

JFET VHF/UHF Amplifiers

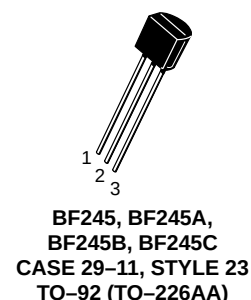
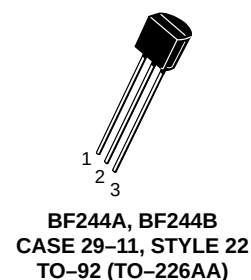
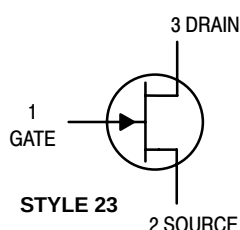
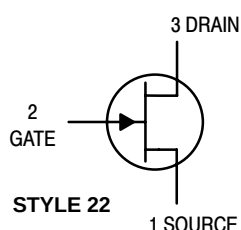
N-Channel — Depletion

BF245A

BF245B

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 @ $T_A = 25^\circ\text{C}$ Derate above 25°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	—	7.5	Vdc
BF245(1)		0.4	—	2.2	
BF245A, BF244A(2)		1.6	—	3.8	
BF245B, BF244B		3.2	—	7.5	
BF245C					
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	—	25	mAdc
BF245(1)		2.0	—	6.5	
BF245A, BF244A(2)		6.0	—	15	
BF245B, BF244B		12	—	25	
BF245C					

- On orders against the BF245, any or all subgroups might be shipped.
- On orders against the BF244A, any or all subgroups might be shipped.

BF245A BF245B

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

Characteristic	Symbol	Min	Typ	Max	Unit
SMALL-SIGNAL CHARACTERISTICS					
Forward Transfer Admittance ($V_{DS} = 15\text{ Vdc}$, $V_{GS} = 0$, $f = 1.0\text{ kHz}$)	$ Y_{fs} $	3.0	—	6.5	mmhos
Output Admittance ($V_{DS} = 15\text{ Vdc}$, $V_{GS} = 0$, $f = 1.0\text{ kHz}$)	$ Y_{os} $	—	40	—	μmhos
Forward Transfer Admittance ($V_{DS} = 15\text{ Vdc}$, $V_{GS} = 0$, $f = 200\text{ MHz}$)	$ Y_{fs} $	—	5.6	—	mmhos
Reverse Transfer Admittance ($V_{DS} = 15\text{ Vdc}$, $V_{GS} = 0$, $f = 200\text{ MHz}$)	$ Y_{rs} $	—	1.0	—	mmhos
Input Capacitance ($V_{DS} = 20\text{ Vdc}$, $-V_{GS} = 1.0\text{ Vdc}$)	C_{iss}	—	3.0	—	pF
Reverse Transfer Capacitance ($V_{DS} = 20\text{ Vdc}$, $-V_{GS} = 1.0\text{ Vdc}$, $f = 1.0\text{ MHz}$)	C_{rss}	—	0.7	—	pF
Output Capacitance ($V_{DS} = 20\text{ Vdc}$, $-V_{GS} = 1.0\text{ Vdc}$, $f = 1.0\text{ MHz}$)	C_{oss}	—	0.9	—	pF
Cut-off Frequency ⁽³⁾ ($V_{DS} = 15\text{ Vdc}$, $V_{GS} = 0$)	$F(Y_{fs})$	—	700	—	MHz

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

COMMON SOURCE CHARACTERISTICS

ADMITTANCE PARAMETERS

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

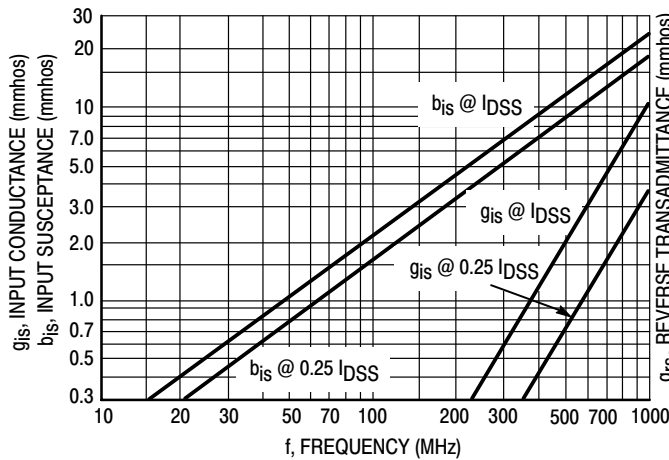


Figure 1. Input Admittance (y_{is})

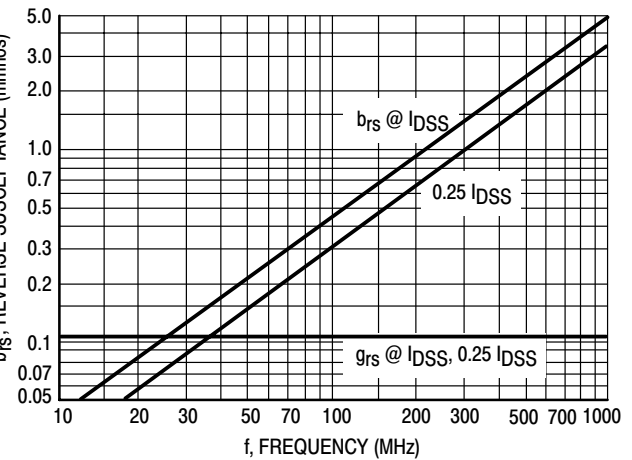


Figure 2. Reverse Transfer Admittance (y_{rs})

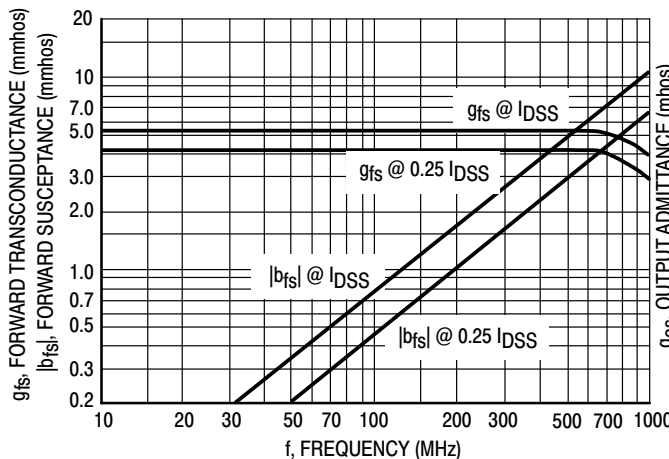


Figure 3. Forward Transadmittance (y_{fs})

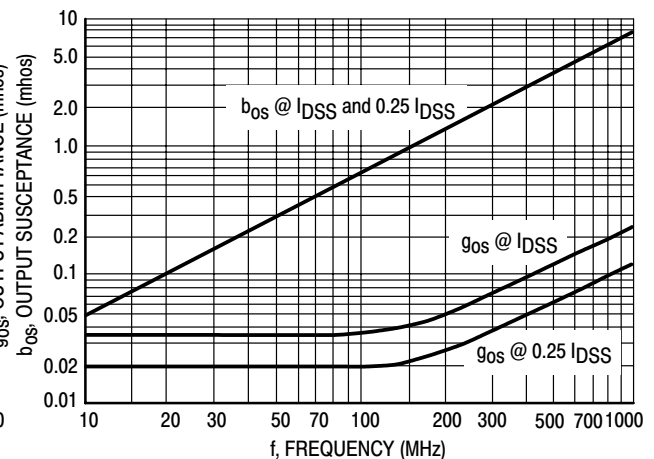


Figure 4. Output Admittance (y_{os})

COMMON SOURCE CHARACTERISTICS

S-PARAMETERS

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

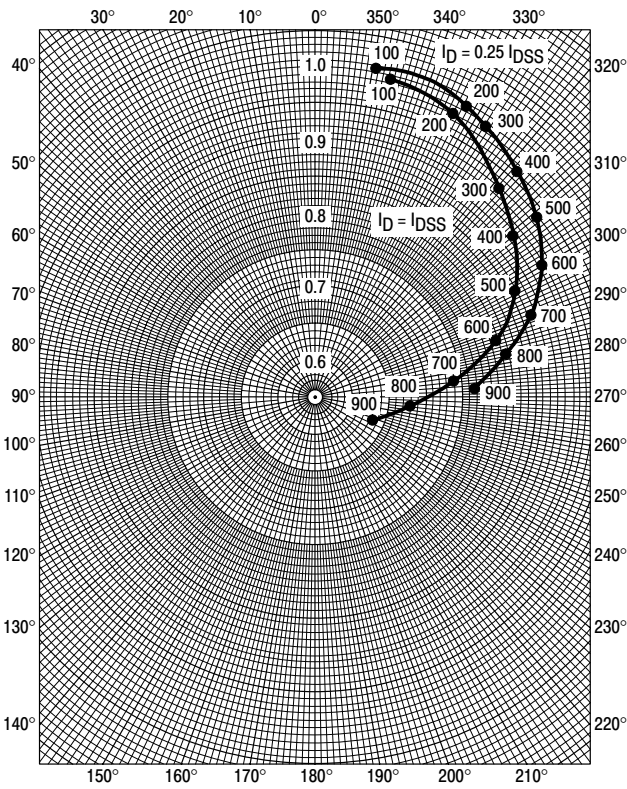


Figure 5. S_{11s}

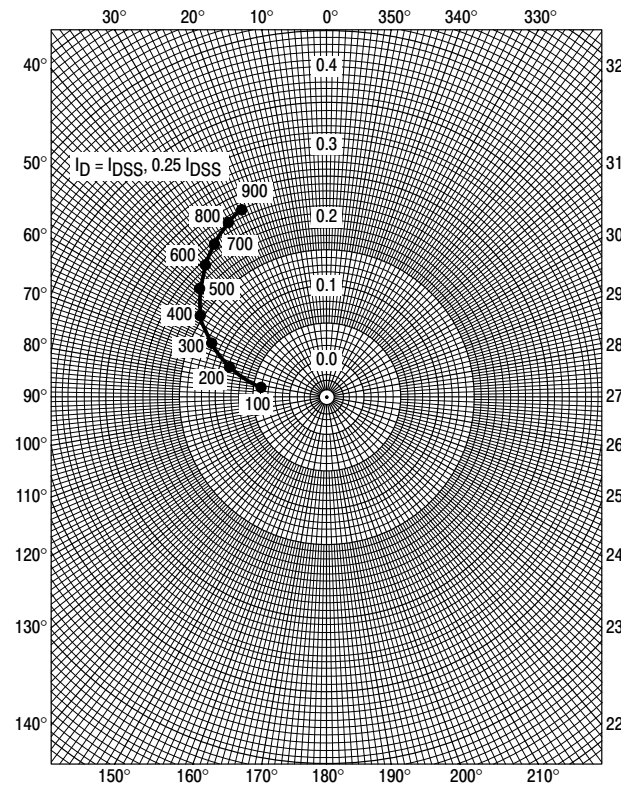


Figure 6. S_{12s}

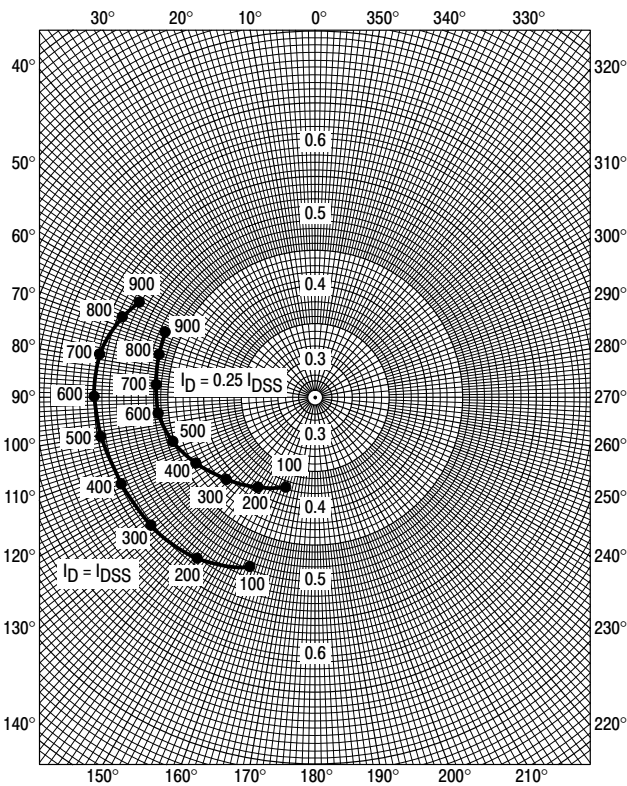


Figure 7. S_{21s}

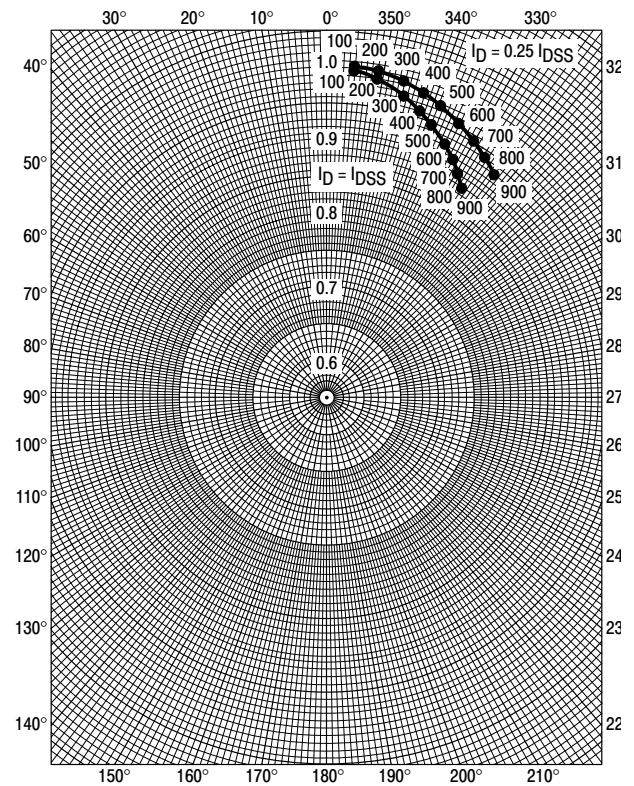


Figure 8. S_{22s}

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

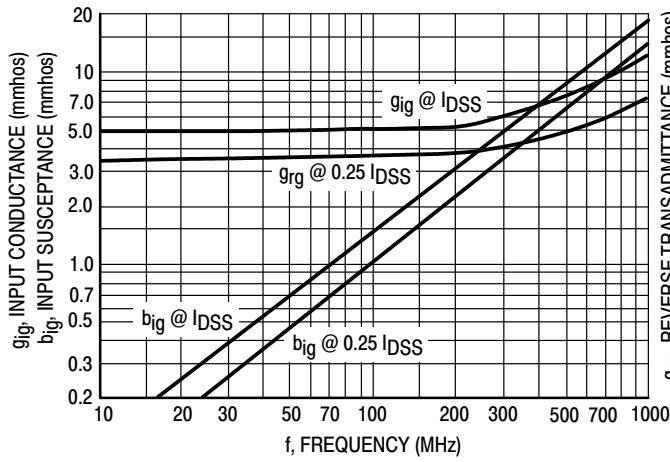


Figure 9. Input Admittance (y_{ig})

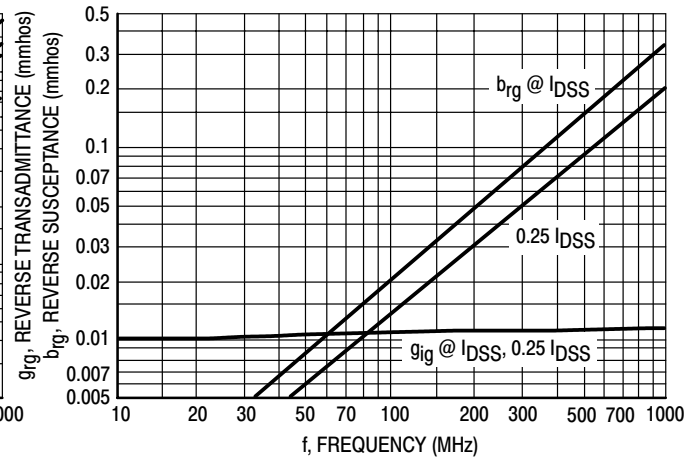


Figure 10. Reverse Transfer Admittance (y_{rg})

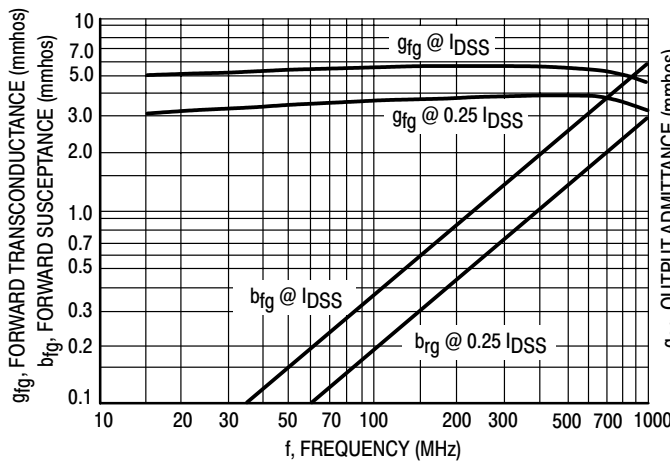


Figure 11. Forward Transfer Admittance (y_{fg})

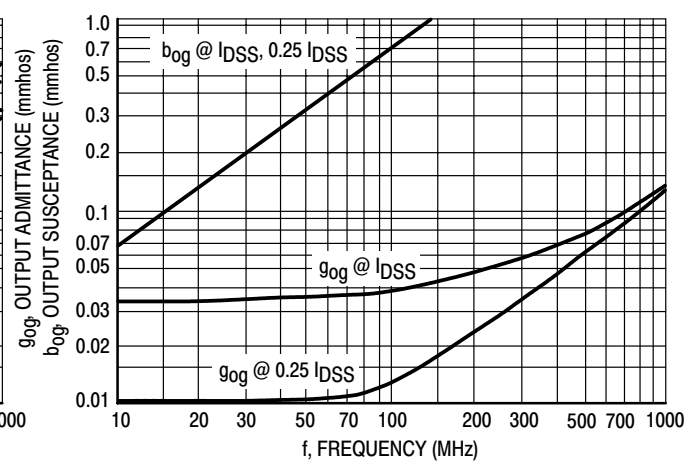


Figure 12. Output Admittance (y_{og})

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

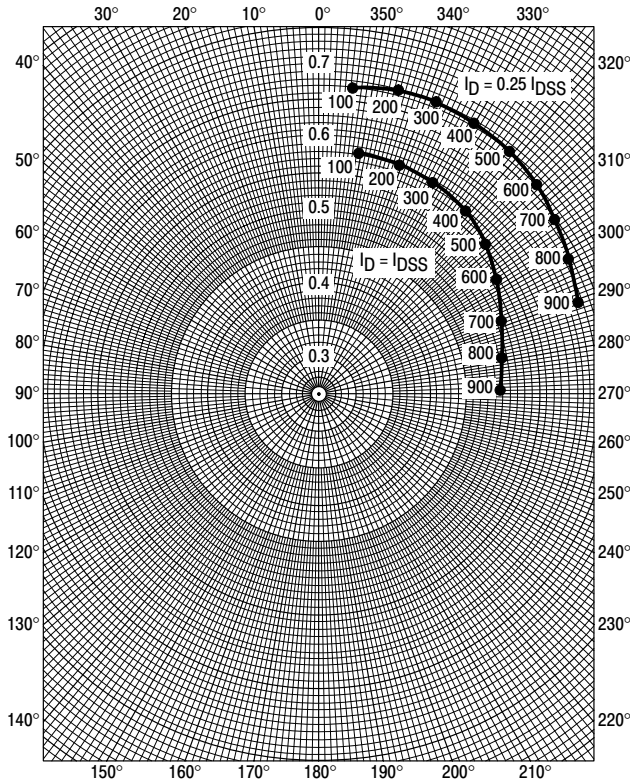


Figure 13. S_{11g}

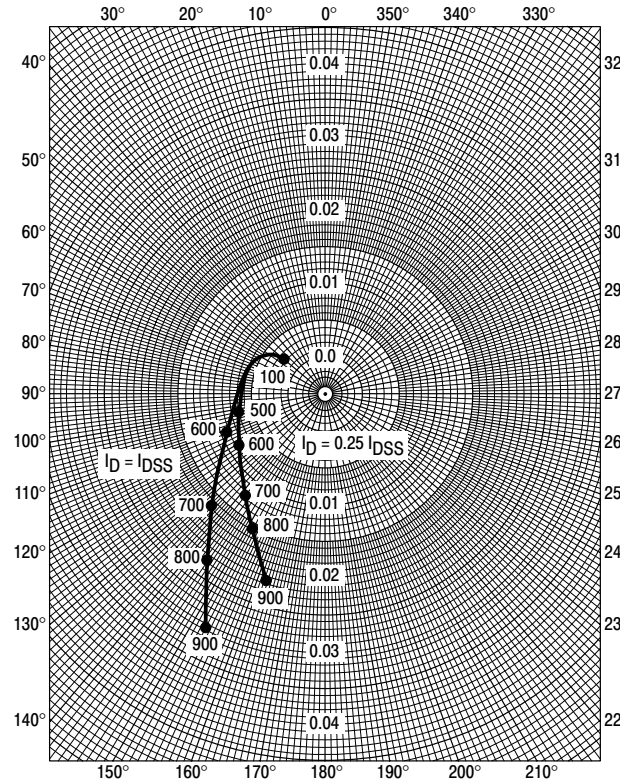


Figure 14. S_{12g}

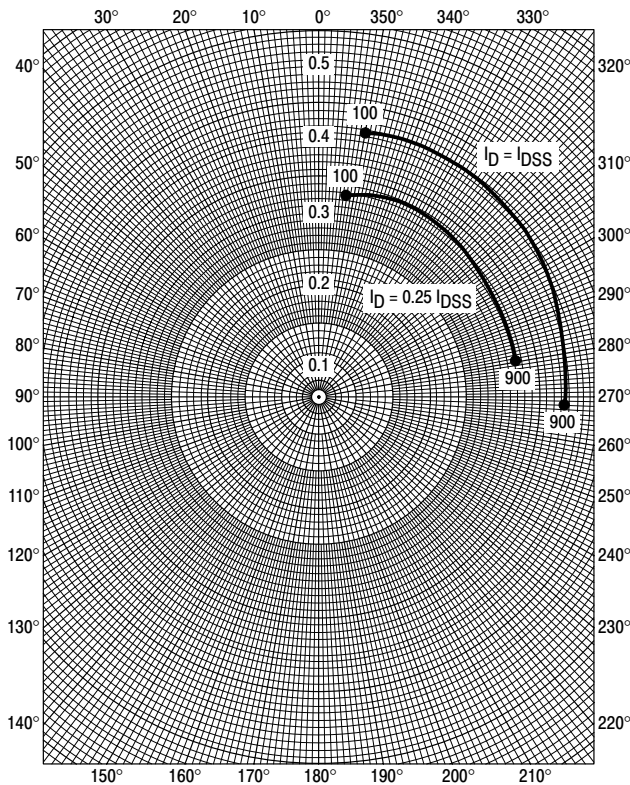


Figure 15. S_{21g}

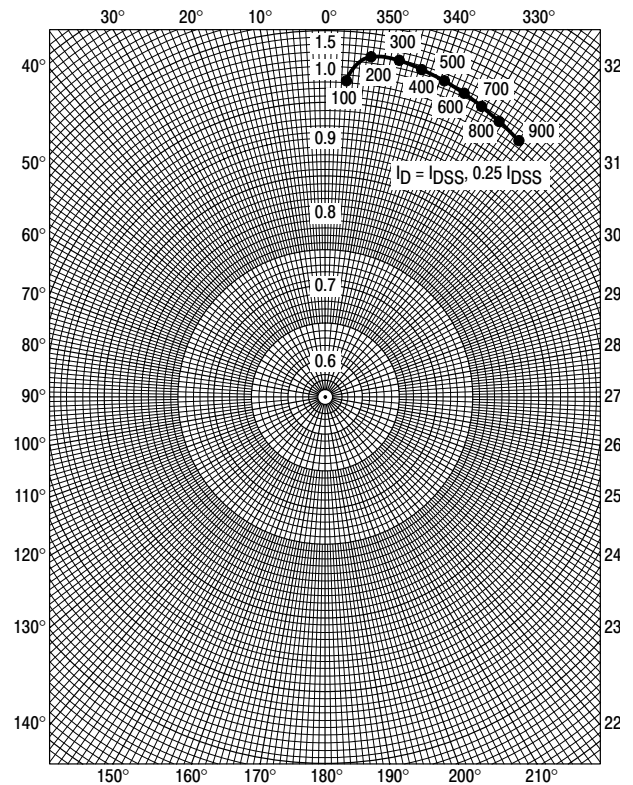
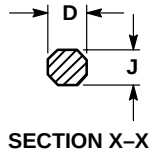
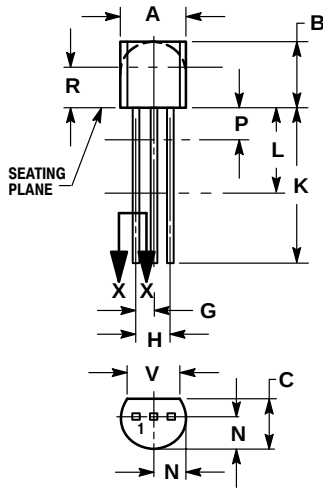


Figure 16. S_{22g}

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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