

isc Silicon NPN RF Transistor

2SC5064

DESCRIPTION

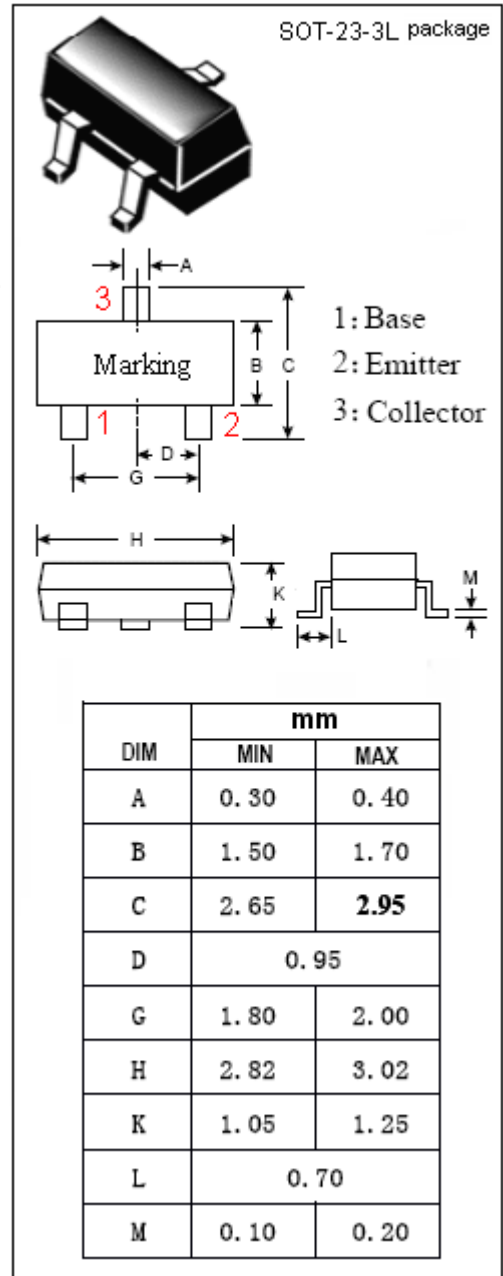
- Low Noise and High Gain
 $NF = 1.1 \text{ dB TYP.}, |S_{21e}|^2 = 12 \text{ dB TYP.}$
 $@V_{CE} = 5 \text{ V}, f = 1.0 \text{ GHz}$

APPLICATIONS

- Designed for VHF~UHF band low noise amplifier applications.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	20	V
V_{CEO}	Collector-Emitter Voltage	12	V
V_{EBO}	Emitter-Base Voltage	3.0	V
I_C	Collector Current-Continuous	30	mA
I_B	Base Current-Continuous	15	mA
P_C	Collector Power Dissipation @ $T_c=25^\circ\text{C}$	0.15	W
T_J	Junction Temperature	125	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-55~125	$^\circ\text{C}$



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ELECTRICAL CHARACTERISTICS

T_c=25°C unless otherwise specified

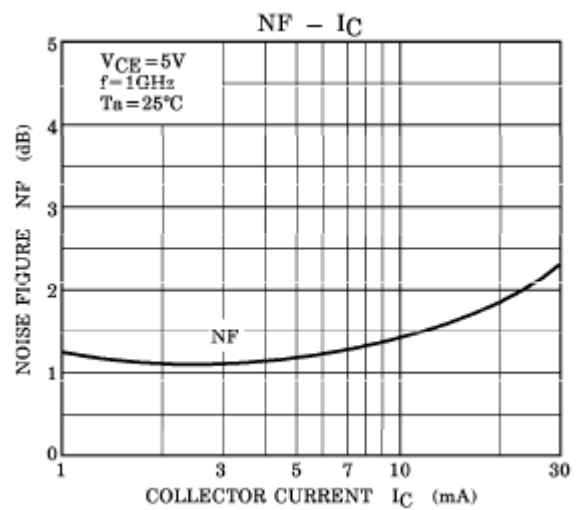
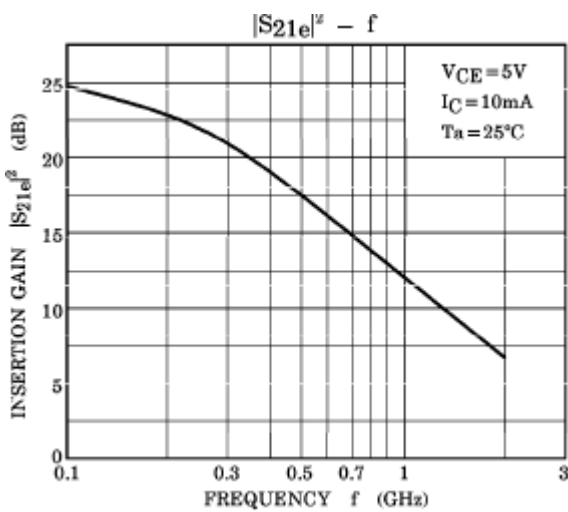
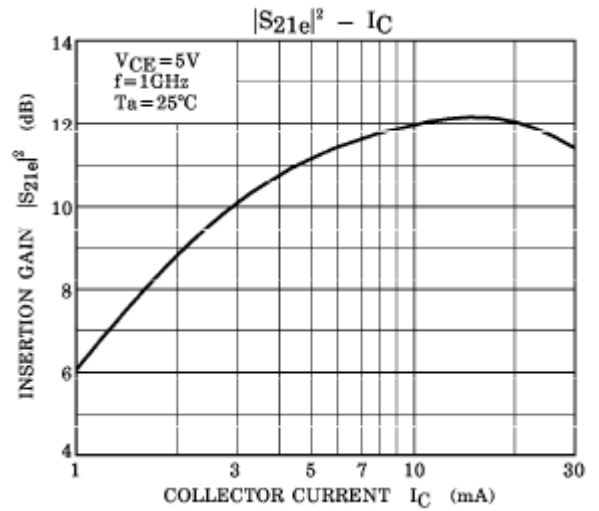
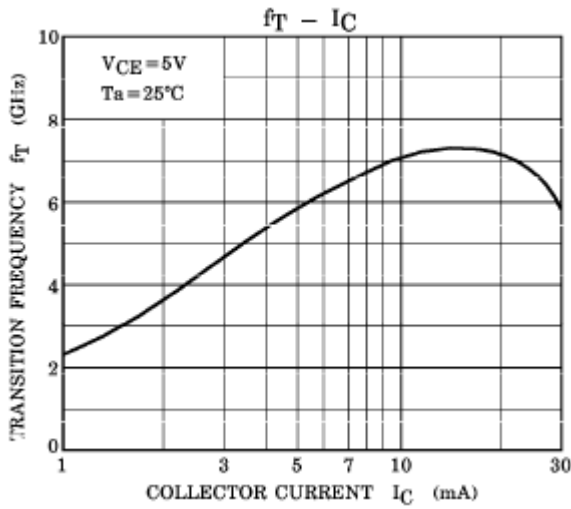
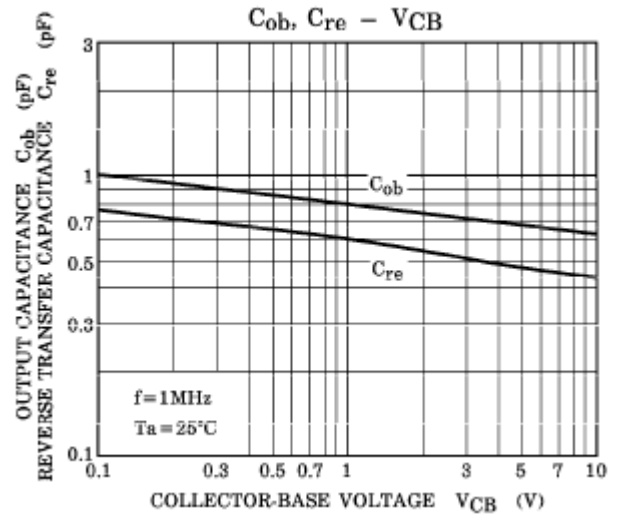
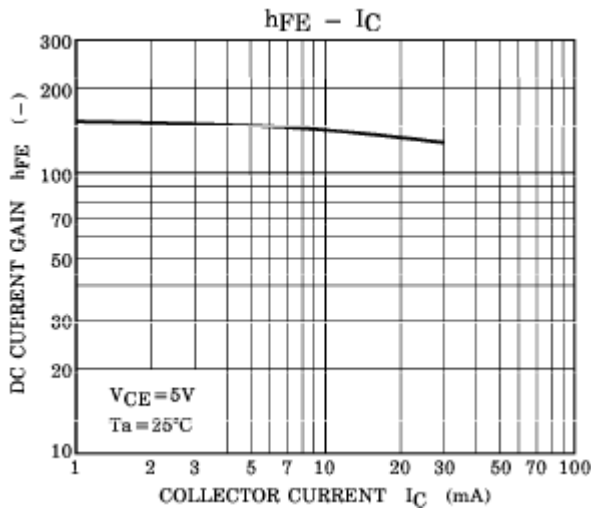
SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
I _{CBO}	Collector Cutoff Current	V _{CB} = 10V; I _E = 0			1.0	μ A
I _{EBO}	Emitter Cutoff Current	V _{EB} = 1V; I _C = 0			1.0	μ A
h _{FE}	DC Current Gain	I _C = 10mA ; V _{CE} = 5V	80		240	
f _T	Current-Gain—Bandwidth Product	I _C = 10mA ; V _{CE} = 5V	5	7		GHz
C _{re}	Feed-Back Capacitance	I _E = 0 ; V _{CB} = 5V; f= 1.0MHz		0.45	0.9	pF
C _{OB}	Output Capacitance	I _E = 0 ; V _{CB} = 5V; f= 1.0MHz		0.7		pF
S _{21e} ²	Insertion Power Gain	I _C = 10mA ; V _{CE} = 5V;f= 500MHz		17		dB
S _{21e} ²	Insertion Power Gain	I _C = 10mA ; V _{CE} = 5V;f= 1.0GHz	8.5	12		dB
NF	Noise Figure	I _C = 3mA ; V _{CE} = 5V;f= 500MHz		1		dB
NF	Noise Figure	I _C = 3mA ; V _{CE} = 5V;f= 1.0GHz		1.1	2.0	dB

◆ h_{FE} Classification

O	Y
80-160	120-240

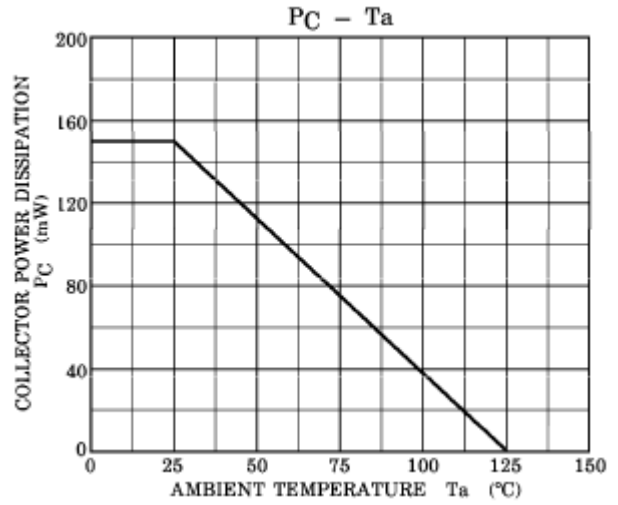
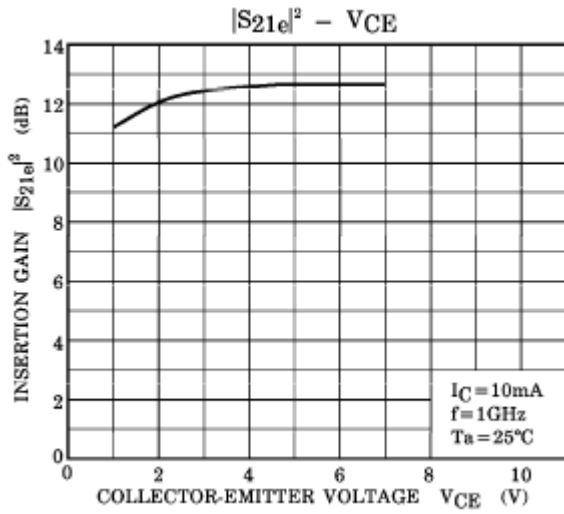
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S-PARAMETER

$V_{CE} = 5\text{ V}$, $I_C = 5\text{ mA}$, $Z_o = 50\ \Omega$

Freque.	S_{11}		S_{21}		S_{12}		S_{22}	
	MAG.	ANG.	MAG.	ANG.	MAG.	ANG.	MAG.	ANG.
200	0.753	-43.7	10.247	140.6	0.040	65.6	0.827	-22.6
400	0.531	-75.1	7.684	117.2	0.060	57.1	0.648	-30.3
600	0.384	-96.4	5.815	103.0	0.074	56.1	0.551	-32.0
800	0.305	-112.6	4.532	93.6	0.086	57.0	0.500	-32.3
1000	0.255	-126.3	3.788	86.3	0,099	58.9	0.472	-32.4
1200	0.224	-138.4	3.244	80.7	0,112	60.2	0.455	-32.2
1400	0.203	-150.1	2.833	75.4	0.127	60.3	0.442	-32.6
1600	0.187	-159.4	2.529	70.6	0,139	60.0	0.434	-33.0
1800	0.174	-166.5	2.283	66.7	0,150	60.3	0.429	-32.6
2000	0.176	-171.2	2.107	63.0	0,164	59.2	0.428	-32.2

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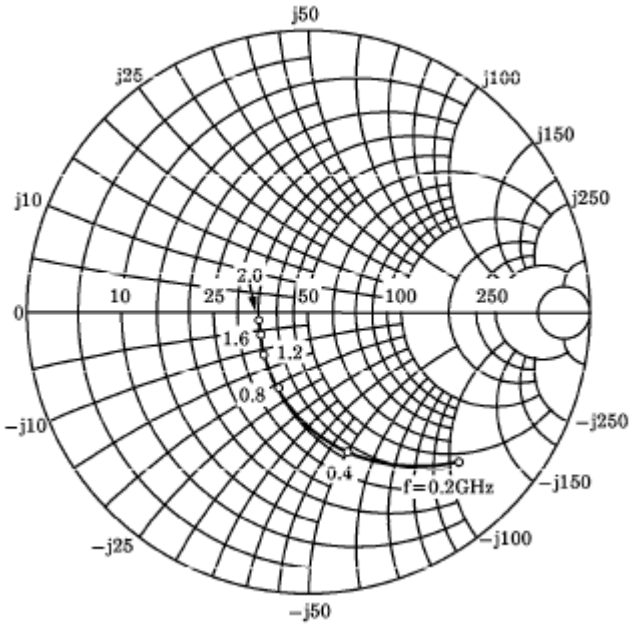
$V_{CE} = 5\text{ V}$, $I_C = 10\text{ mA}$, $Z_o = 50\ \Omega$

Freque.	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	MAG.	ANG.	MAG.	ANG.	MAG.	ANG.	MAG.	ANG.
200	0.591	-58.0	14.955	129.6	0.034	64.3	0.714	-27.5
400	0.367	-90.3	9.581	107.5	0.052	61.9	0.534	-30.8
600	0.260	-110.7	6.781	96.1	0.067	63.9	0.462	-30.1
800	0.209	-126.9	5.207	88.6	0.083	65.2	0.428	-29.2
1000	0.178	-141.8	4.269	82.5	0.100	66.4	0.412	-28.6
1200	0.160	-153.7	3.618	77.7	0.117	66.7	0.403	-28.3
1400	0.150	-166.3	3.152	72.7	0.135	65.4	0.398	-28.8
1600	0.141	-175.2	2.801	68.7	0.149	64.0	0.393	-29.4
1800	0.130	178.2	2.521	65.0	0.163	63.4	0.392	-29.0
2000	0.133	174.0	2.314	61.7	0.179	61.3	0.395	-28.6

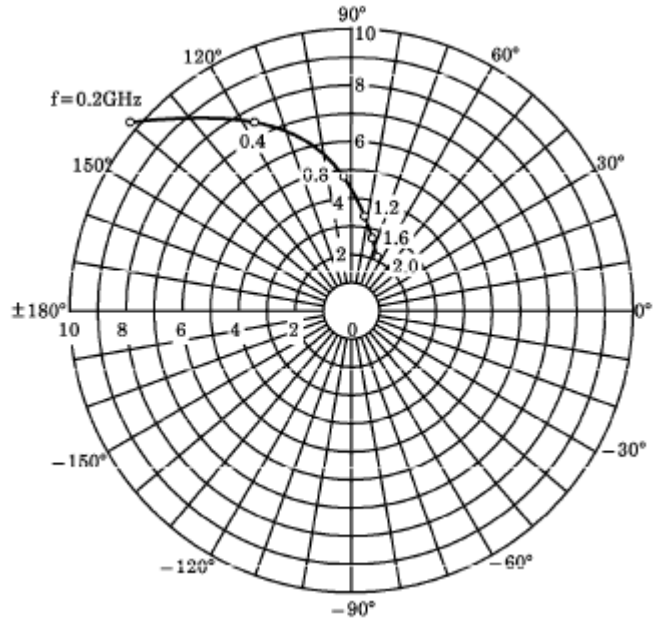
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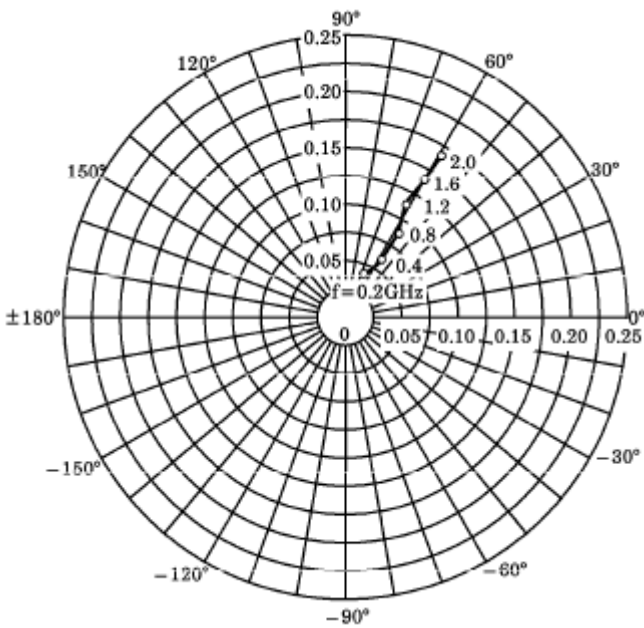
S_{11e}
 V_{CE} = 5V
 I_C = 5mA
 T_a = 25°C
 (UNIT : Ω)



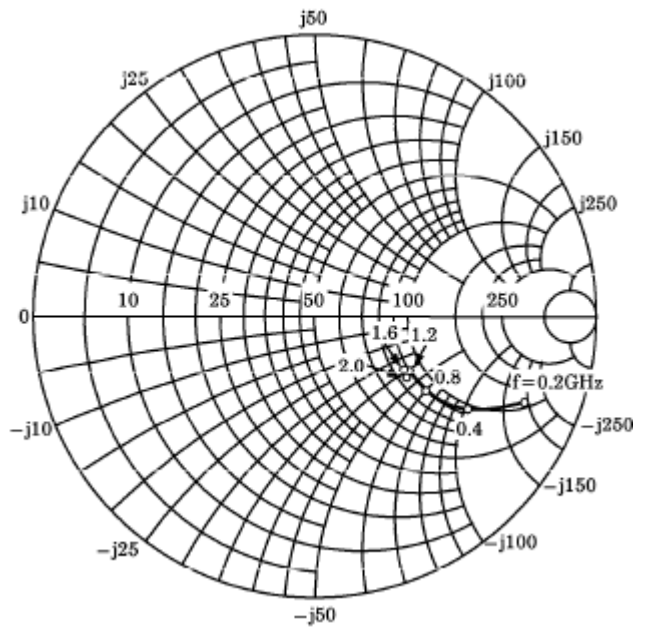
S_{21e}
 V_{CE} = 5V
 I_C = 5mA
 T_a = 25°C



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



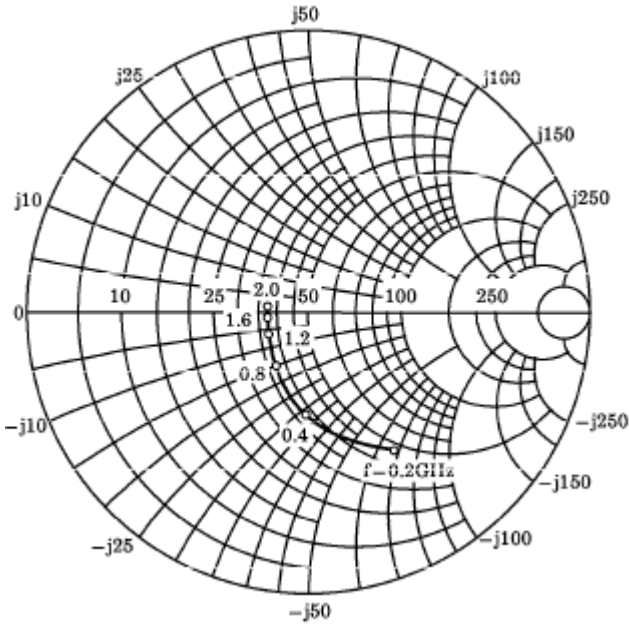
S_{22e}
 V_{CE} = 5V
 I_C = 5mA
 T_a = 25°C
 (UNIT : Ω)



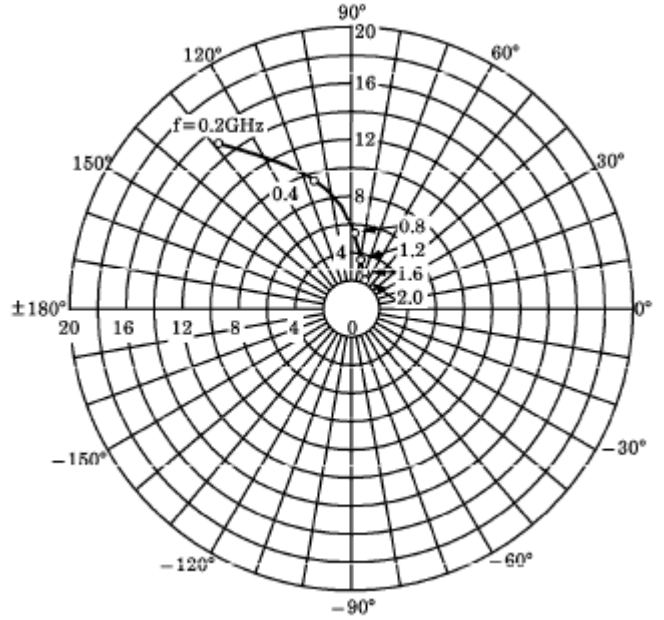
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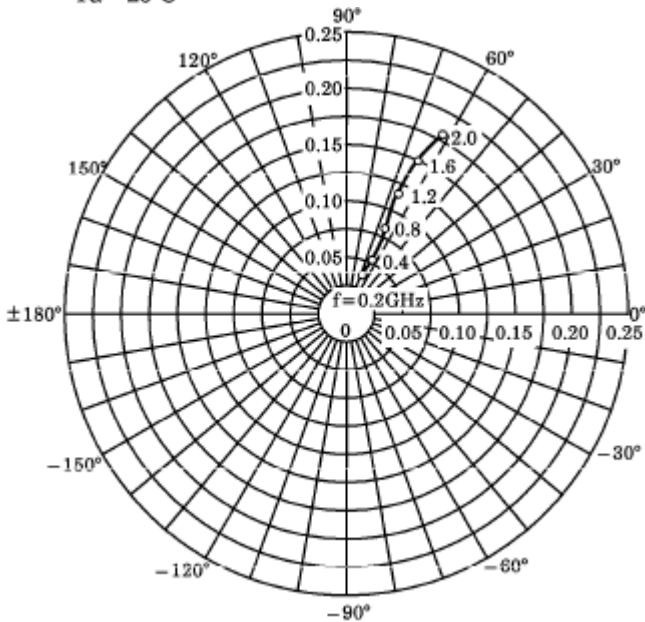
S_{11e}
 V_{CE} = 5V
 I_C = 10mA
 T_a = 25°C
 (UNIT : Ω)



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



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



S_{22e}
 V_{CE} = 5V
 I_C = 10mA
 T_a = 25°C

