

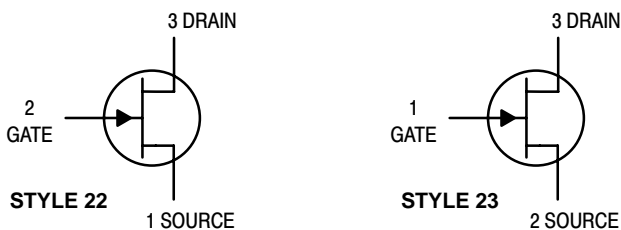
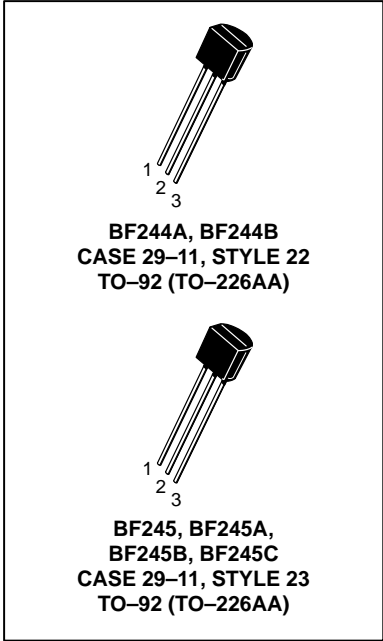
JFET VHF/UHF Amplifiers

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/°C |
| Storage Channel Temperature Range | T_{stg} | -65 to +150 | °C |



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

| Characteristic | Symbol | Min | Typ | Max | Unit |
|----------------|--------|-----|-----|-----|------|
|----------------|--------|-----|-----|-----|------|

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} | BF245(1) 0.4 BF245A, BF244A(2) 0.4 BF245B, BF244B 1.6 BF245C 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} | BF245(1) 2.0 BF245A, BF244A(2) 2.0 BF245B, BF244B 6.0 BF245C 12 | — — — — | 25 6.5 15 25 | mAdc |
|---|-----------|--|------------------|-----------------------|------|

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_A = 25°C unless otherwise noted) (Continued)

| Characteristic | | Symbol | Min | Typ | Max | Unit |
|-------------------------------------|---|---------------------|-----|-----|-----|-------|
| 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 ⁽³⁾ | (V _{DS} = 15 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 Vdc, T_{channel} = 25°C)

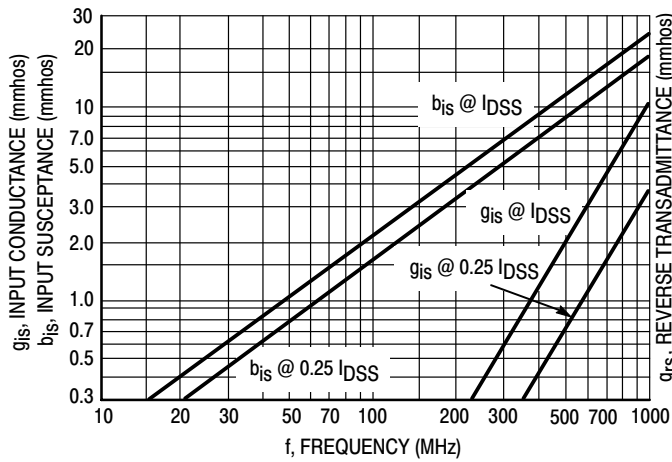


Figure 1. Input Admittance (y_{is})

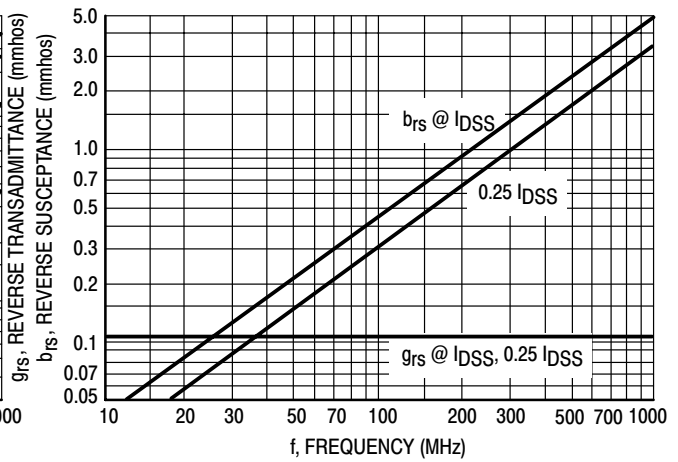


Figure 2. Reverse Transfer Admittance (y_{rs})

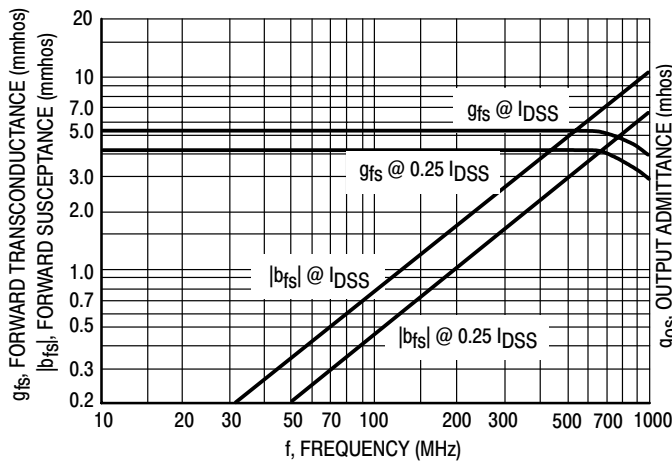


Figure 3. Forward Transadmittance (y_{fs})

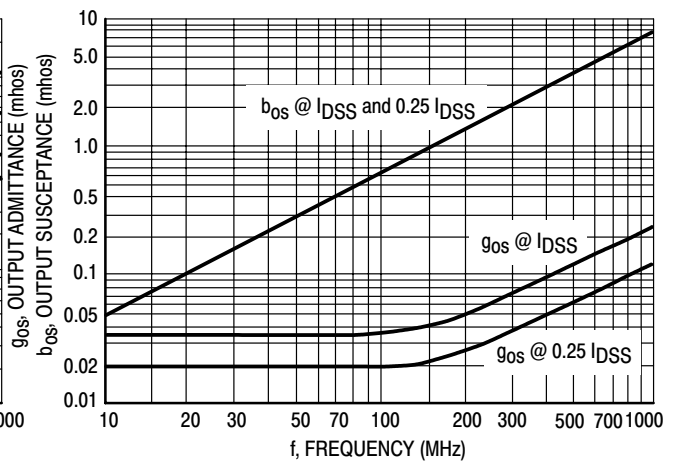


Figure 4. Output Admittance (y_{os})

BF245A BF245B

COMMON SOURCE CHARACTERISTICS S-PARAMETERS

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

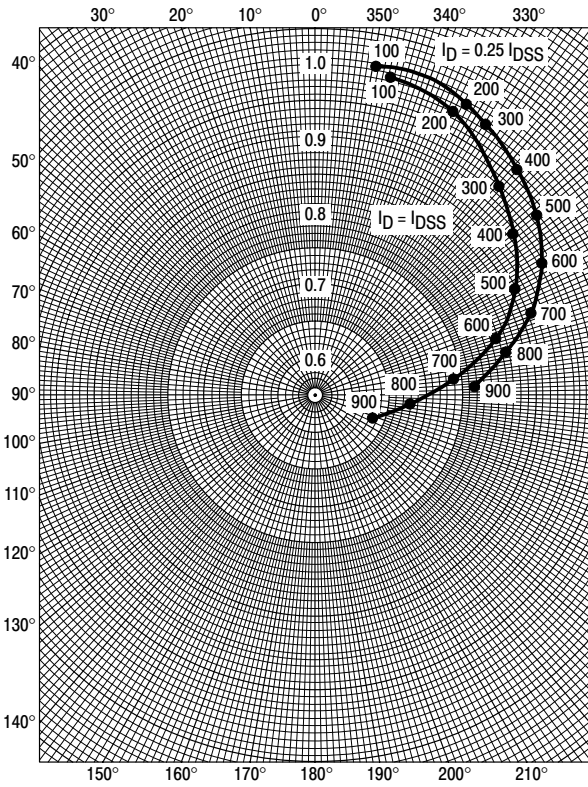


Figure 5. S_{11s}

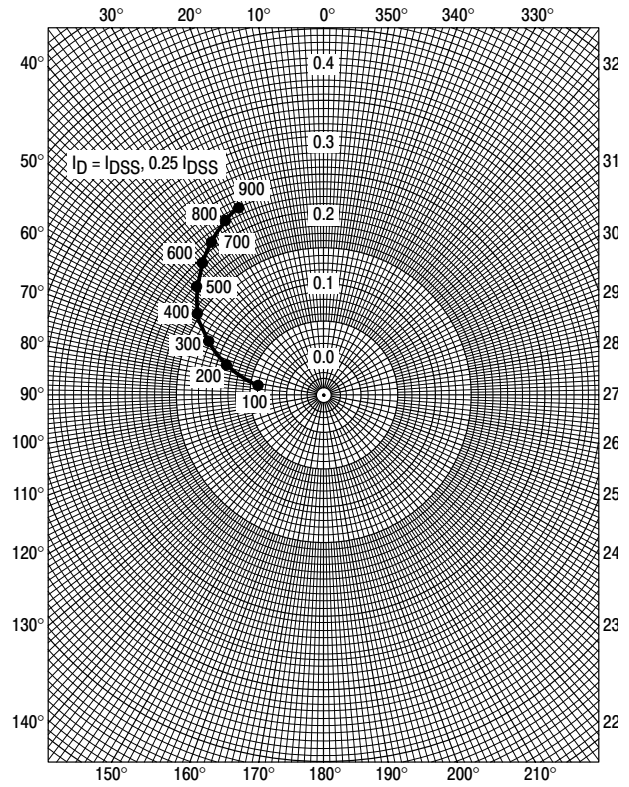


Figure 6. S_{12s}

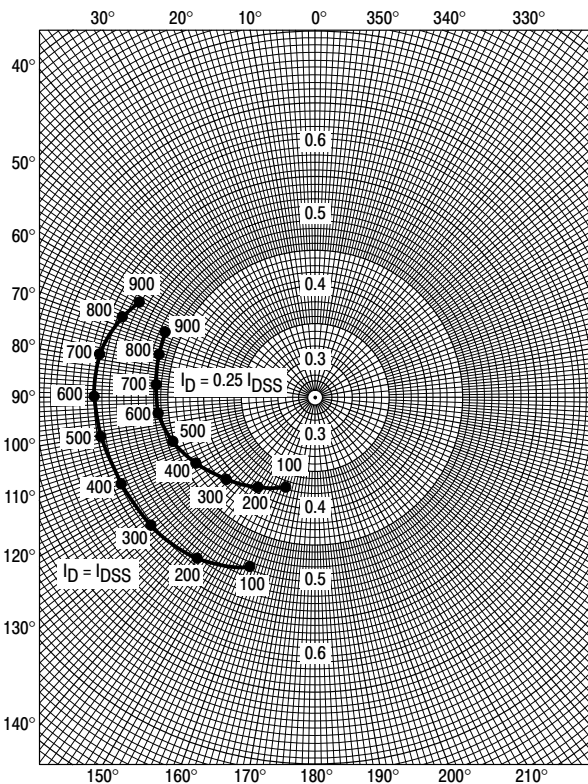


Figure 7. S_{21s}

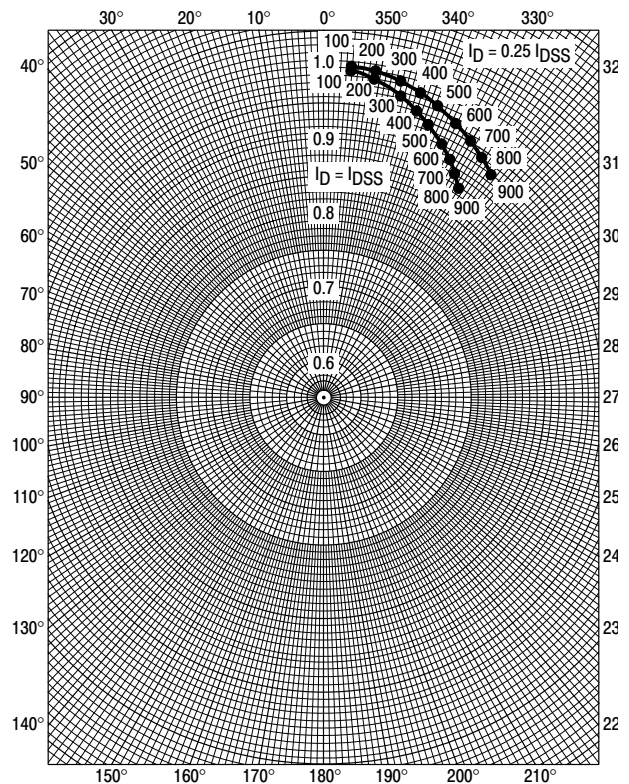


Figure 8. S_{22s}

BF245A BF245B

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

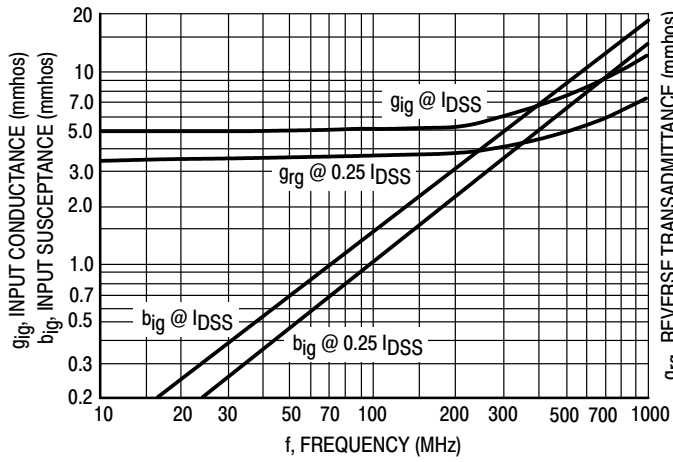


Figure 9. Input Admittance (y_{ig})

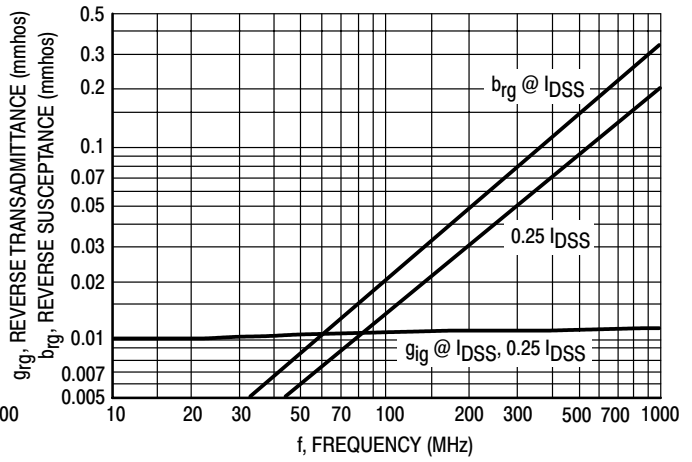


Figure 10. Reverse Transfer Admittance (y_{rg})

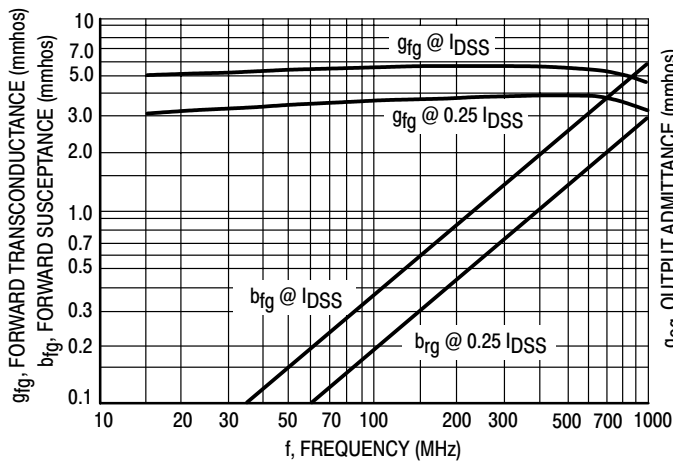


Figure 11. Forward Transfer Admittance (y_{fg})

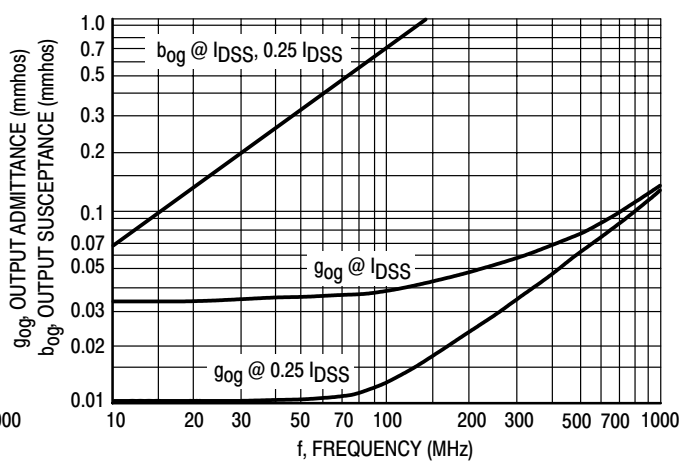


Figure 12. Output Admittance (y_{og})

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

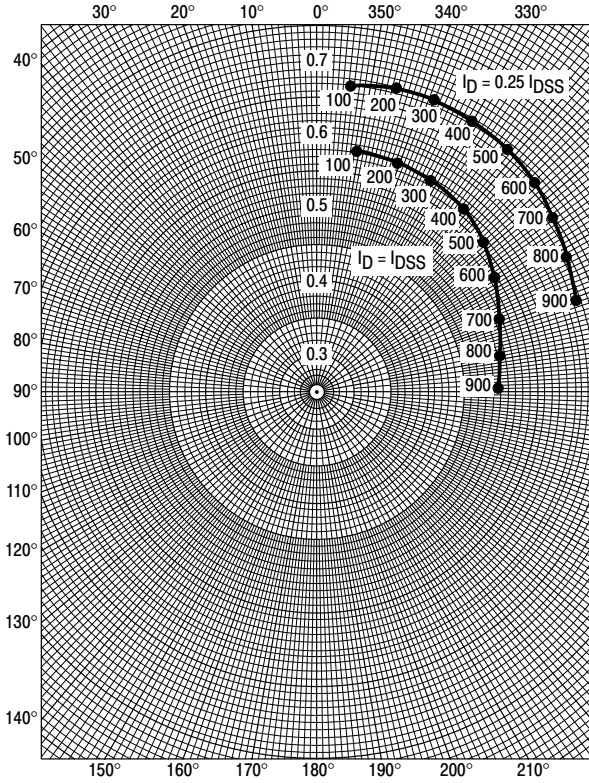


Figure 13. S_{11g}

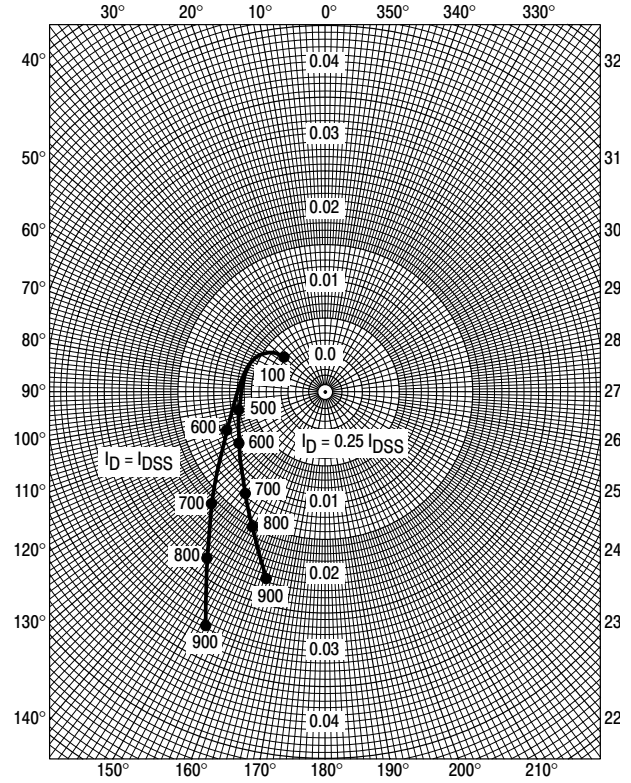


Figure 14. S_{12g}

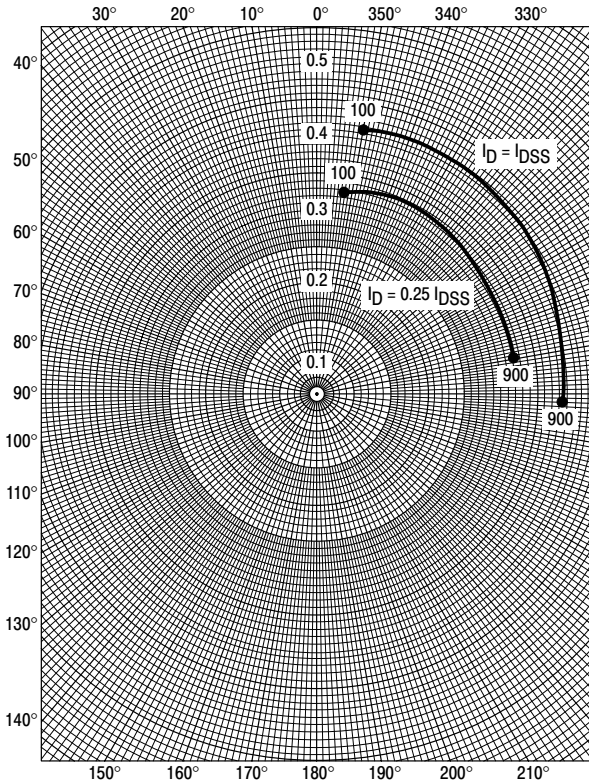


Figure 15. S_{21g}

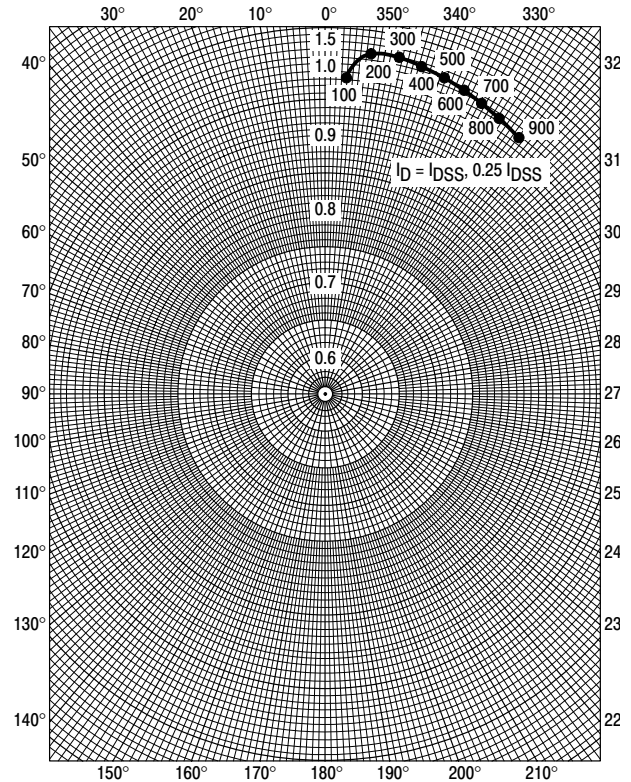
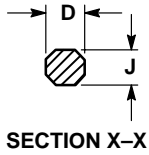
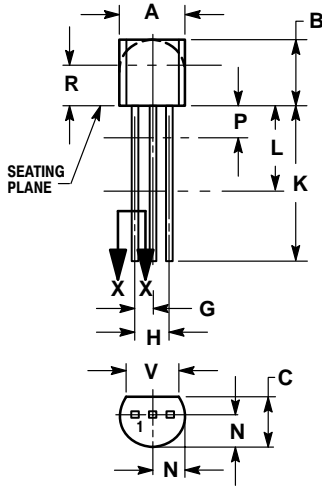


Figure 16. S_{22g}

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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