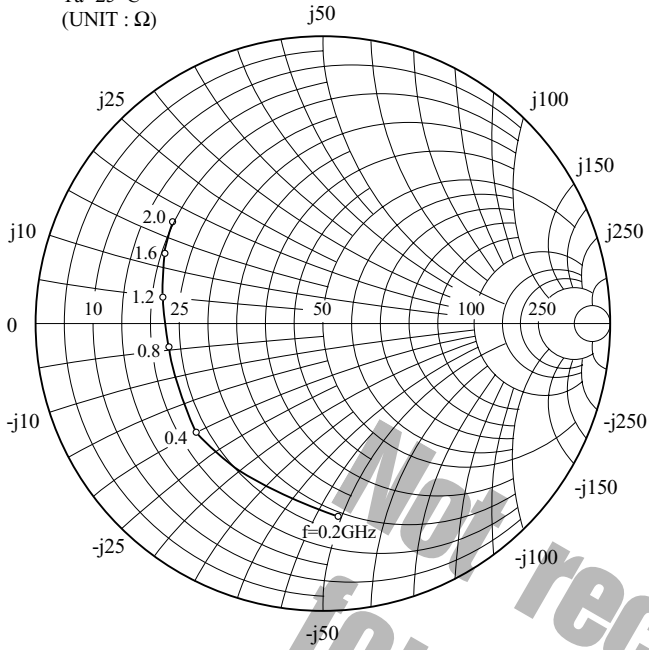
f (MHz)	S ₁₁	S ₁₁	S ₂₁	S ₂₁	S ₁₂	S ₁₂	S ₂₂	S ₂₂
200	0.651	-69.3	10.616	129.3	0.051	59.2	0.735	-28.1
400	0.467	-113.3	6.856	104.4	0.071	54.4	0.550	-34.1
600	0.391	-139.3	4.852	90.9	0.086	56.0	0.468	-33.9
800	0.360	-159.2	3.802	81.2	0.101	59.1	0.426	-33.6
1000	0.360	-176.9	3.098	72.9	0.118	61.0	0.397	-35.7
1200	0.361	172.7	2.646	67.3	0.137	63.5	0.373	-38.3
1400	0.381	160.3	2.298	59.3	0.157	63.3	0.360	-43.0
1600	0.398	152.2	2.071	55.2	0.180	64.1	0.337	-45.9
1800	0.423	143.3	1.836	49.0	0.203	63.7	0.320	-52.3
2000	0.445	137.6	1.689	46.2	0.220	64.7	0.302	-52.2

(V_{CE}=10V, I_C=20mA, Z_O=50)

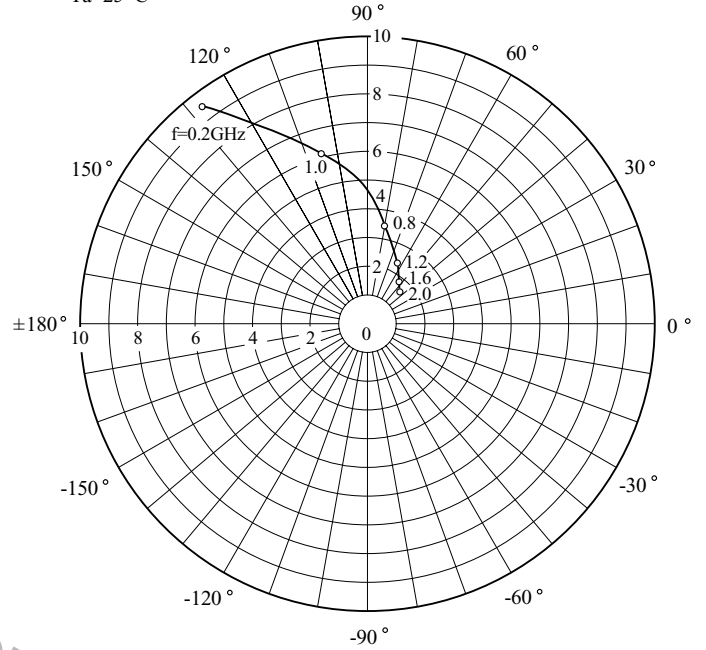
f (MHz)	S ₁₁	S ₁₁	S ₂₁	S ₂₁	S ₁₂	S ₁₂	S ₂₂	S ₂₂
200	0.339	-107.0	16.516	108.7	0.035	66.1	0.459	-36.6
400	0.258	-147.3	8.928	92.1	0.060	71.0	0.343	-32.9
600	0.243	-167.7	6.022	83.0	0.085	71.9	0.305	-29.9
800	0.242	177.0	4.633	76.2	0.109	72.2	0.284	-29.4
1000	0.260	164.5	3.744	69.9	0.136	70.4	0.266	-31.7
1200	0.269	157.6	3.193	65.7	0.160	69.9	0.246	-35.0
1400	0.294	148.7	2.750	58.8	0.187	66.7	0.233	-40.4
1600	0.314	143.1	2.479	55.5	0.212	65.2	0.208	-43.6
1800	0.343	136.5	2.185	50.1	0.238	62.4	0.190	-50.5
2000	0.367	131.4	2.016	47.8	0.254	61.6	0.173	-48.3

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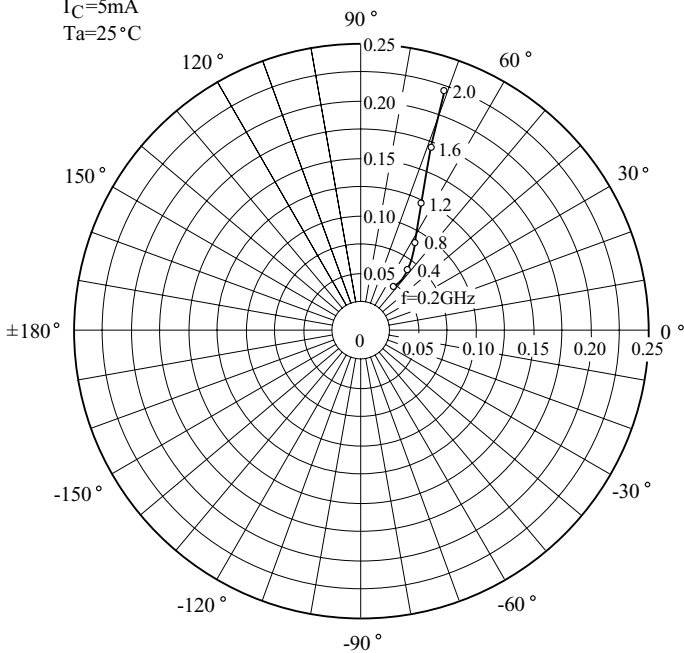
S_{11e}
 V_{CE}=10V
 I_C=5mA
 T_a=25°C
 (UNIT : Ω)



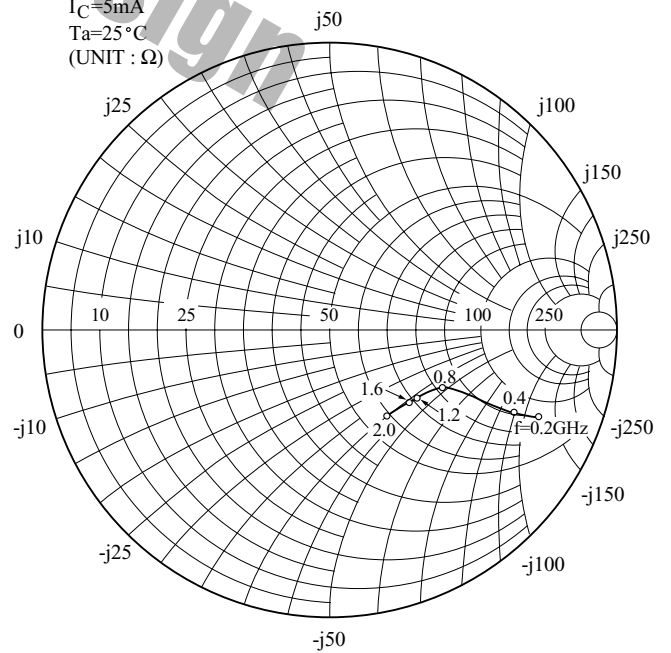
S_{12e}
 V_{CE}=10V
 I_C=5mA
 T_a=25°C



S_{21e}
 V_{CE}=10V
 I_C=5mA
 T_a=25°C



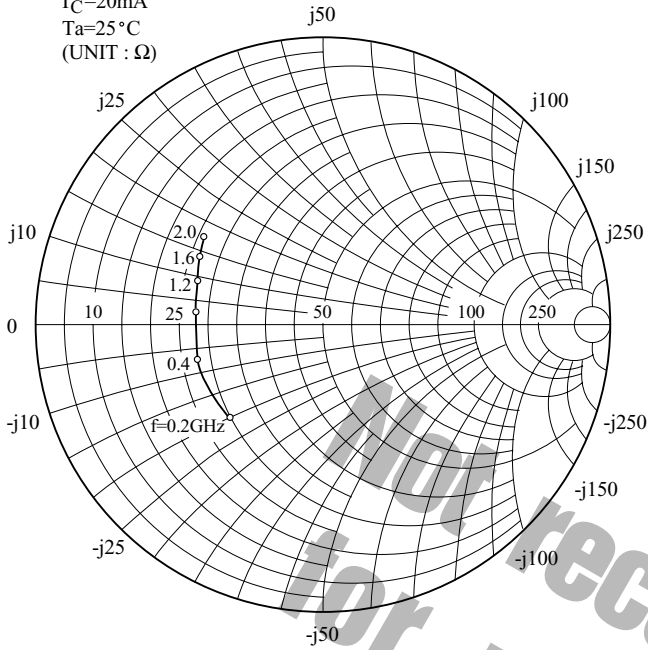
S_{22e}
 V_{CE}=10V
 I_C=5mA
 T_a=25°C
 (UNIT : Ω)



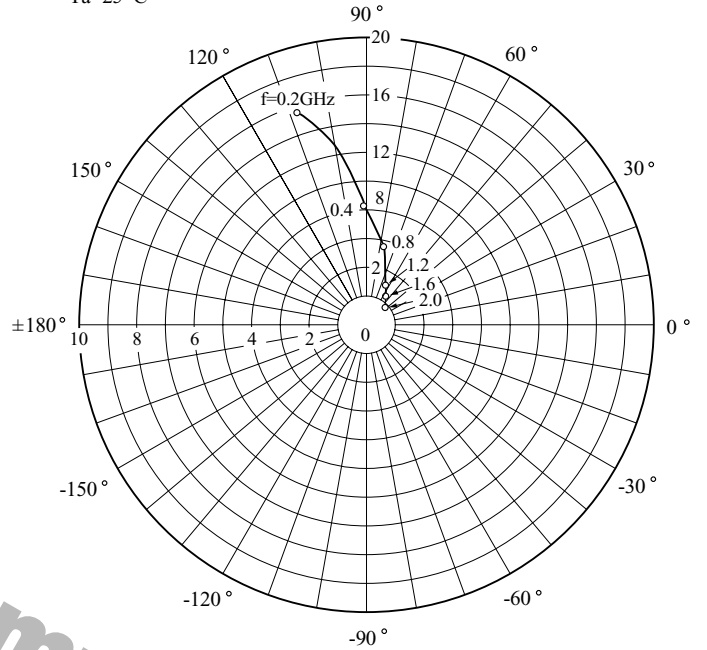
Not recommended for new design

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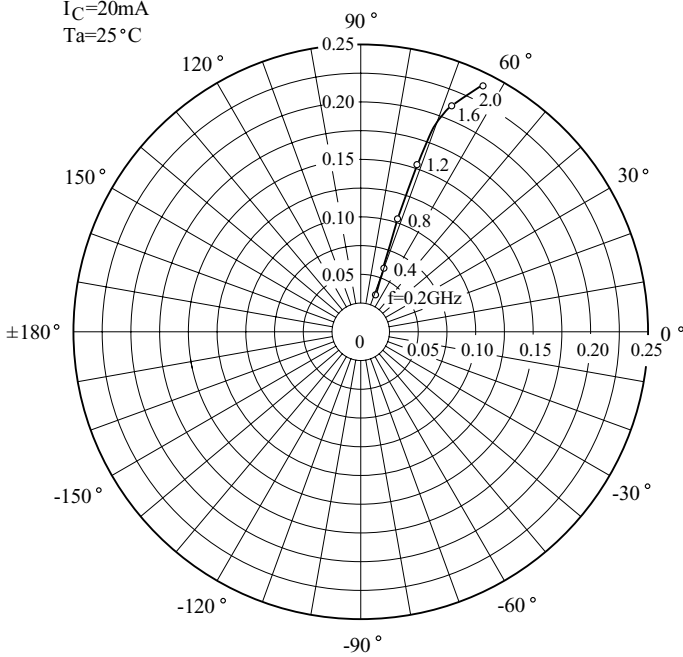
S_{11e}
 V_{CE}=10V
 I_C=20mA
 T_a=25°C
 (UNIT : Ω)



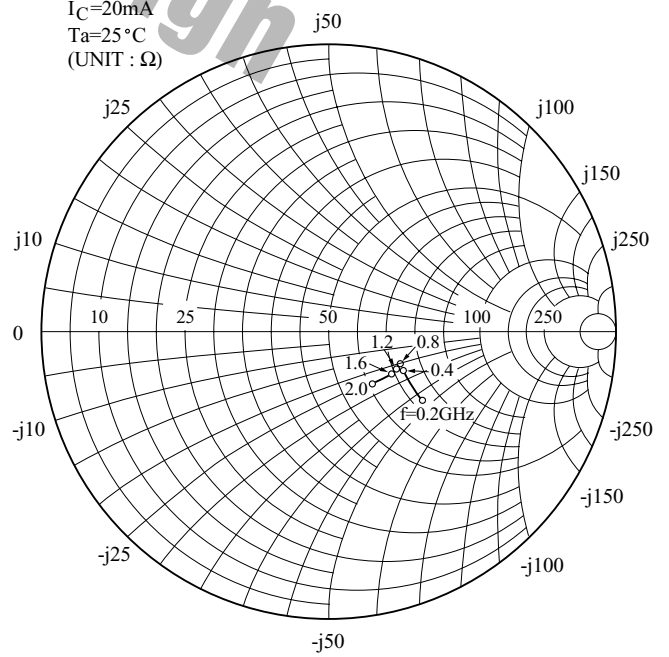
S_{12e}
 V_{CE}=10V
 I_C=20mA
 T_a=25°C



S_{21e}
 V_{CE}=10V
 I_C=20mA
 T_a=25°C



S_{22e}
 V_{CE}=10V
 I_C=20mA
 T_a=25°C
 (UNIT : Ω)



Not recommended for new design