isc Silicon NPN RF Transistor BFS520

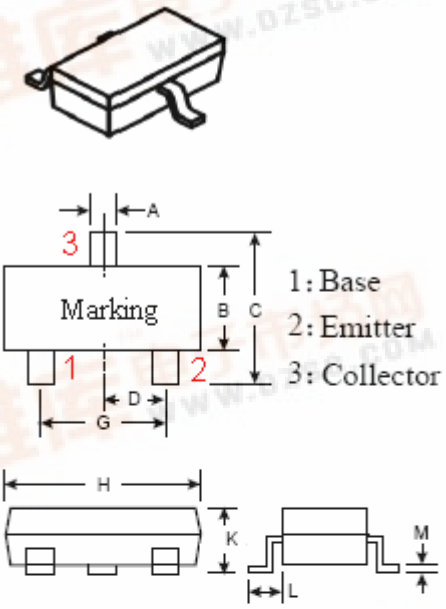
DESCRIPTION

- Low Noise Figure
  NF = 1.1 dB TYP. @V_{CE} = 6 V, I_C = 5 mA, f = 900 MHz
- High Current-Gain—Bandwidth Product
  fT= 9 GHz TYP. @V_{CE} = 6 V, I_C = 20 mA, f = 1 GHz

APPLICATIONS

- Designed for wideband applications such as satellite TV tuners,cellular phones, cordless phones,pagers etc, with signal frequencies up to 2 GHz.

SOT-323 package



DIM	mm MIN	MAX
A	0.30	0.40
B	1.15	1.35
C	2.00	2.40
D	0.65	
H	1.80	2.20
K	0.80	1.00
M	0.10	0.25

ABSOLUTE MAXIMUM RATINGS(T_a=25℃)

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	20	V
V_{CES}	Collector-Emitter Voltage R_{BE}= 0	15	V
V_{EBO}	Emitter-Base Voltage	2.5	V
I_C	Collector Current-Continuous	70	mA
P_C	Collector Power Dissipation @T_C=25℃	0.3	W
T_J	Junction Temperature	175	℃
T_{stg}	Storage Temperature Range	-65~150	℃

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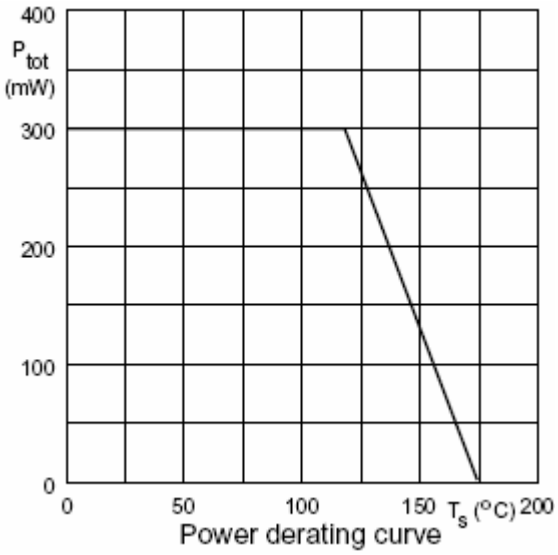
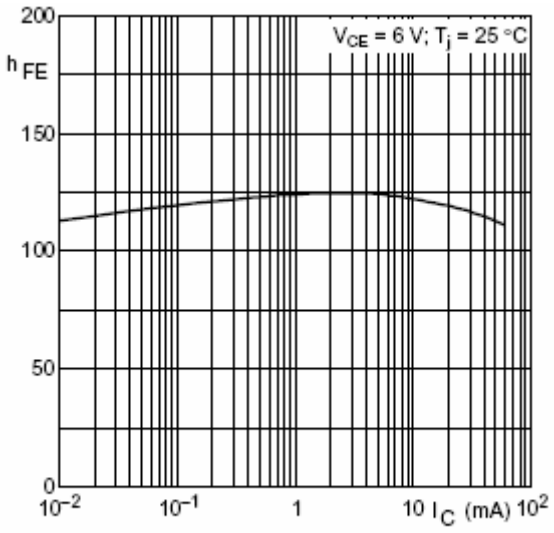
ELECTRICAL CHARACTERISTICS

T_C=25℃ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
I_{CBO}	Collector Cutoff Current	V_{CB}= 6V; I_E= 0			0.05	μA
h_{FE}	DC Current Gain	I_C= 20mA ; V_{CE}= 6V	60		250	
f_T	Current-Gain—Bandwidth Product	I_C= 20mA ; V_{CE}= 6V; f= 1GHz		9		GHz
C_{OB}	Output Capacitance	I_E= 0 ; V_{CB}= 6V; f= 1MHz		0.5		pF
C_{re}	Feedback Capacitance	I_C= 0 ; V_{CB}= 6V; f= 1MHz		0.4		pF
$\|S_{21e}\|^2$	Insertion Power Gain	I_C= 20mA ; V_{CE}= 6V; f= 900MHz	13	14		dB
NF	Noise Figure	I_C= 5mA ; V_{CE}= 6V; f= 900MHz		1.1	1.6	dB
NF	Noise Figure	I_C= 20mA ; V_{CE}= 6V; f= 900MHz		1.6	2.1	dB
NF	Noise Figure	I_C= 5mA ; V_{CE}= 6V; f= 2GHz		1.9		dB



Power derating curve



DC current gain as a function of collector current

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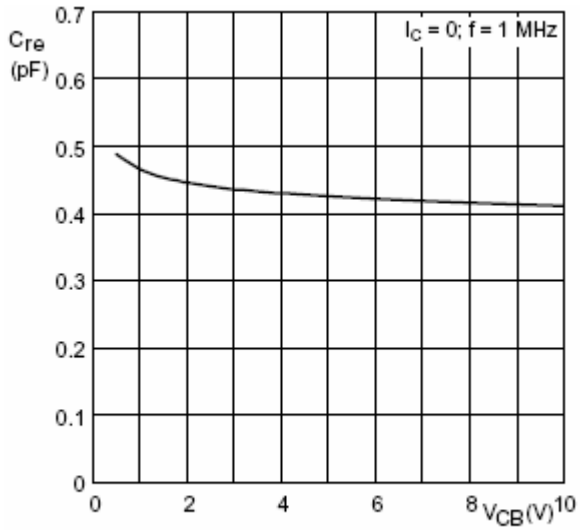
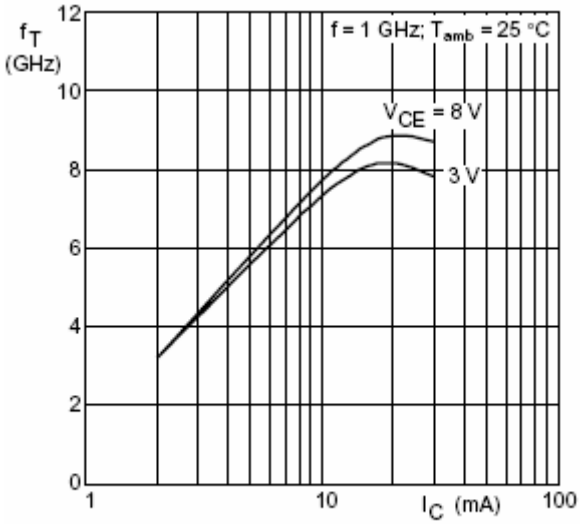
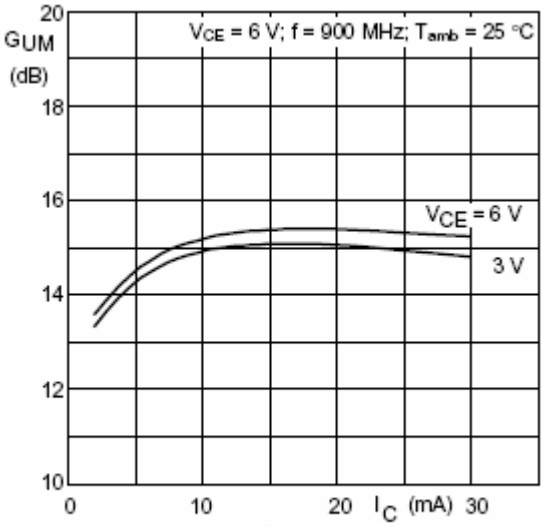


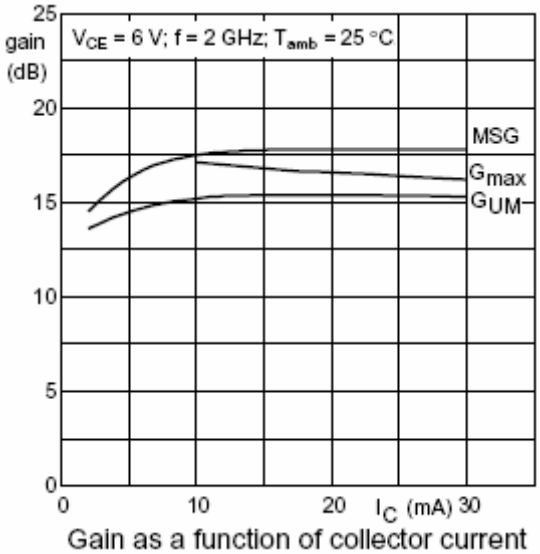
Feedback capacitance as a function of collector-base voltage



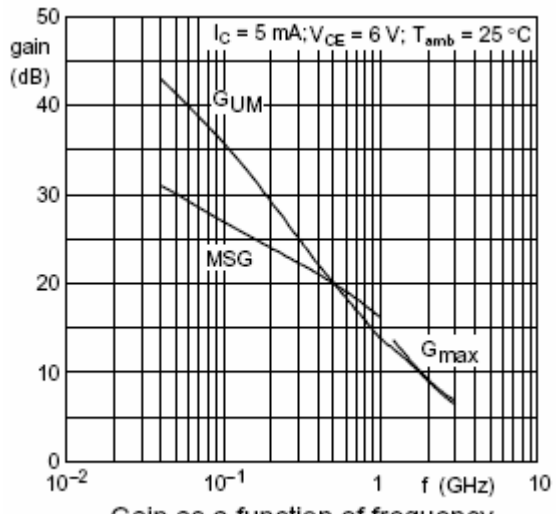
Transition frequency as a function of collector current



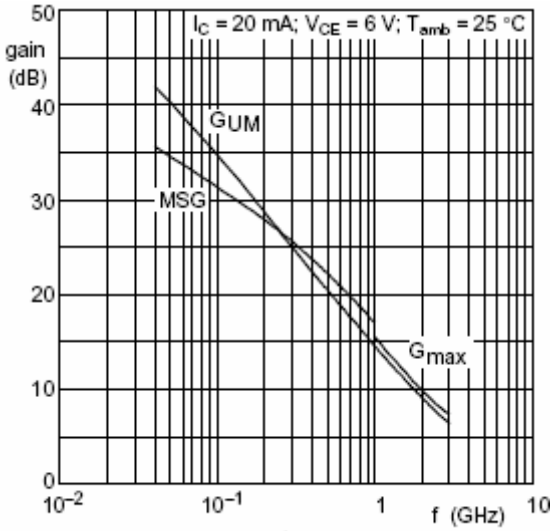
Maximum unilateral power gain as a function of collector current



Gain as a function of collector current



Gain as a function of frequency



Gain as a function of frequency

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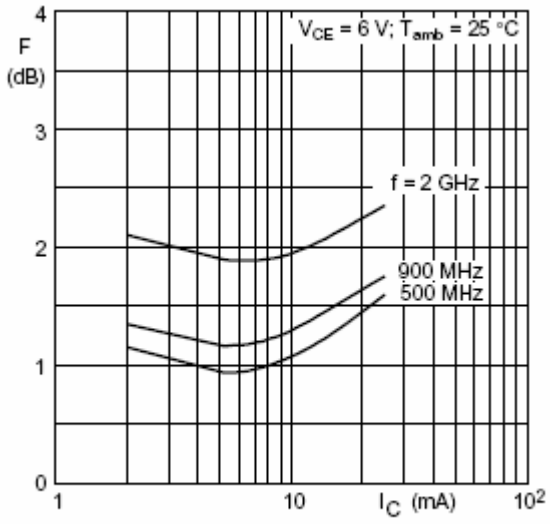
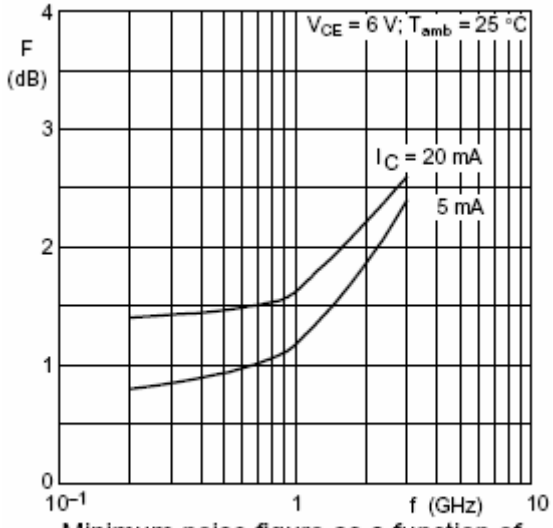
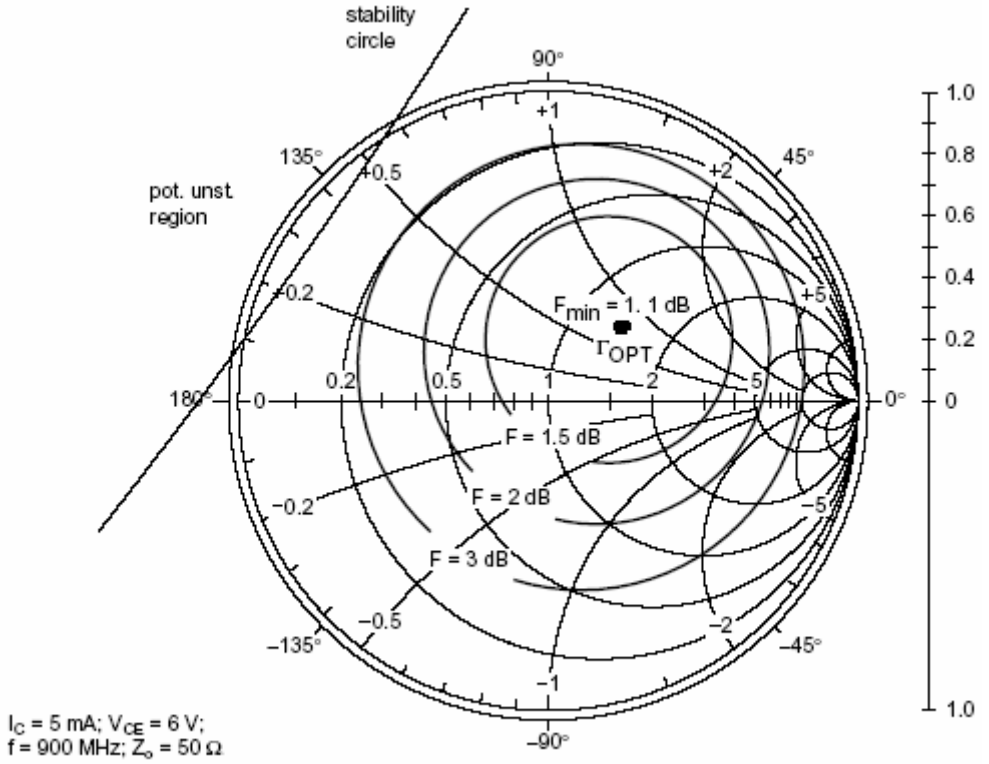


Minimum noise figure as a function of collector current



Minimum noise figure as a function of frequency



Noise circle

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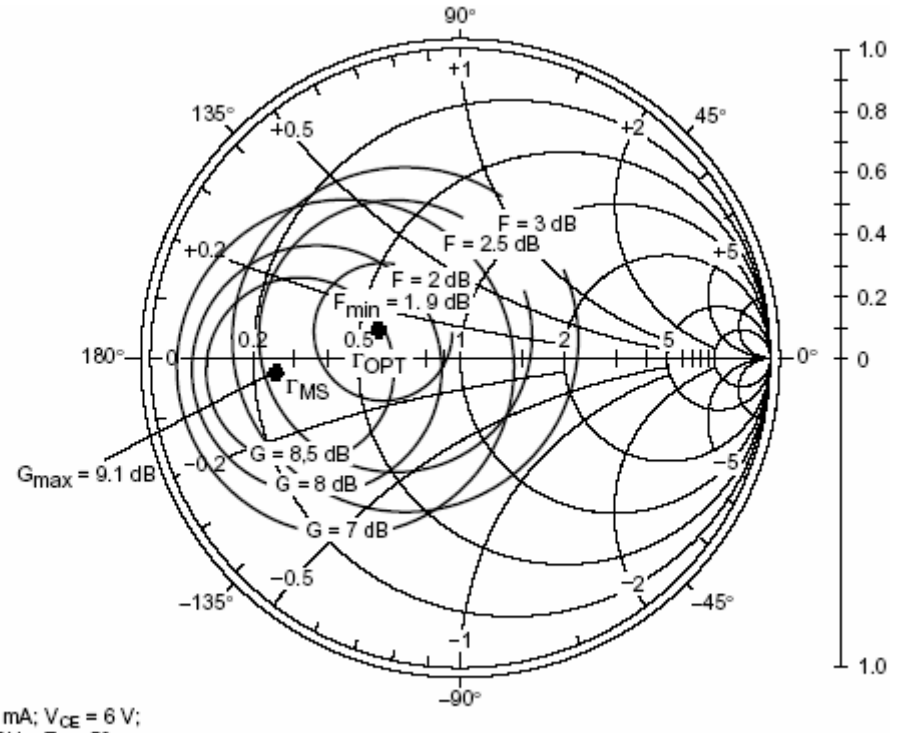
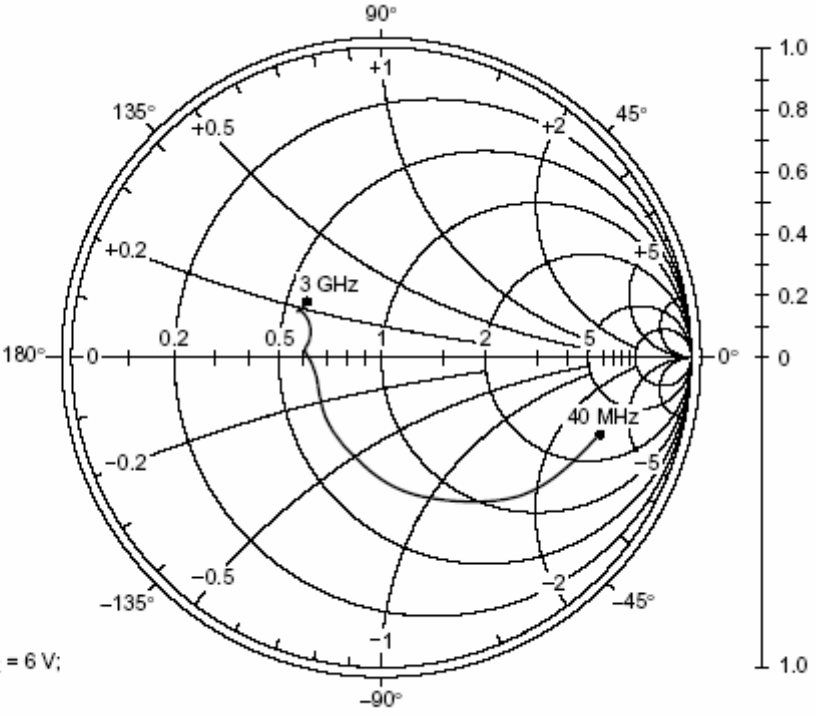


I_C = 5 mA; V_{CE} = 6 V;
f = 2 GHz; Z_o = 50 Ω.

Noise circle



I_C = 20 mA; V_{CE} = 6 V;
Z_o = 50 Ω.

Common emitter input reflection coefficient (S_{11})

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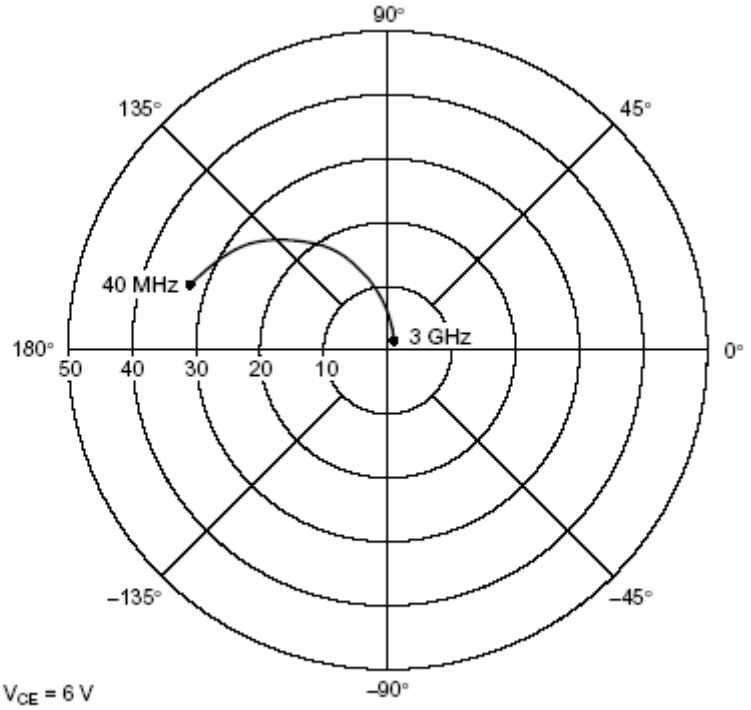
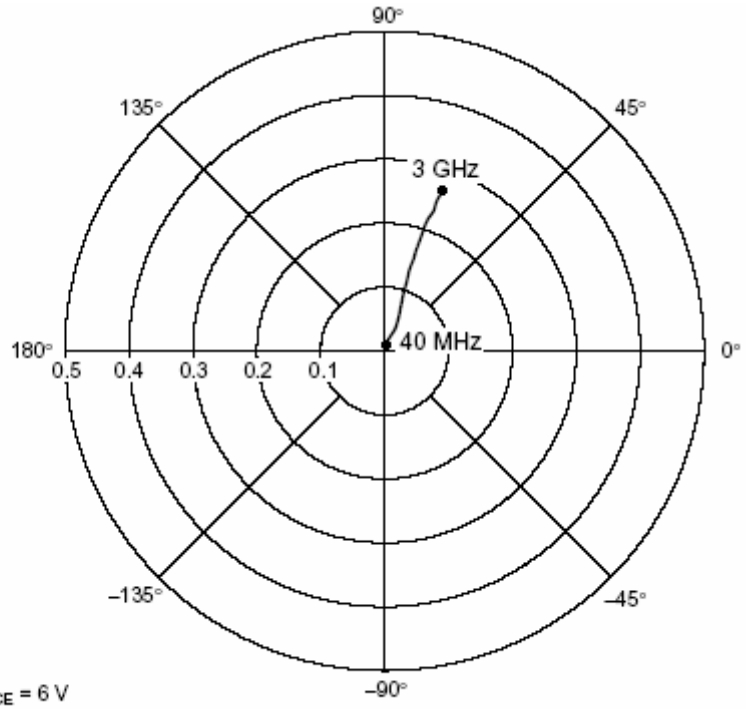


I_C = 20 mA; V_{CE} = 6 V

Common emitter forward transmission coefficient (S_{21})



I_C = 20 mA; V_{CE} = 6 V

Common emitter reverse transmission coefficient (S_{12})

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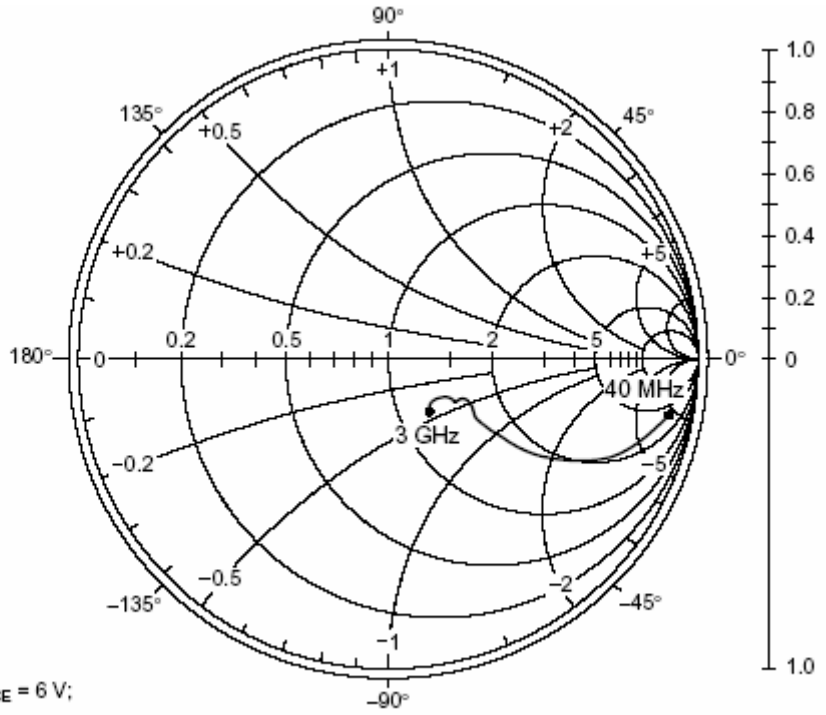

I_C = 20 mA; V_{CE} = 6 V;
Z_o = 50 Ω.

Common emitter output reflection coefficient (S_{22})