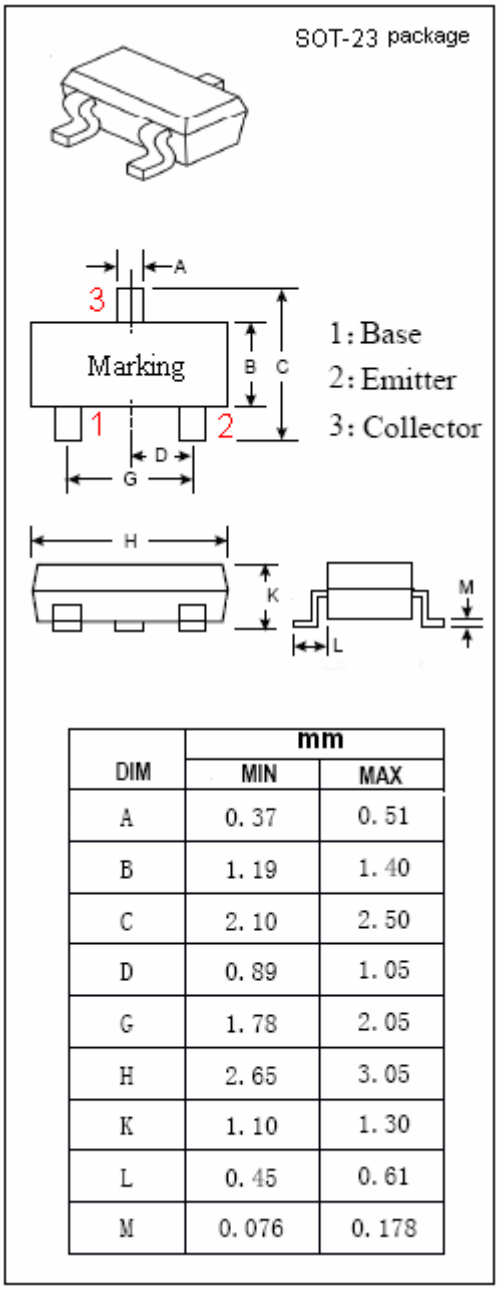
isc Silicon NPN RF Transistor BFR540

DESCRIPTION

- High Power Gain
- High Current Gain Bandwidth Product
- Low Noise Figure

APPLICATIONS

- Designed for RF frontend in wideband applications in the GHz range,such as analog and digital cellular telephones, cordless telephones(CT1, CT2,DEC, etc.).



DIM	mm	
	MIN	MAX
A	0.37	0.51
B	1.19	1.40
C	2.10	2.50
D	0.89	1.05
G	1.78	2.05
H	2.65	3.05
K	1.10	1.30
L	0.45	0.61
M	0.076	0.178

ABSOLUTE MAXIMUM RATINGS(T_a=25℃)

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	20	V
V_{CES}	Collector-Emitter Voltage	15	V
V_{EBO}	Emitter-Base Voltage	2.5	V
I_C	Collector Current-Continuous	120	mA
P_C	Collector Power Dissipation @T_C=25℃	0.5	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}= 8V; I_E= 0			0.05	μA
h_{FE}	DC Current Gain	I_C= 40mA ; V_{CE}= 8V	60		250	
f_T	Current-Gain—Bandwidth Product	I_C= 40mA ; V_{CE}= 8V; f= 1GHz		9		GHz
C_{OB}	Output Capacitance	I_E= 0 ; V_{CB}= 8V; f= 1MHz		0.9		pF
C_{re}	Feedback Frequency	I_E= 0 ; V_{CB}= 8V; f= 1MHz		0.6		pF
PG	Power Gain	I_C= 40mA ; V_{CE}= 8V; f= 900MHz		14		dB
PG	Power Gain	I_C= 40mA ; V_{CE}= 8V; f= 2GHz		7		dB
$\|S_{21e}\|^2$	Insertion Power Gain	I_C= 40mA ; V_{CE}= 8V; f= 900MHz	12	13		dB
NF	Noise Figure	I_C= 10mA ; V_{CE}= 8V; f= 900MHz		1.3	1.8	dB
NF	Noise Figure	I_C= 40mA ; V_{CE}= 8V; f= 900MHz		1.9	2.4	dB
NF	Noise Figure	I_C= 10mA ; V_{CE}= 8V; f= 2GHz		2.1		dB
Vo	Output Voltage	I_C = 40 mA; V_{CE} = 8 V; $Z_L = Z_S$ = 75 Ω		550		mV

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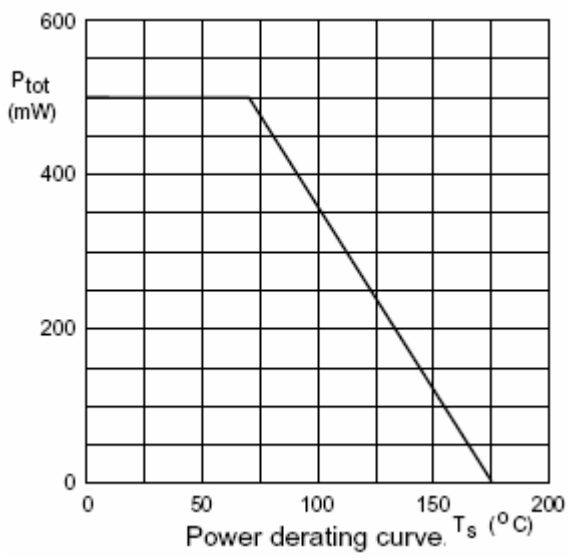
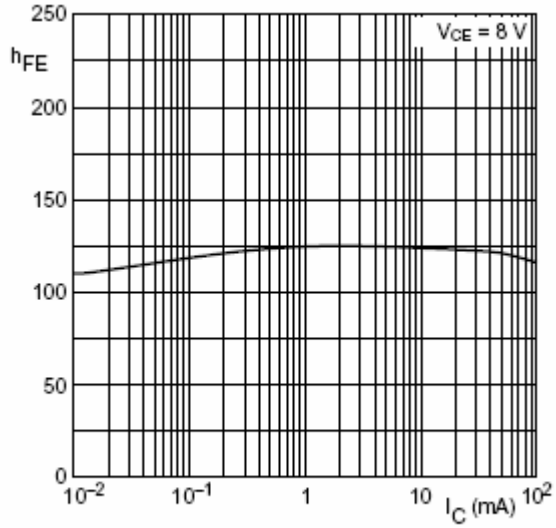
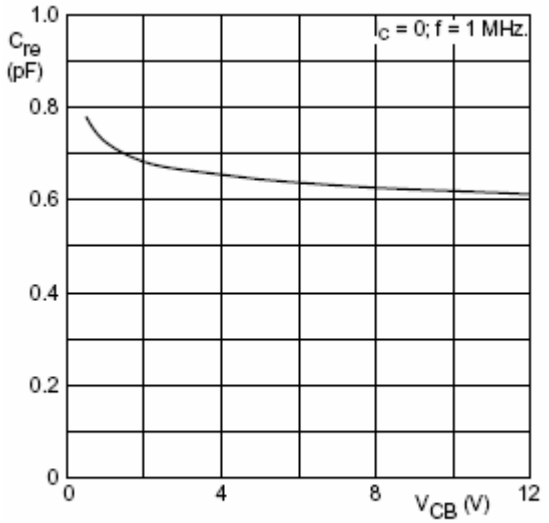


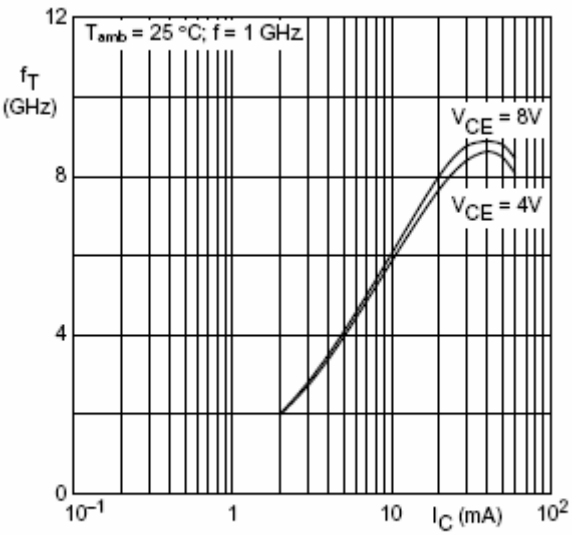
Power derating curve.



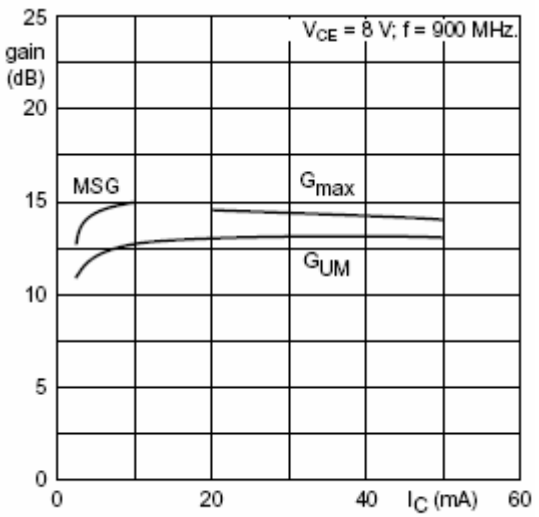
DC current gain as a function of collector current.



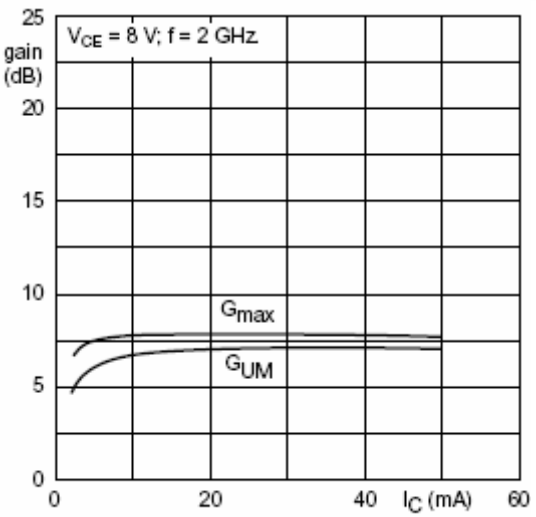
Feedback capacitance as a function of collector-base voltage.



Transition frequency as a function of collector current.



Gain as a function of collector current



Gain as a function of collector current

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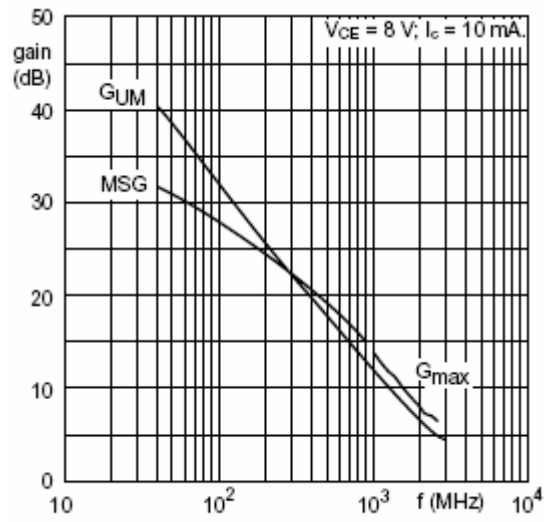
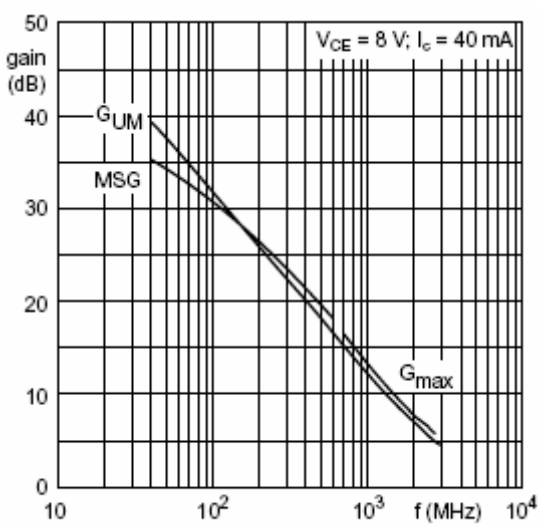
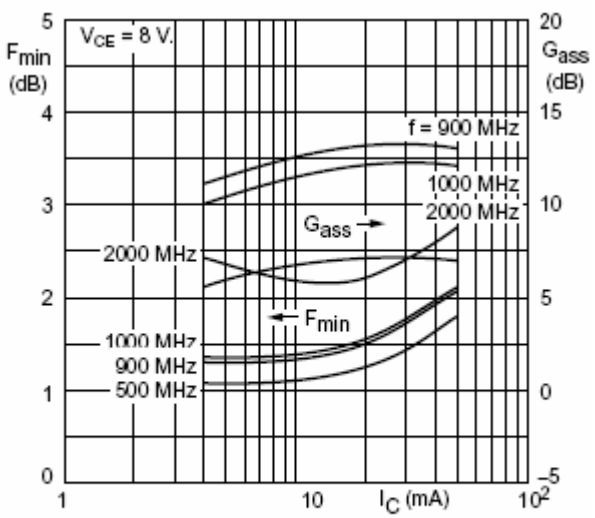


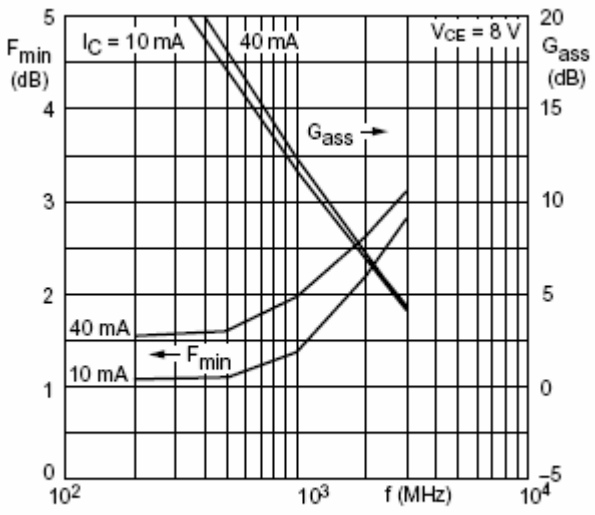
Gain as a function of frequency



Gain as a function of frequency



Minimum noise figure and associated available gain as functions of collector current.



Minimum noise figure and associated available gain as functions of frequency

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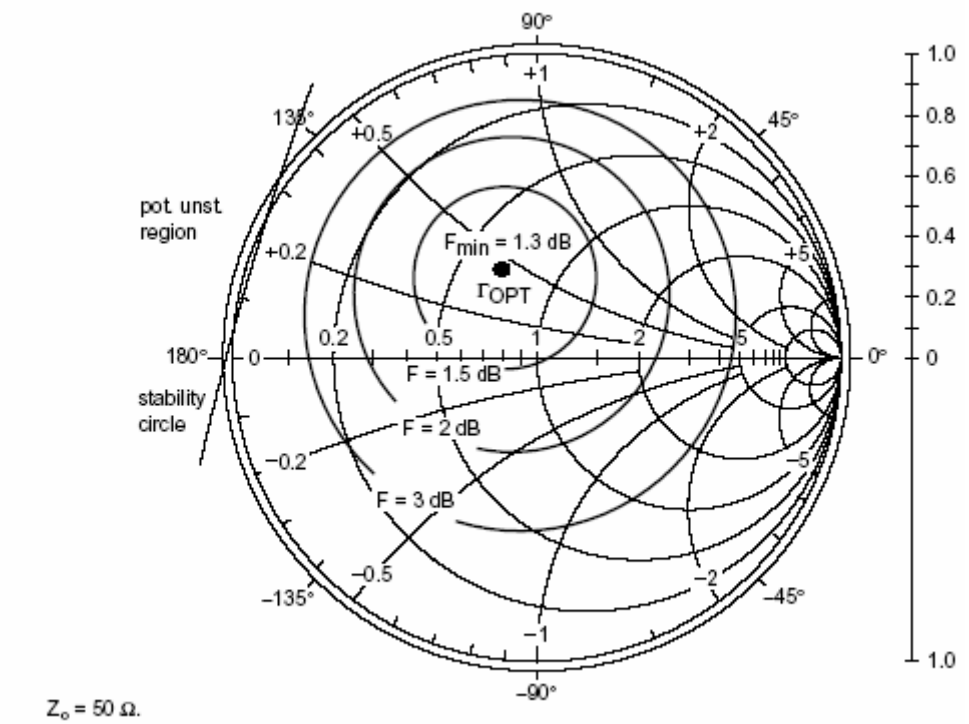
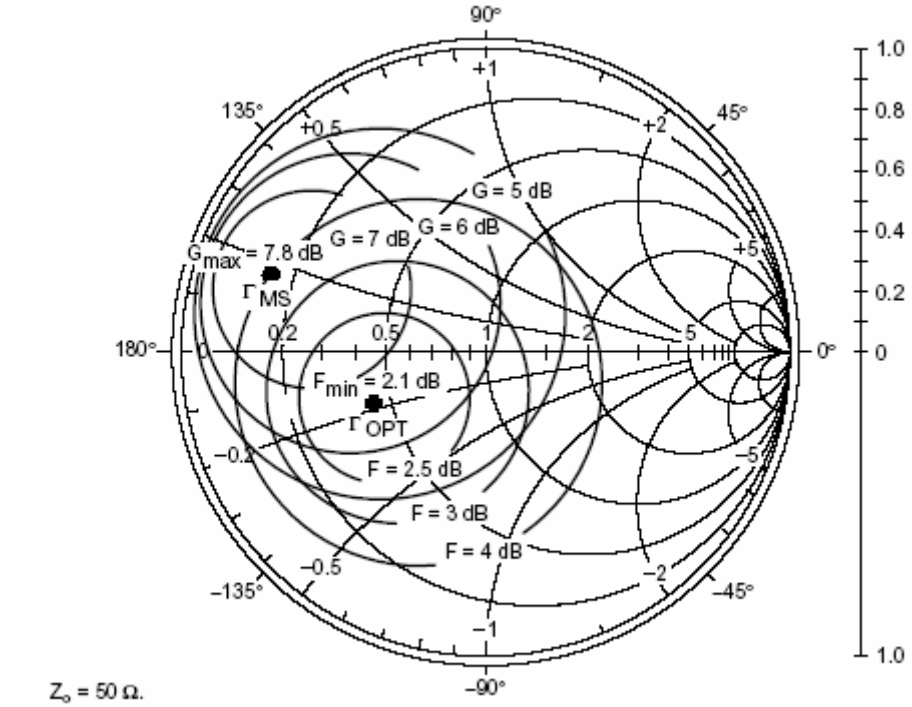


Z_o = 50 Ω.
V_{CE} = 8 V; I_C = 10 mA; f = 900 MHz. Noise circle figure.



Z_o = 50 Ω.
V_{CE} = 8 V; I_C = 10 mA; f = 2000 MHz Noise circle figure

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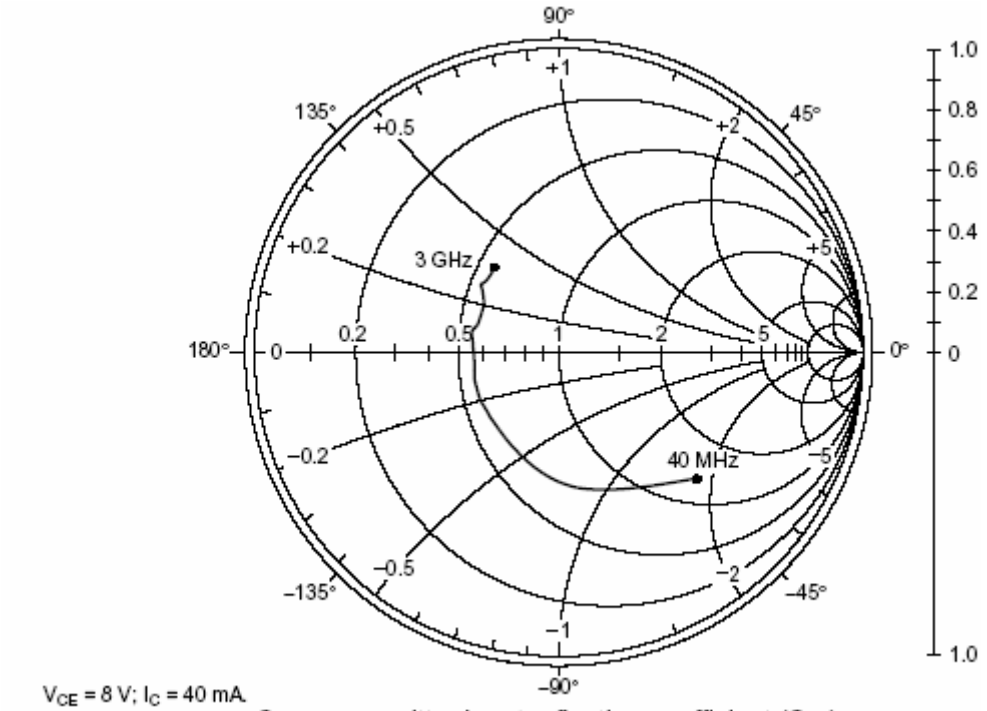
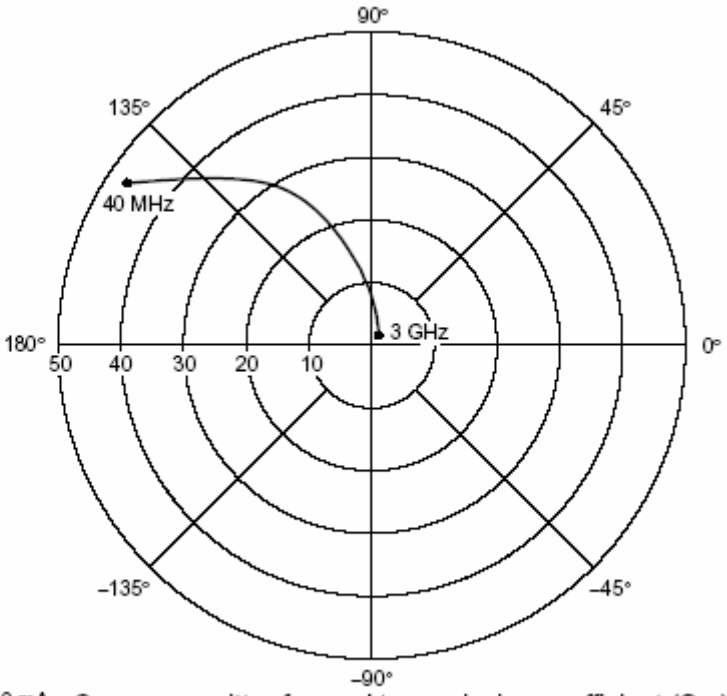


V_{CE} = 8 V; I_C = 40 mA.
Z_o = 50 Ω.

Common emitter input reflection coefficient (S_{11})



V_{CE} = 8 V; I_C = 40 mA.

Common emitter forward transmission coefficient (S_{21})

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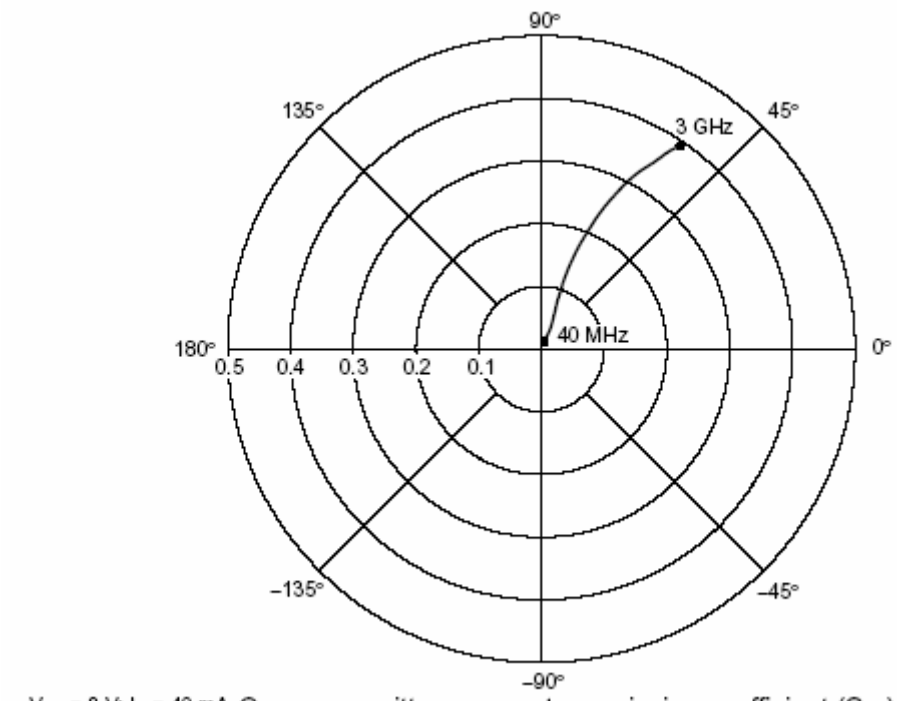
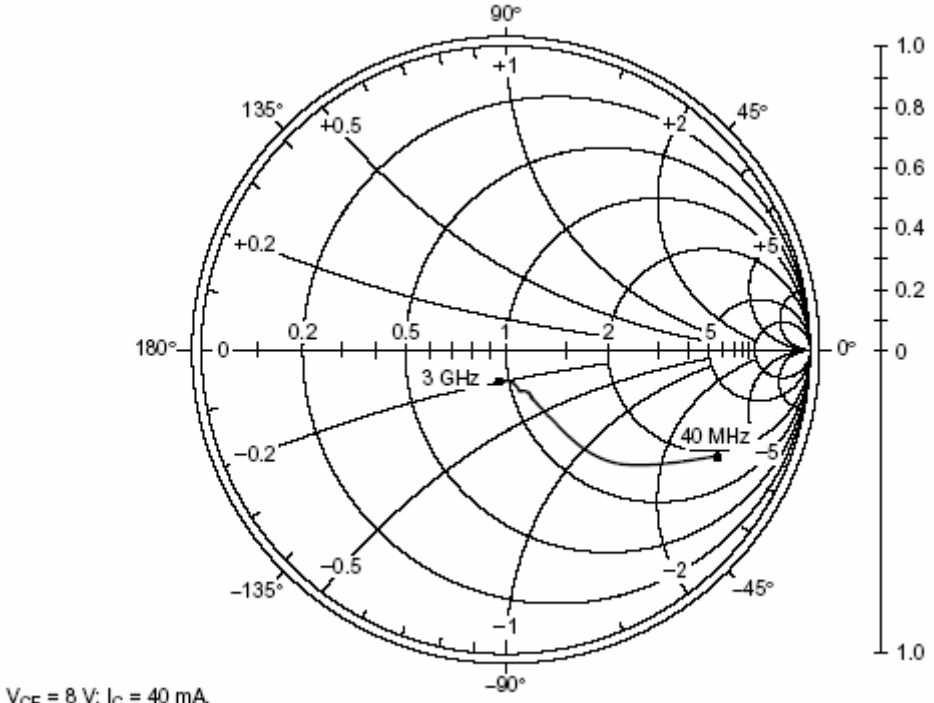


V_{CE} = 8 V; I_C = 40 mA. Common emitter reverse transmission coefficient (S_{12})



V_{CE} = 8 V; I_C = 40 mA
Z_o = 50 Ω.

Common emitter output reflection coefficient (S_{22})