BF245A, BF245B

JFET VHF/UHF Amplifiers

N−Channel − Depletion

**ON Semiconductor®**

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain −Source Voltage	V_{DS}	±30	Vdc
Drain − Gate Voltage	V_{DG}	30	Vdc
Gate − Source Voltage	V_{GS}	30	Vdc
Drain Current	I_D	100	mAdc
Forward Gate Current	$I_{G(f)}$	10	mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	350 2.8	mW mW/°C
Storage Channel Temperature Range	T_{stg}	− 65 to +150	°C

3 DRAIN

1 GATE

2 SOURCE

TO−92
CASE 29
STYLE 23

MARKING DIAGRAM

BF
245x
YWW
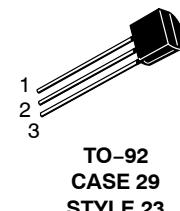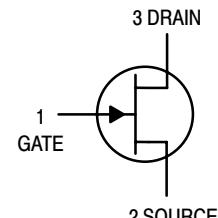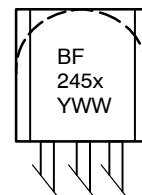
x = A or B
Y = Year
WW = Work Week

ORDERING INFORMATION

Device	Package	Shipping
BF245A	TO−92	5000 Units/Box
BF245B	TO−92	5000 Units/Box

March, 2002 − Rev. 1

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Gate – Source Breakdown Voltage (I_G = 1.0 μAdc, V_{DS} = 0)		$V_{(BR)GSS}$	30	–	–	Vdc
Gate – Source (V_{DS} = 15 Vdc, I_D = 200 μAdc) BF245A, BF245B		V_{GS}	0.4 1.6	– –	2.2 3.8	Vdc
Gate – Source Cutoff Voltage (V_{DS} = 15 Vdc, I_D = 10 nAdc)		$V_{GS(off)}$	– 0.5	–	– 8.0	Vdc
Gate Reverse Current (V_{GS} = 20 Vdc, V_{DS} = 0)		I_{GSS}	–	–	5.0	nAdc
ON CHARACTERISTICS						
Zero – Gate – Voltage Drain Current (V_{DS} = 15 Vdc, V_{GS} = 0) BF245A BF245B		I_{DSS}	2.0 6.0	– –	6.5 15	mAdc
SMALL – SIGNAL CHARACTERISTICS						
Forward Transfer Admittance	(V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 kHz)	$|Y_{fs}|$	3.0	–	6.5	mmhos
Output Admittance	(V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 kHz)	$|Y_{os}|$	–	40	–	μmhos
Forward Transfer Admittance	(V_{DS} = 15 Vdc, V_{GS} = 0, f = 200 MHz)	$|Y_{fs}|$	–	5.6	–	mmhos
Reverse Transfer Admittance	(V_{DS} = 15 Vdc, V_{GS} = 0, f = 200 MHz)	$|Y_{rs}|$	–	1.0	–	mmhos
Input Capacitance	(V_{DS} = 20 Vdc, $-V_{GS}$ = 1.0 Vdc)	C_{iss}	–	3.0	–	pF
Reverse Transfer Capacitance	(V_{DS} = 20 Vdc, $-V_{GS}$ = 1.0 Vdc, f = 1.0 MHz)	C_{rss}	–	0.7	–	pF
Output Capacitance	(V_{DS} = 20 Vdc, $-V_{GS}$ = 1.0 Vdc, f = 1.0 MHz)	C_{oss}	–	0.9	–	pF
Cut–off Frequency (Note 1)	(V_{DS} = 15 Vdc, V_{GS} = 0)	$F_{(Yfs)}$	–	700	–	MHz

1. The frequency at which g_{fs} is 0.7 of its value at 1 kHz.

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COMMON SOURCE CHARACTERISTICS
ADMITTANCE PARAMETERS
(V_{DS} = 15 Vdc, $T_{channel}$ = 25°C)
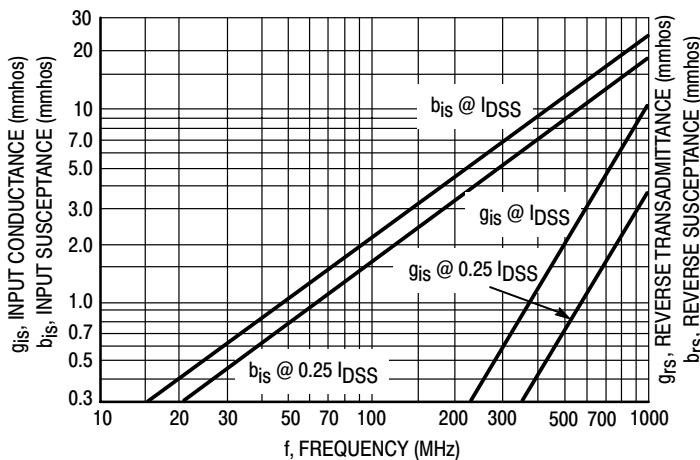

Figure 1. Input Admittance (y_{is})
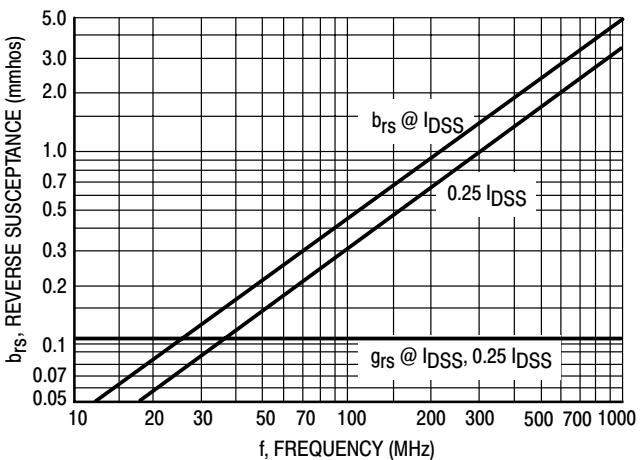
Figure 2. Reverse Transfer Admittance (y_{rs})
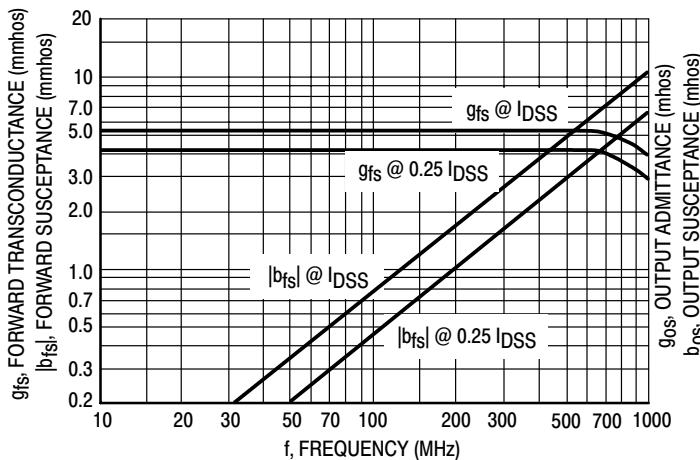

Figure 3. Forward Transadmittance (y_{fs})
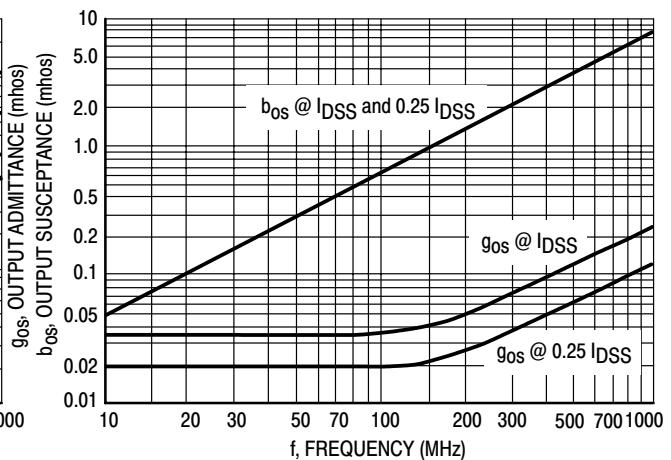
Figure 4. Output Admittance (y_{os})

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COMMON SOURCE CHARACTERISTICS
S−PARAMETERS
(V_{DS} = 15 Vdc, $T_{channel}$ = 25°C, Data Points in MHz)
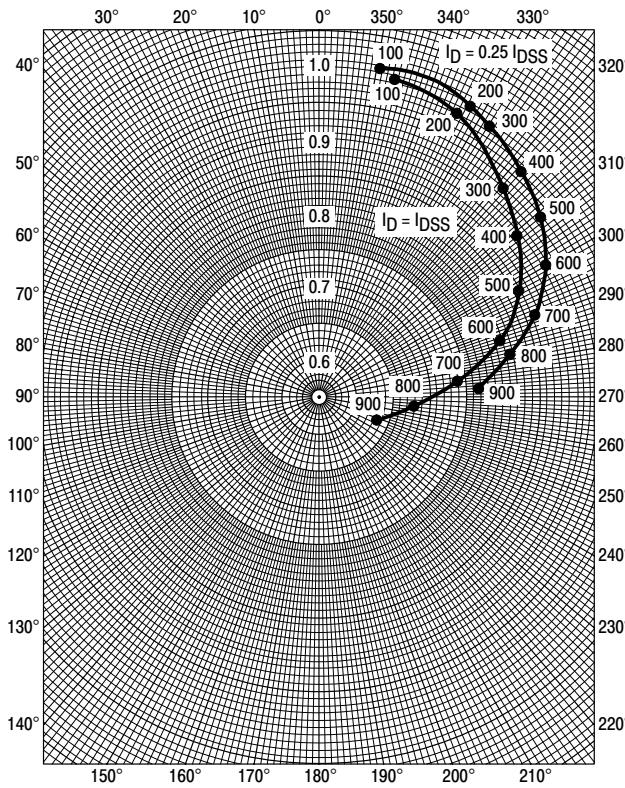
Figure 5. S$_{11s}$
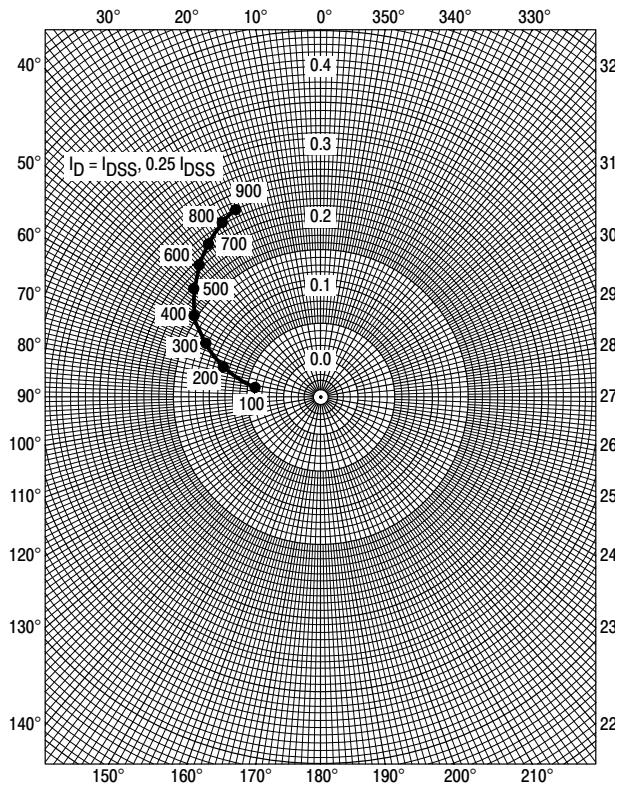
Figure 6. S$_{12s}$
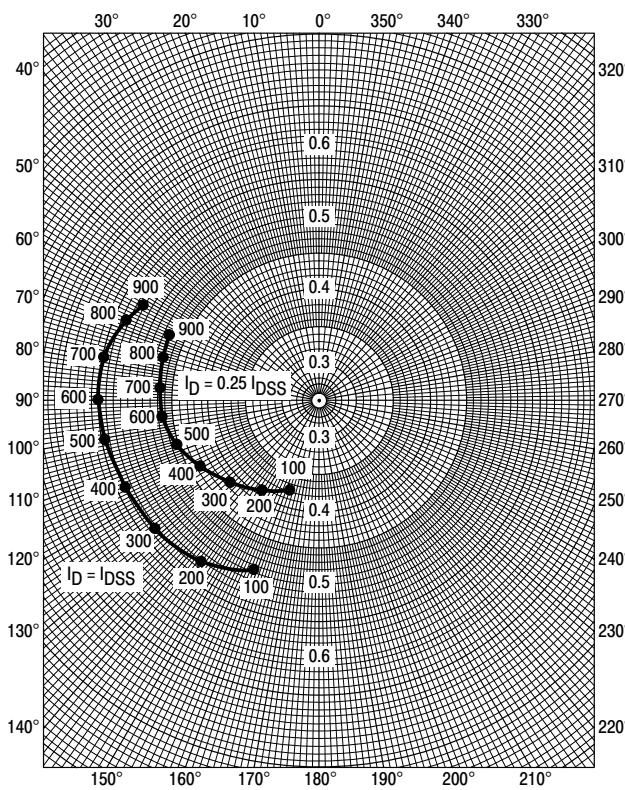
Figure 7. S$_{21s}$

Figure 8. S$_{22s}$

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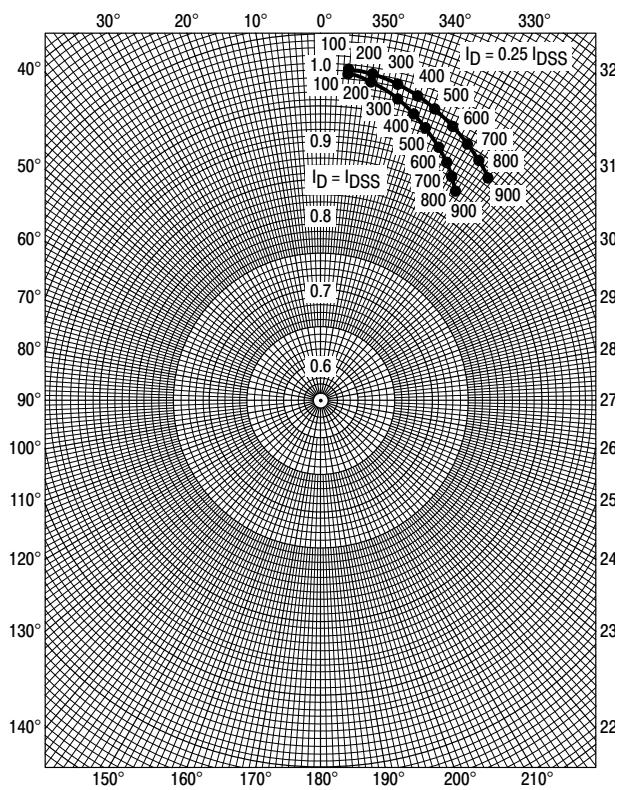
COMMON GATE CHARACTERISTICS
ADMITTANCE PARAMETERS
(V_{DG} = 15 Vdc, $T_{channel}$ = 25°C)
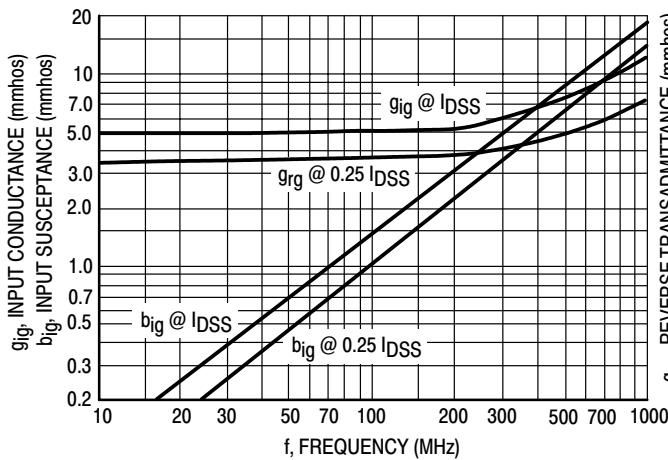

Figure 9. Input Admittance (y_{ig})
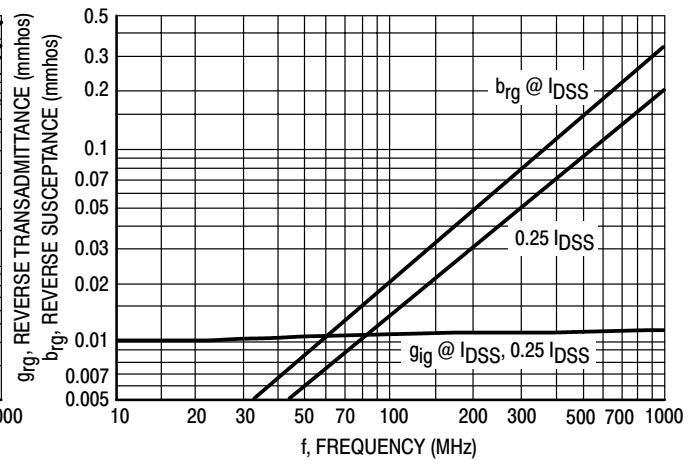

Figure 10. Reverse Transfer Admittance (y_{rg})
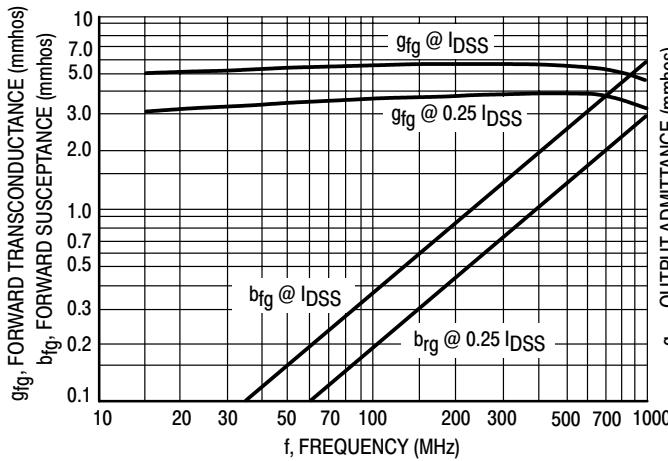
Figure 11. Forward Transfer Admittance (y_{fg})
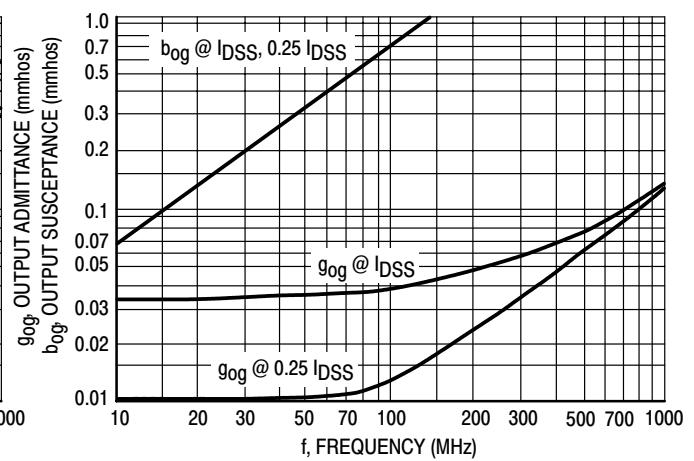

Figure 12. Output Admittance (y_{og})

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COMMON GATE CHARACTERISTICS
S−PARAMETERS
(V_{DS} = 15 Vdc, $T_{channel}$ = 25°C, Data Points in MHz)
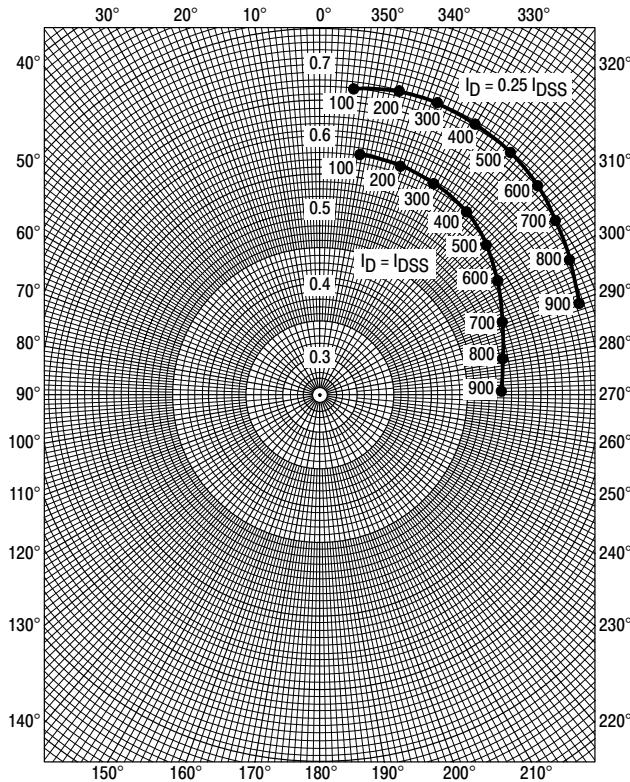
Figure 13. S$_{11g}$
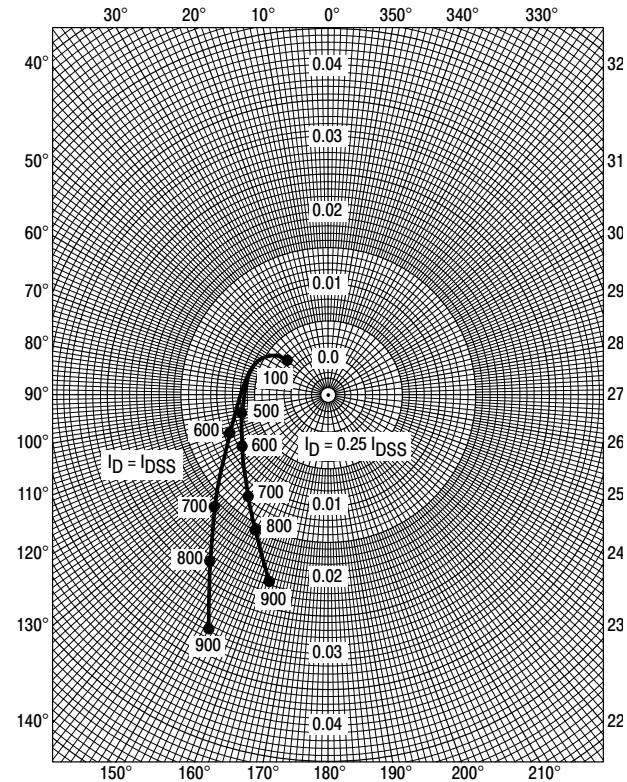
Figure 14. S$_{12g}$
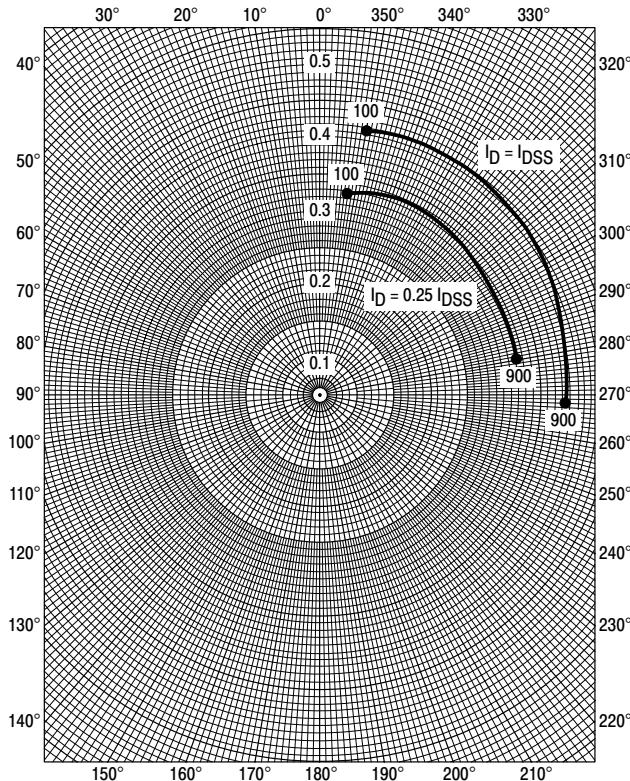
Figure 15. S$_{21g}$

Figure 16. S$_{22g}$