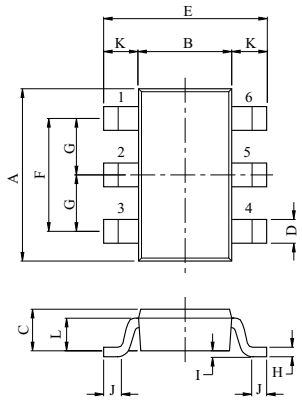
VHF/UHF WIDE BAND AMPLIFIER APPLICATION.

FEATURES

· Low Noise Figure, High Gain.

· NF=1.1dB, $|S_{21e}|^2$=13dB (f=1GHz).

· Two internal isolated Transistors in one package.



DIM	MILLIMETERS
A	2.9±0.2
B	1.6+0.2/-0.1
C	0.70±0.05
D	0.4±0.1
E	2.8+0.2/-0.3
F	1.9±0.2
G	0.95
H	0.16±0.05
I	0.00-0.10
J	0.25+0.25/-0.15
K	0.60
L	0.55

1. Q1 Base
2. Q1 Emitter
3. Q2 Collector
4. Q2 Base
5. Q2 Emitter
6. Q1 Collector

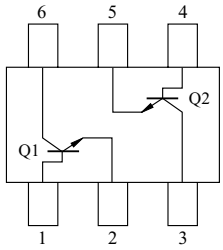
TS6

MAXIMUM RATING (Ta=25℃)

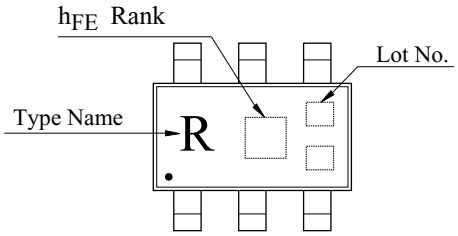
CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	20	V
Collector-Emitter Voltage	V_{CEO}	10	V
Emitter-Base Voltage	V_{EBO}	1.5	V
Collector Current	I_C	40	mA
Collector Power Dissipation	P_C*	900	mW
Junction Temperature	T_j	150	℃
Storage Temperature Range	T_{stg}	-55～150	℃

*Package mounted on a ceramic board (600mm^2 × 0.8mm)

EQUIVALENT CIRCUIT (Top View)



Marking



ELECTRICAL CHARACTERISTICS (Ta=25℃)

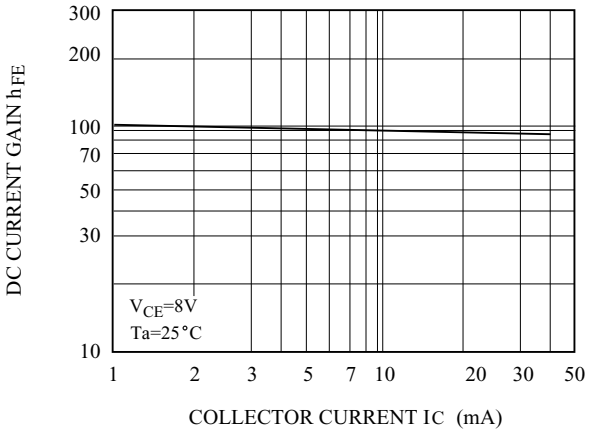
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	V_{CB}=10V, I_E=0	-	-	1	μA
Emitter Cut-off Current	I_{EBO}	V_{EB}=1V, I_C=0	-	-	1	μA
DC Current Gain	h_{FE} (Note1)	V_{CE}=8V, I_C=20mA	50	-	250	
Collector Output Capacitance	C_{ob}	V_{CB}=10V, I_E=0, f=1MHz (Note2)	-	0.7	-	pF
Reverse Transfer Capacitance	C_{re}		-	0.5	0.95	pF
Transition Frequency	f_T	V_{CE}=8V, I_C=20mA	7	10	-	GHz
Insertion Gain	$\|S_{21e}\|^2$ (1)	V_{CE}=8V, I_C=20mA, f=1GHz	10	13	-	dB
	$\|S_{21e}\|^2$ (2)	V_{CE}=8V, I_C=20mA, f=2GHz	-	7	-	dB
Noise Figure	NF (1)	V_{CE}=8V, I_C=5mA, f=1GHz	-	1.1	2.5	dB
	NF (2)	V_{CE}=8V, I_C=5mA, f=2GHz	-	1.7	-	dB

Note 1 : h_{FE} Classification H:50~100, J:80~160, K:125~250

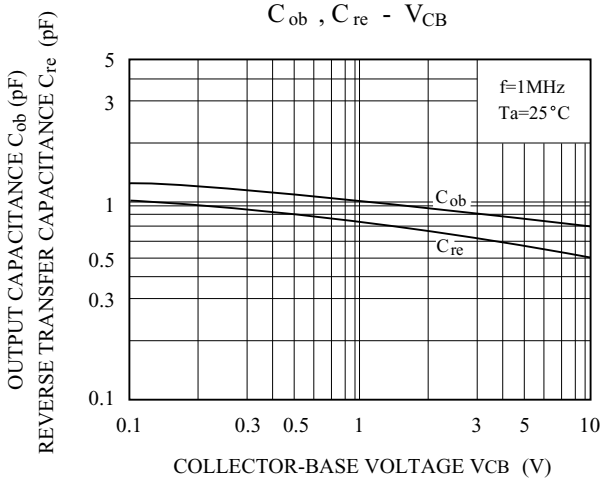
Note 2 : C_{re} is measured by 3 terminal method with capacitance bridge.

TYPICAL CHARACTERISTICS (Ta=25°C)

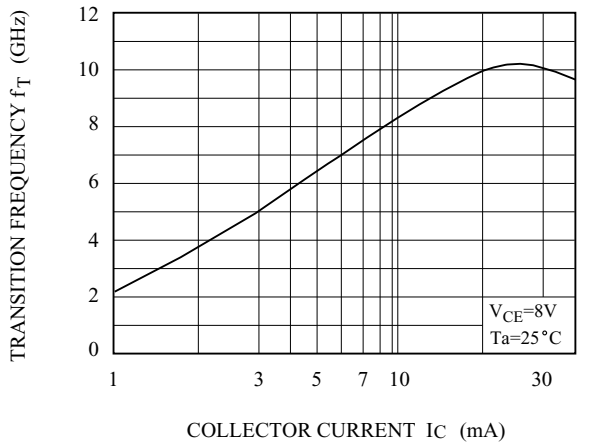
h_{FE} - I_C



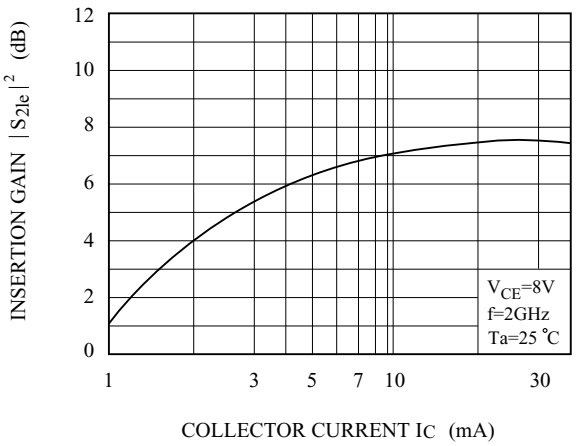
C_{ob} , C_{re} - V_{CB}



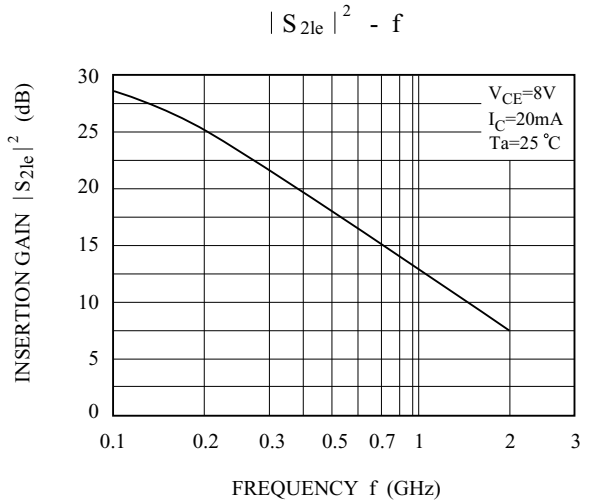
f_T - I_C



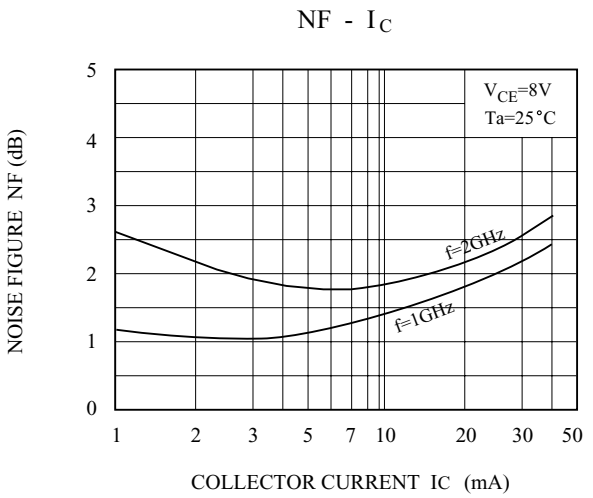
$|S_{21e}|^2$ - I_C



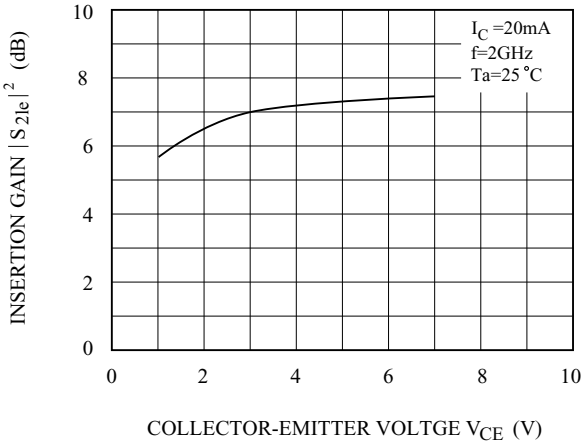
$|S_{21e}|^2$ - f



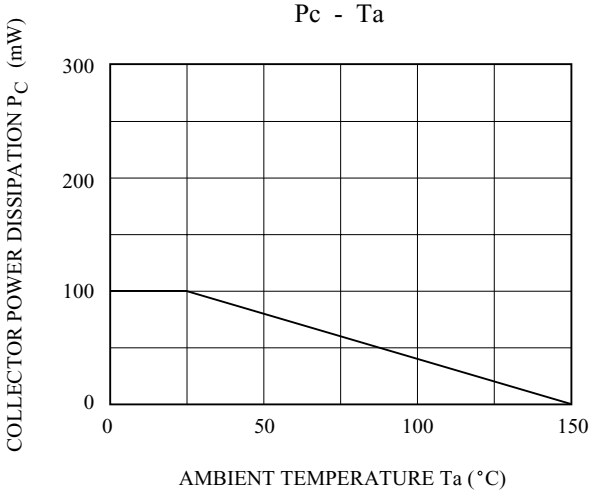
NF - I_C



$|S_{21e}|^2$ - V_{CE}



Pc - Ta



S-PARAMETER

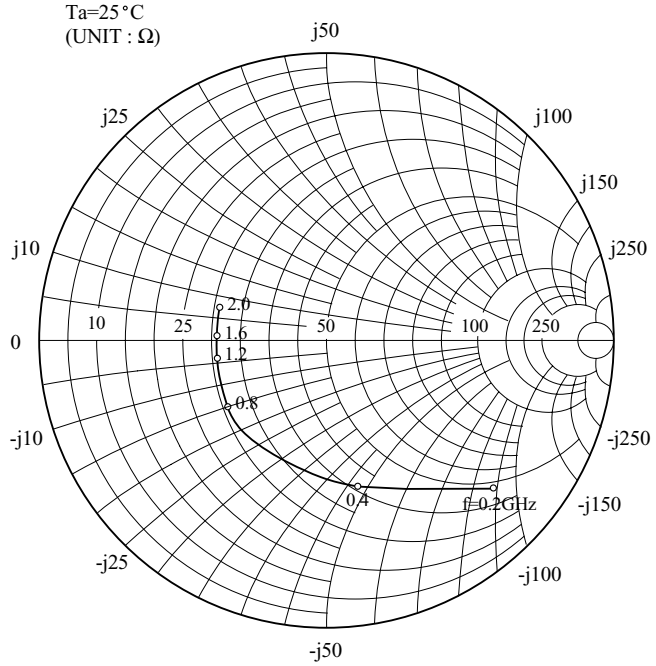
(V_{CE}=8V, I_C=5mA, Z_O=50 Ω, Ta=25℃)

Frequency	$\|S_{11}\|$		$\|S_{21}\|$		$\|S_{12}\|$		$\|S_{22}\|$	
(MHz)	Mag.	Ang.	Mag.	Ang.	Mag.	Ang.	Mag.	Ang.
200	0.683	-50.1	10.186	138.3	0.049	62.0	0.773	-30.0
400	0.462	-86.9	7.472	114.6	0.071	54.3	0.556	-39.6
600	0.343	-113.1	5.618	100.9	0.086	53.8	0.448	-41.7
800	0.282	-133.6	4.407	91.7	0.101	55.3	0.392	-41.6
1000	0.249	-151.0	3.663	84.7	0.115	57.2	0.360	-41.7
1200	0.236	-166.6	3.128	78.7	0.131	58.9	0.339	-41.7
1400	0.233	179.7	2.759	73.1	0.150	60.1	0.330	-42.8
1600	0.234	168.3	2.457	68.2	0.168	60.0	0.319	-45.0
1800	0.238	158.6	2.224	63.4	0.185	60.0	0.311	-47.9
2000	0.251	149.6	2.038	59.4	0.203	60.4	0.302	-50.2

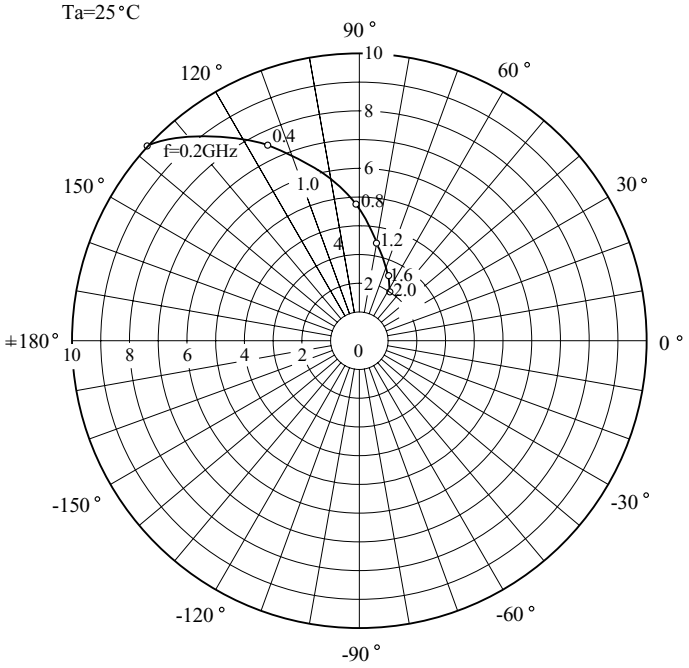
(V_{CE}=8V, I_C=20mA, Z_O=50 Ω, Ta=25℃)

Frequency	$\|S_{11}\|$		$\|S_{21}\|$		$\|S_{12}\|$		$\|S_{22}\|$	
(MHz)	Mag.	Ang.	Mag.	Ang.	Mag.	Ang.	Mag.	Ang.
200	0.319	-91.9	18.338	116.7	0.033	65.3	0.494	-43.5
400	0.213	-134.2	10.303	99.2	0.054	68.9	0.312	-42.4
600	0.185	-160.0	7.111	90.3	0.076	70.8	0.258	-37.6
800	0.176	-178.2	5.415	84.3	0.098	71.2	0.236	-34.3
1000	0.174	167.8	4.400	79.2	0.120	71.1	0.228	-32.0
1200	0.178	156.8	3.712	74.8	0.143	70.3	0.226	-31.5
1400	0.186	147.5	3.236	70.3	0.168	68.7	0.226	-32.8
1600	0.194	139.7	2.874	66.3	0.190	66.6	0.223	-35.9
1800	0.199	133.7	2.583	62.6	0.211	64.9	0.216	-39.0
2000	0.215	127.8	2.369	58.8	0.232	63.5	0.211	-41.9

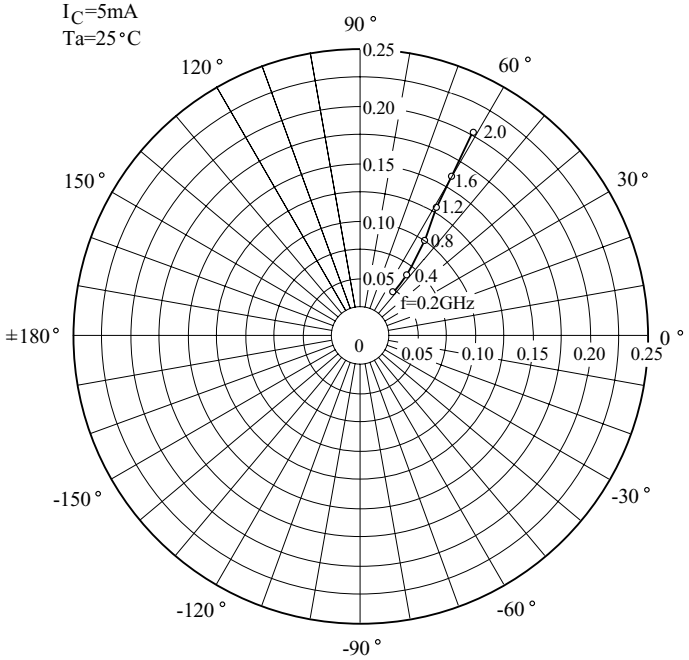
S_{11e}
V_{CE}=8V
I_C=5mA
Ta=25°C
(UNIT : Ω)



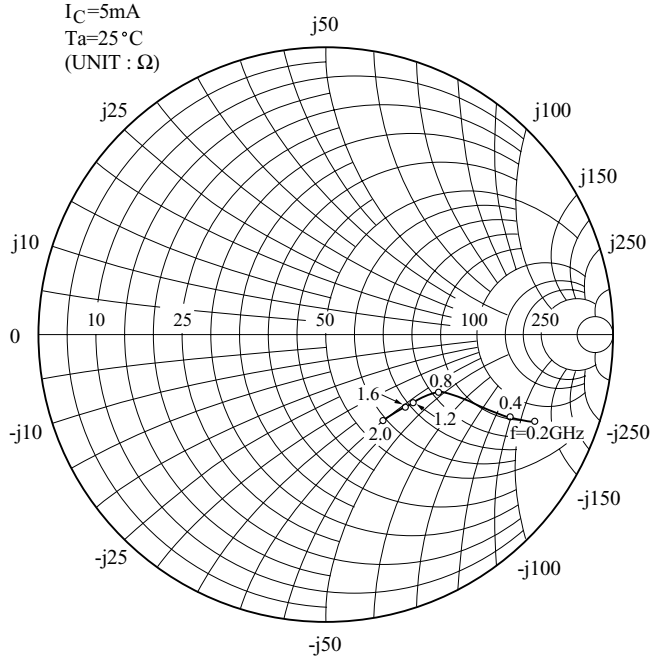
S_{21e}
V_{CE}=8V
I_C=5mA
Ta=25°C

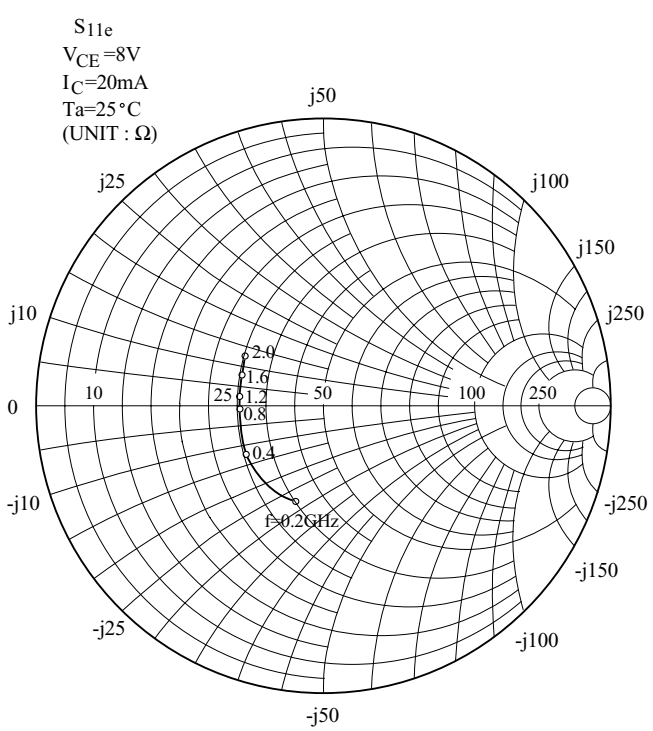


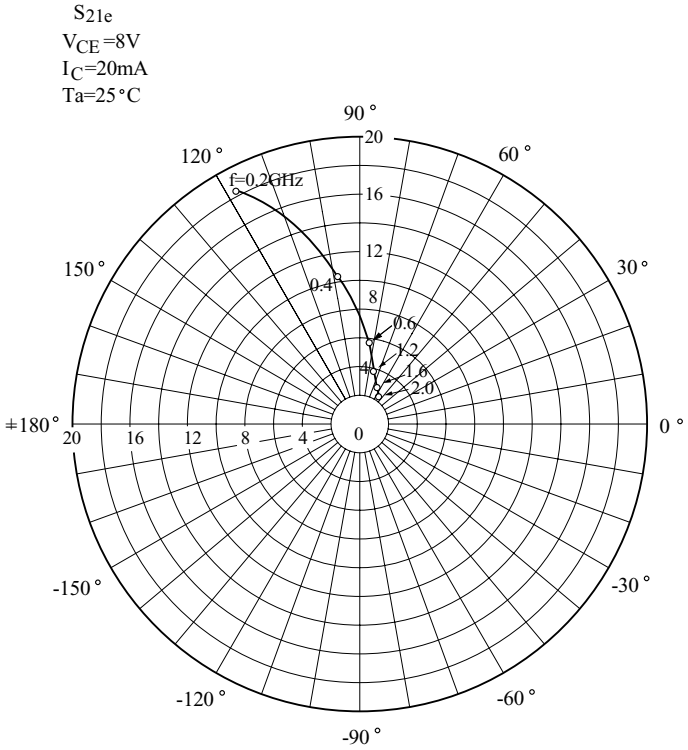
S_{12e}
V_{CE}=8V
I_C=5mA
Ta=25°C

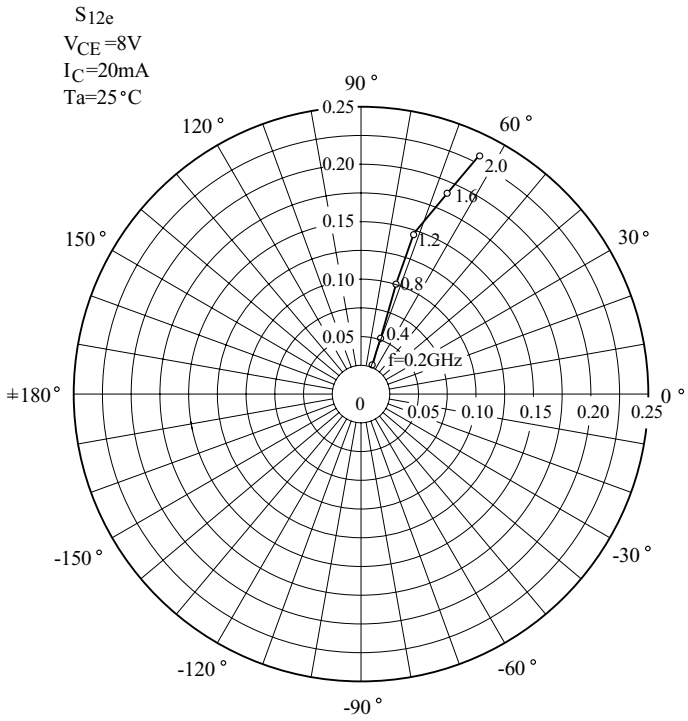


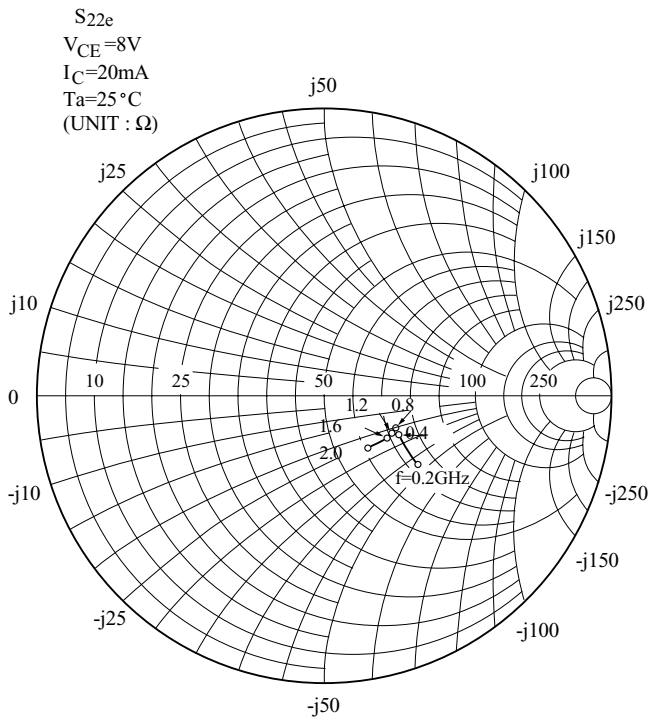
S_{22e}
V_{CE}=8V
I_C=5mA
Ta=25°C
(UNIT : Ω)




S11e
VCE =8V
IC=20mA
Ta=25°C
(UNIT : Ω)
j50
j25
j100
j150
j10
j250
0
-j10
-j250
-j25
-j150
-j100
-j50
10
25
50
100
250
2.0
1.6
1.2
0.8
0.4
f=0.2GHz


S21e
VCE =8V
IC=20mA
Ta=25°C
90 °
120 °
60 °
150 °
30 °
±180°
0 °
-150 °
-30 °
-120 °
-60 °
-90 °
20
16
12
8
4
0
0.4
0.6
1.2
1.6
2.0
f=0.2GHz


S12e
VCE =8V
IC=20mA
Ta=25°C
90 °
120 °
60 °
150 °
30 °
±180°
0 °
-150 °
-30 °
-120 °
-60 °
-90 °
0.25
0.20
0.15
0.10
0.05
0
2.0
1.6
1.2
0.8
0.4
f=0.2GHz


S22e
VCE =8V
IC=20mA
Ta=25°C
(UNIT : Ω)
j50
j25
j100
j150
j10
j250
0
-j10
-j250
-j25
-j150
-j100
-j50
10
25
50
100
250
1.2
0.8
1.6
0.4
2.0
f=0.2GHz