

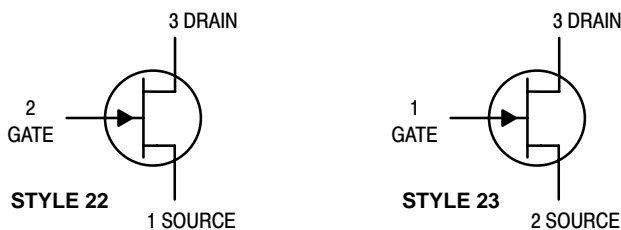
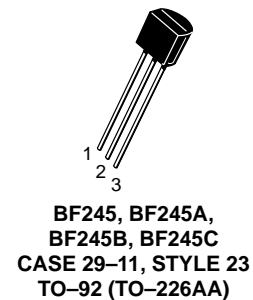
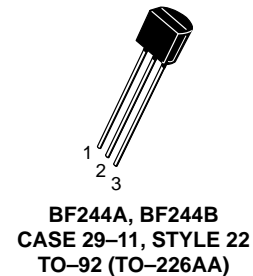
# JFET VHF/UHF Amplifiers

## N-Channel — Depletion

### BF245A BF245B

#### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	$\pm 30$	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 @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	350 2.8	mW mW/ $^\circ\text{C}$
Storage Channel Temperature Range	$T_{stg}$	-65 to +150	$^\circ\text{C}$



#### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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#### OFF CHARACTERISTICS

Gate-Source Breakdown Voltage ( $I_G = 1.0 \mu\text{Adc}$ , $V_{DS} = 0$ )	$V_{(BR)GSS}$	30	—	—	Vdc
Gate-Source ( $V_{DS} = 15 \text{ Vdc}$ , $I_D = 200 \mu\text{Adc}$ )	$V_{GS}$	0.4 0.4 1.6 3.2	— — — —	7.5 2.2 3.8 7.5	Vdc
Gate-Source Cutoff Voltage ( $V_{DS} = 15 \text{ Vdc}$ , $I_D = 10 \text{ nAdc}$ )	$V_{GS(off)}$	-0.5	—	-8.0	Vdc
Gate Reverse Current ( $V_{GS} = 20 \text{ Vdc}$ , $V_{DS} = 0$ )	$I_{GSS}$	—	—	5.0	nAdc

#### ON CHARACTERISTICS

Zero-Gate-Voltage Drain Current ( $V_{DS} = 15 \text{ Vdc}$ , $V_{GS} = 0$ )	$I_{DSS}$	2.0 2.0 6.0 12	— — — —	25 6.5 15 25	mAdc
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1. On orders against the BF245, any or all subgroups might be shipped.
2. On orders against the BF244A, any or all subgroups might be shipped.

# BF245A BF245B

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted) (Continued)

Characteristic		Symbol	Min	Typ	Max	Unit
<b>SMALL-SIGNAL CHARACTERISTICS</b>						
Forward Transfer Admittance	(V <sub>DS</sub> = 15 Vdc, V <sub>GS</sub> = 0, f = 1.0 kHz)	Y <sub>fs</sub>	3.0	—	6.5	mmhos
Output Admittance	(V <sub>DS</sub> = 15 Vdc, V <sub>GS</sub> = 0, f = 1.0 kHz)	Y <sub>OS</sub>	—	40	—	μmhos
Forward Transfer Admittance	(V <sub>DS</sub> = 15 Vdc, V <sub>GS</sub> = 0, f = 200 MHz)	Y <sub>fs</sub>	—	5.6	—	mmhos
Reverse Transfer Admittance	(V <sub>DS</sub> = 15 Vdc, V <sub>GS</sub> = 0, f = 200 MHz)	Y <sub>rs</sub>	—	1.0	—	mmhos
Input Capacitance	(V <sub>DS</sub> = 20 Vdc, -V <sub>GS</sub> = 1.0 Vdc)	C <sub>iss</sub>	—	3.0	—	pF
Reverse Transfer Capacitance	(V <sub>DS</sub> = 20 Vdc, -V <sub>GS</sub> = 1.0 Vdc, f = 1.0 MHz)	C <sub>rss</sub>	—	0.7	—	pF
Output Capacitance	(V <sub>DS</sub> = 20 Vdc, -V <sub>GS</sub> = 1.0 Vdc, f = 1.0 MHz)	C <sub>oss</sub>	—	0.9	—	pF
Cut-off Frequency <sup>(3)</sup>	(V <sub>DS</sub> = 15 Vdc, V <sub>GS</sub> = 0)	F(Y <sub>fs</sub> )	—	700	—	MHz

3. The frequency at which g<sub>fs</sub> is 0.7 of its value at 1 kHz.

### COMMON SOURCE CHARACTERISTICS ADMITTANCE PARAMETERS (V<sub>DS</sub> = 15 Vdc, T<sub>channel</sub> = 25°C)

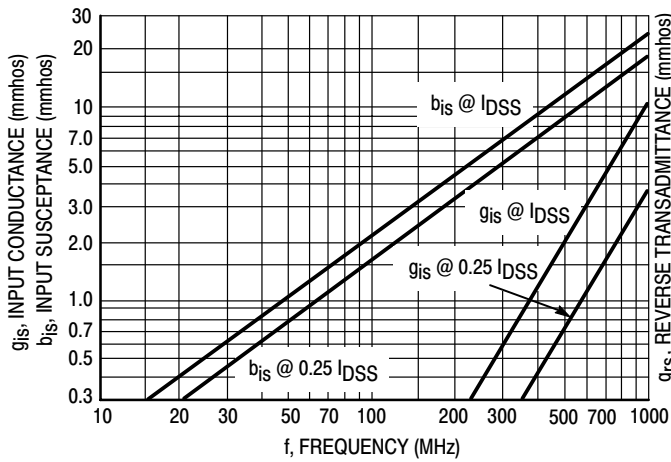


Figure 1. Input Admittance (y<sub>is</sub>)

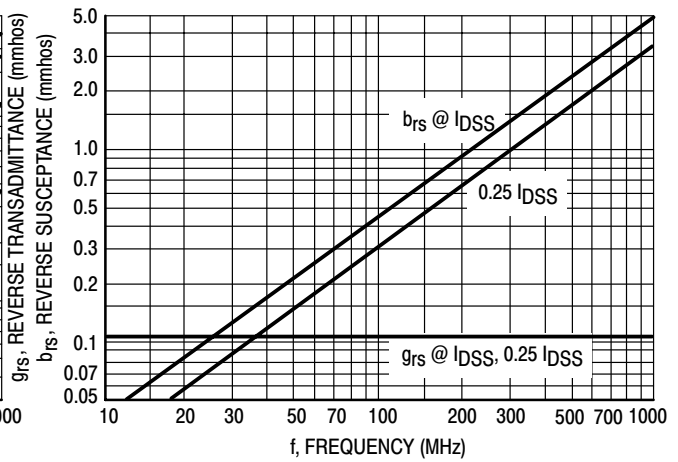


Figure 2. Reverse Transfer Admittance (y<sub>rs</sub>)

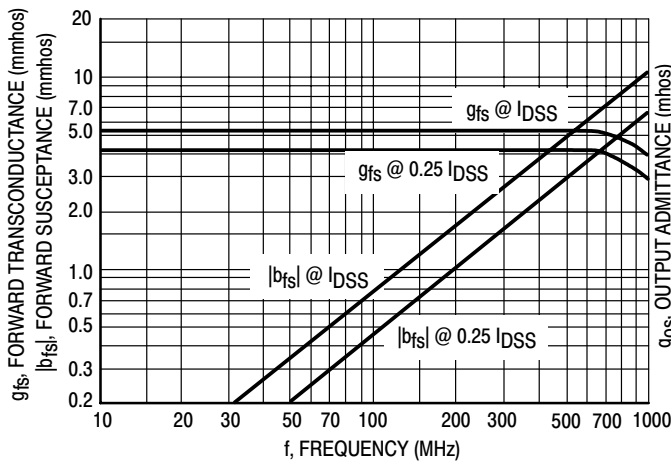


Figure 3. Forward Transadmittance (y<sub>fs</sub>)

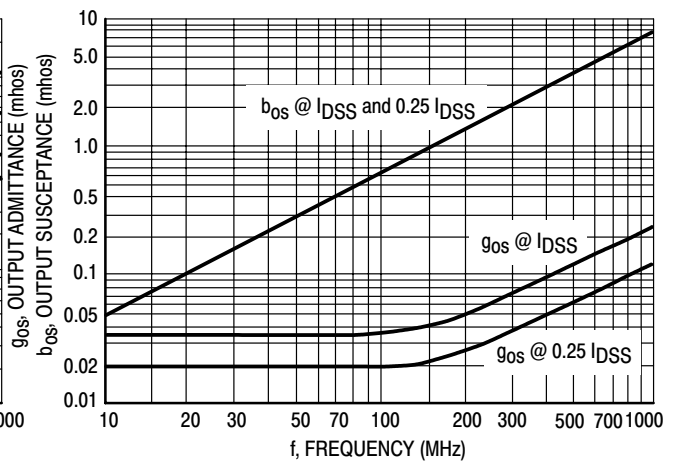


Figure 4. Output Admittance (y<sub>os</sub>)

# BF245A BF245B

## COMMON SOURCE CHARACTERISTICS S-PARAMETERS

( $V_{DS} = 15 \text{ Vdc}$ ,  $T_{\text{channel}} = 25^\circ\text{C}$ , Data Points in MHz)

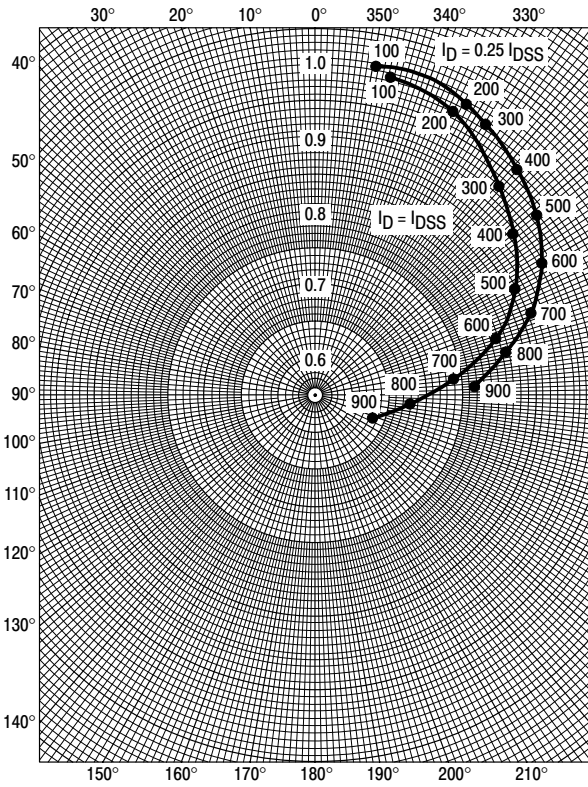


Figure 5.  $S_{11s}$

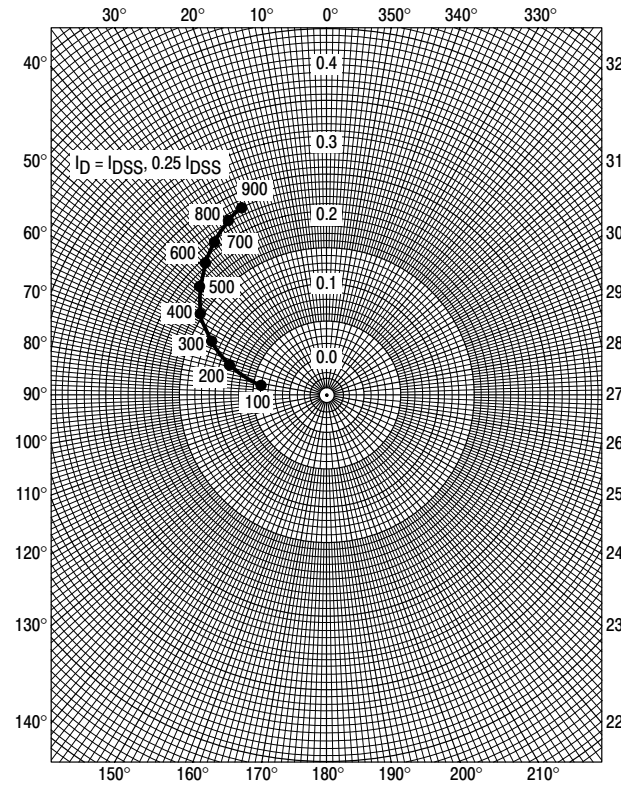


Figure 6.  $S_{12s}$

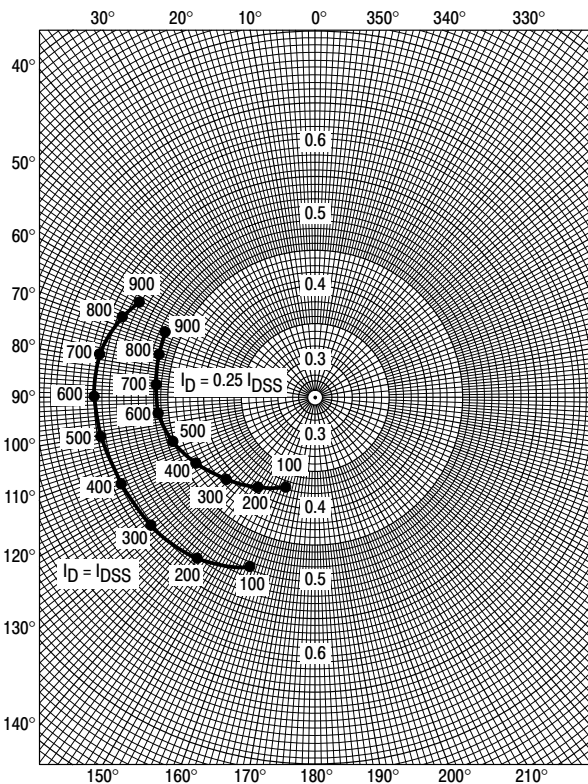


Figure 7.  $S_{21s}$

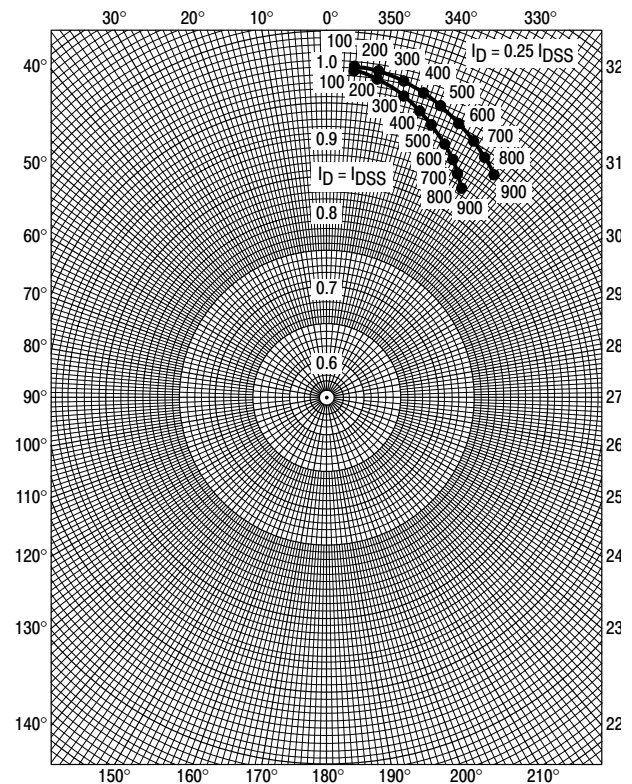


Figure 8.  $S_{22s}$

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## COMMON GATE CHARACTERISTICS ADMITTANCE PARAMETERS ( $V_{DG} = 15 \text{ Vdc}$ , $T_{\text{channel}} = 25^\circ\text{C}$ )

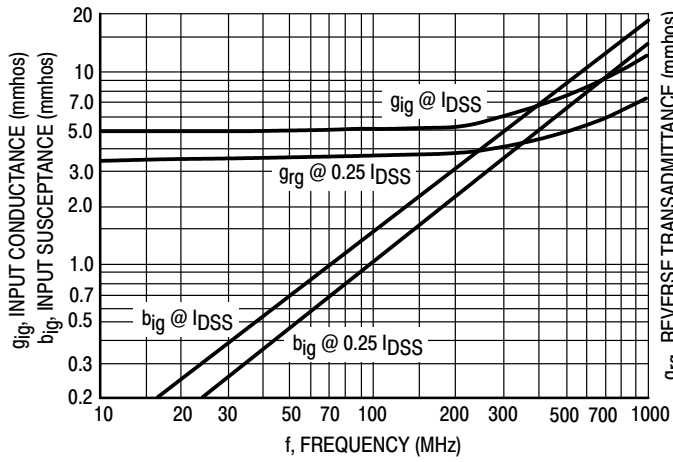


Figure 9. Input Admittance ( $y_{ig}$ )

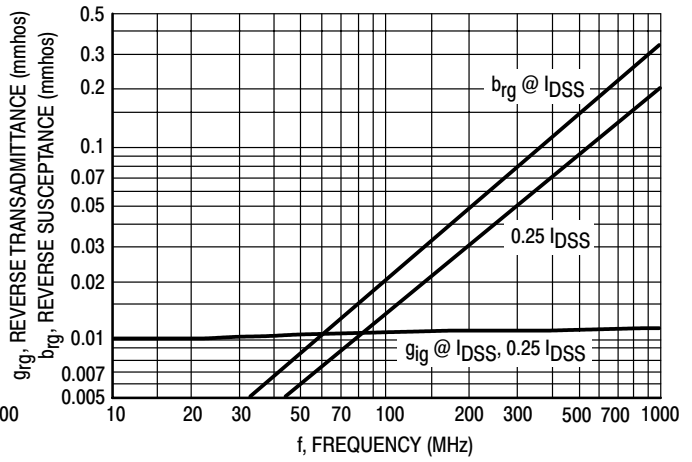


Figure 10. Reverse Transfer Admittance ( $y_{rg}$ )

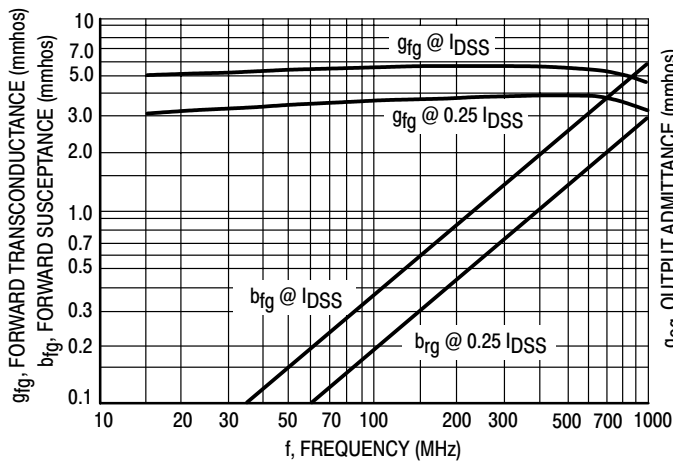


Figure 11. Forward Transfer Admittance ( $y_{fg}$ )

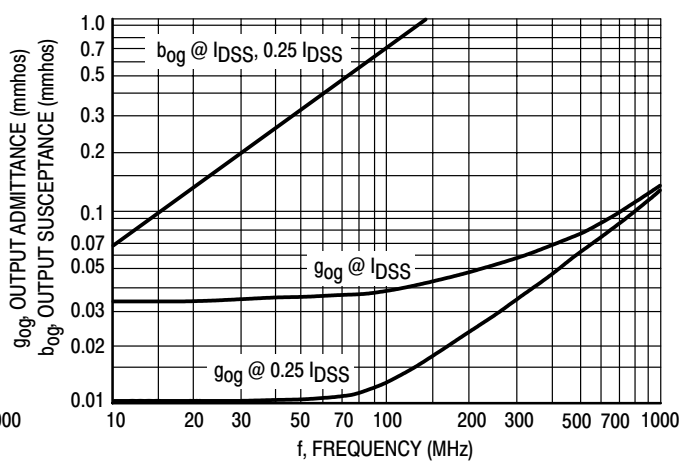


Figure 12. Output Admittance ( $y_{og}$ )

**COMMON GATE CHARACTERISTICS**  
**S-PARAMETERS**  
 ( $V_{DS} = 15 \text{ Vdc}$ ,  $T_{\text{channel}} = 25^\circ\text{C}$ , Data Points in MHz)

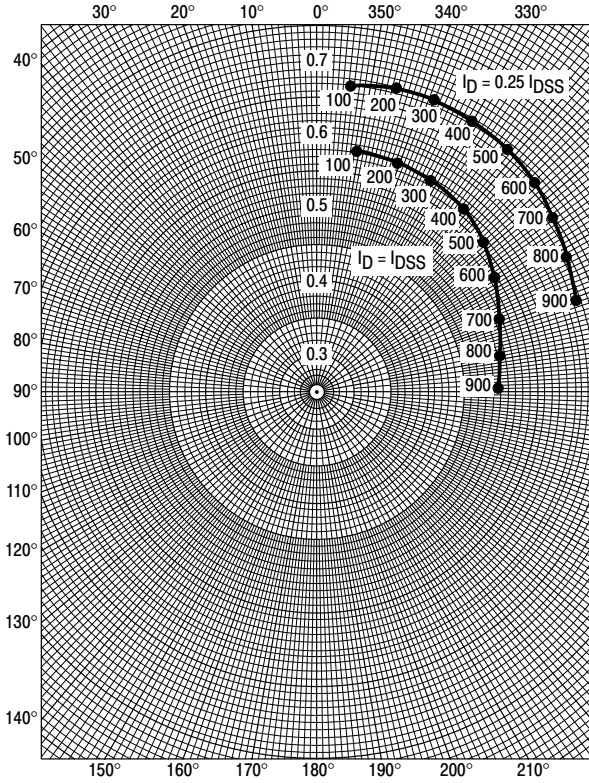


Figure 13.  $S_{11g}$

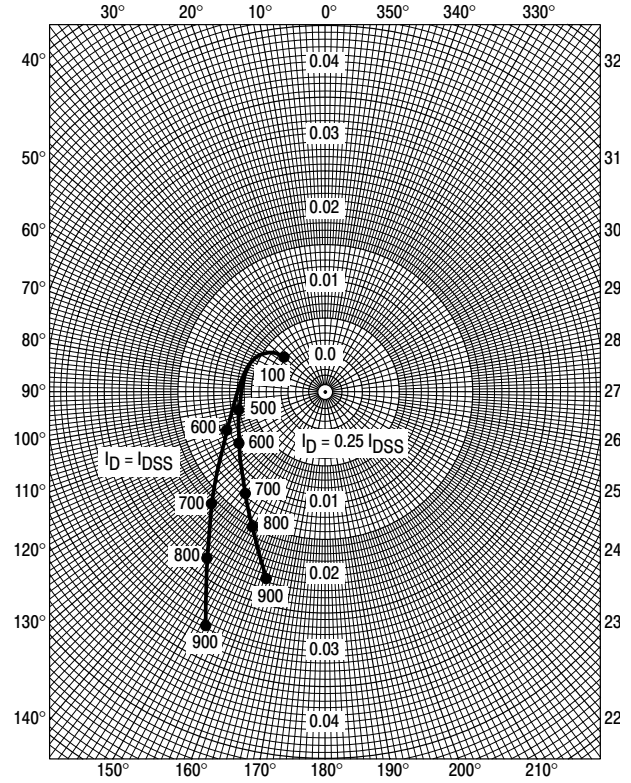


Figure 14.  $S_{12g}$

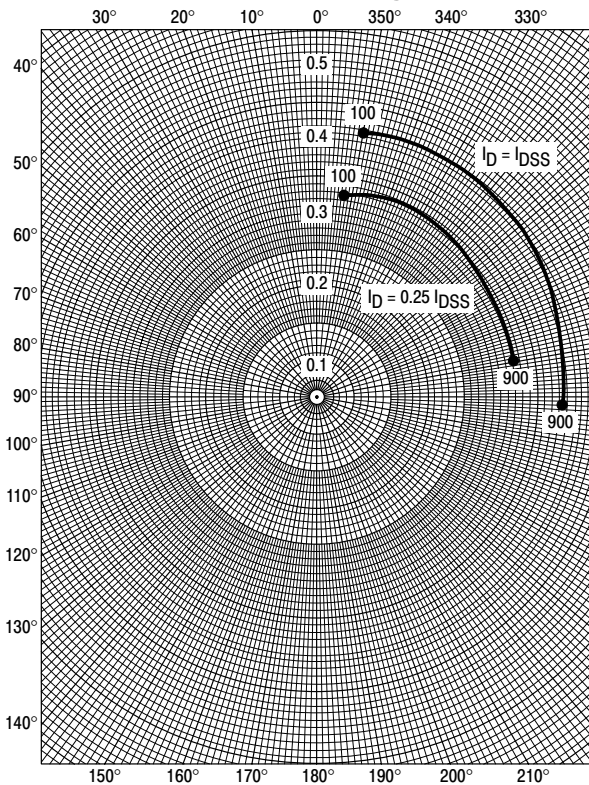


Figure 15.  $S_{21g}$

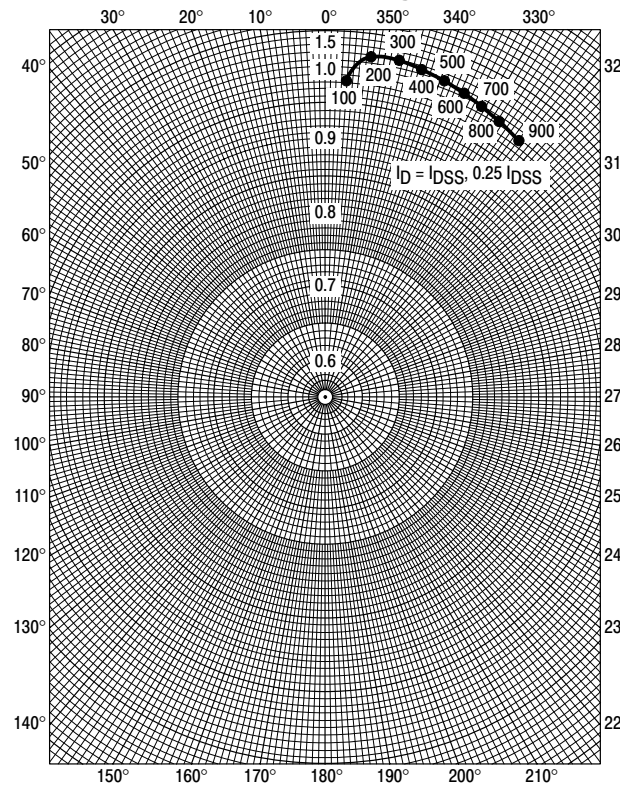
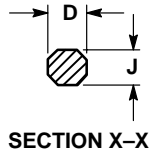
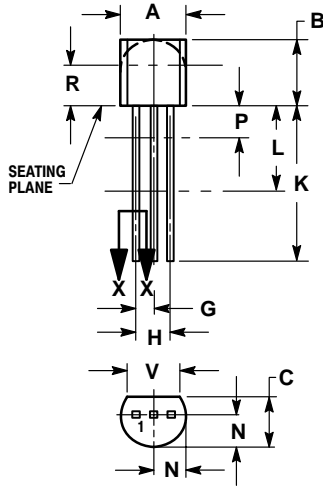


Figure 16.  $S_{22g}$

# BF245A BF245B

## PACKAGE DIMENSIONS

TO-92 (TO-226)  
CASE 29-11  
ISSUE AL



### NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.175	0.205	4.45	5.20
B	0.170	0.210	4.32	5.33
C	0.125	0.165	3.18	4.19
D	0.016	0.021	0.407	0.533
G	0.045	0.055	1.15	1.39
H	0.095	0.105	2.42	2.66
J	0.015	0.020	0.39	0.50
K	0.500	---	12.70	---
L	0.250	---	6.35	---
N	0.080	0.105	2.04	2.66
P	---	0.100	---	2.54
R	0.115	---	2.93	---
V	0.135	---	3.43	---

### STYLE 22:

- PIN 1. SOURCE  
2. GATE  
3. DRAIN

### STYLE 23:

- PIN 1. GATE  
2. SOURCE  
3. DRAIN

**Notes**

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