

2N3819

JFET VHF/UHF Amplifier

N-Channel – Depletion

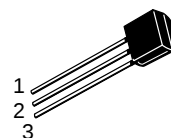
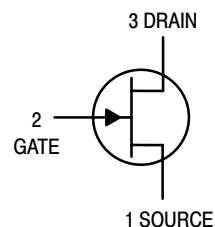
MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain–Source Voltage	V_{DS}	25	Vdc
Drain–Gate Voltage	V_{DG}	25	Vdc
Gate–Source Voltage	V_{GS}	25	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	$^\circ\text{C}$



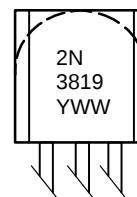
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TO-92
CASE 29
STYLE 22

MARKING DIAGRAM



2N3819 = Device Code
Y = Year
WW = Work Week

ORDERING INFORMATION

Device	Package	Shipping
2N3819	TO-92	5000 Units/Box

2N3819

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 ($I_G = 1.0\ \mu\text{Adc}$, $V_{DS} = 0$)	$V_{(BR)GSS}$	25	–	–	Vdc
Gate–Source ($V_{DS} = 15\ \text{Vdc}$, $I_D = 200\ \mu\text{Adc}$)	V_{GS}	0.5	–	7.5	Vdc
Gate–Source Cutoff Voltage ($V_{DS} = 15\ \text{Vdc}$, $I_D = 10\ \text{nAdc}$)	$V_{GS(off)}$	–	–	–8.0	Vdc
Gate Reverse Current ($V_{GS} = 15\ \text{Vdc}$, $V_{DS} = 0$)	I_{GSS}	–	–	210	nAdc

ON CHARACTERISTICS

Zero–Gate–Voltage Drain Current ($V_{DS} = 15\ \text{Vdc}$, $V_{GS} = 0$)	I_{DSS}	2.0	–	20	mAdc
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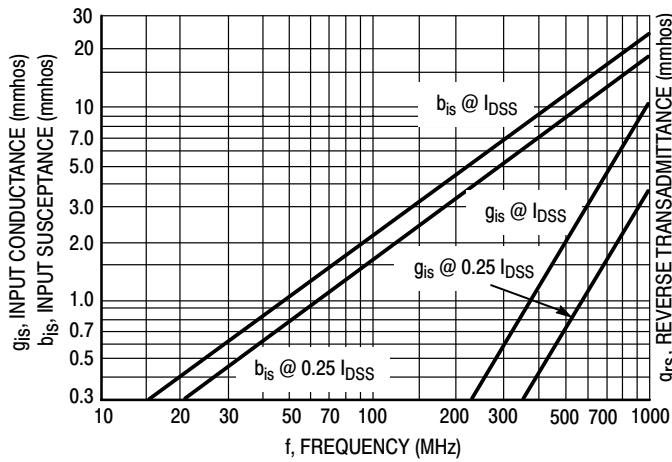
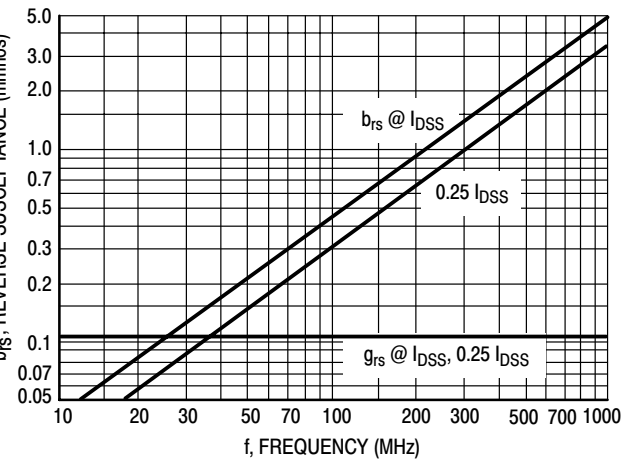
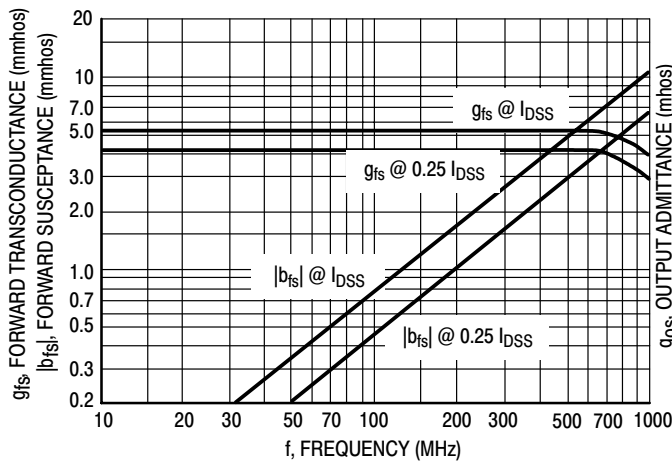
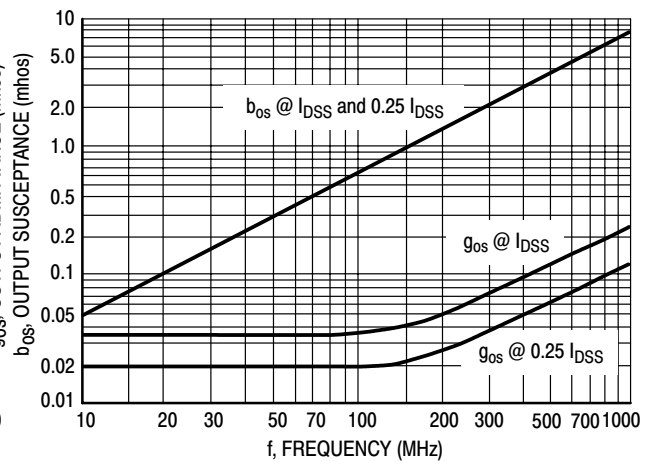
SMALL–SIGNAL CHARACTERISTICS

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 (Note 1) ($V_{DS} = 15\ \text{Vdc}$, $V_{GS} = 0$)	$F_{(Yfs)}$	–	700	–	MHz

1. 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)

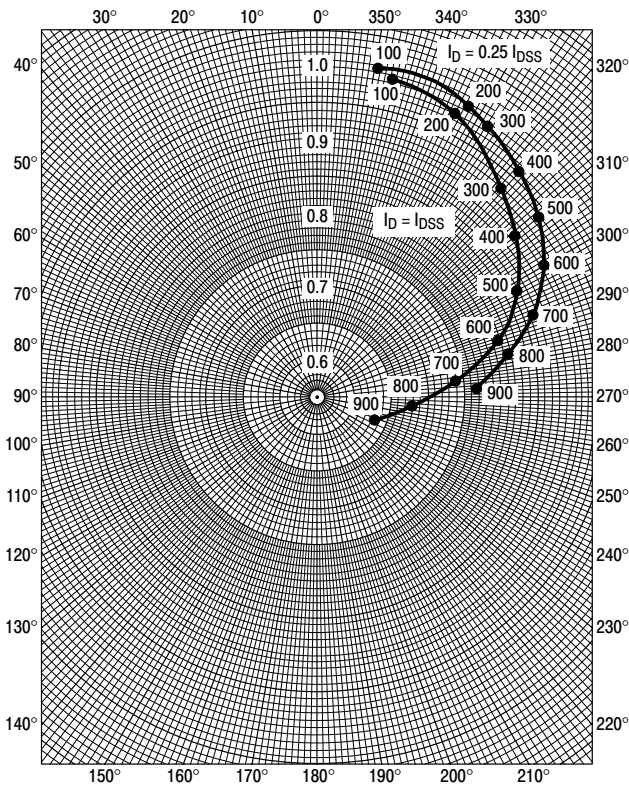


Figure 5. S_{11s}

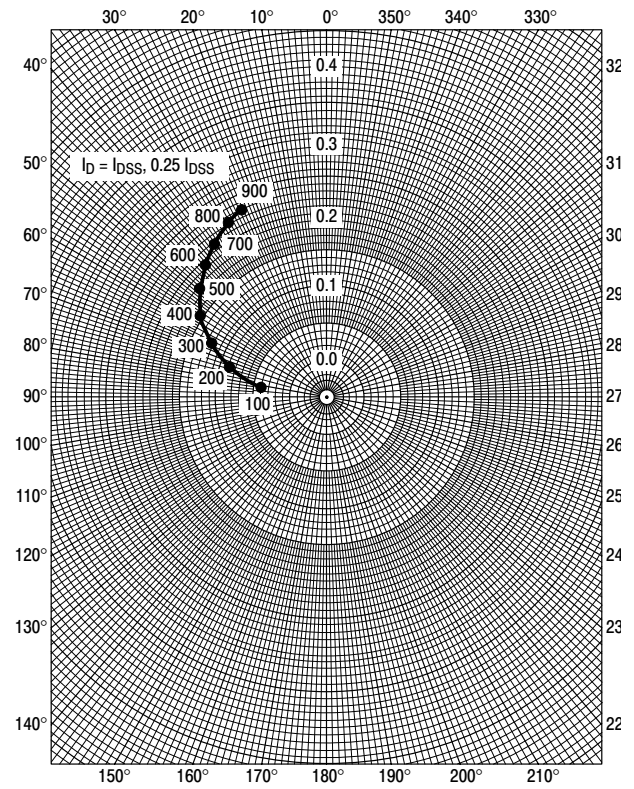


Figure 6. S_{12s}

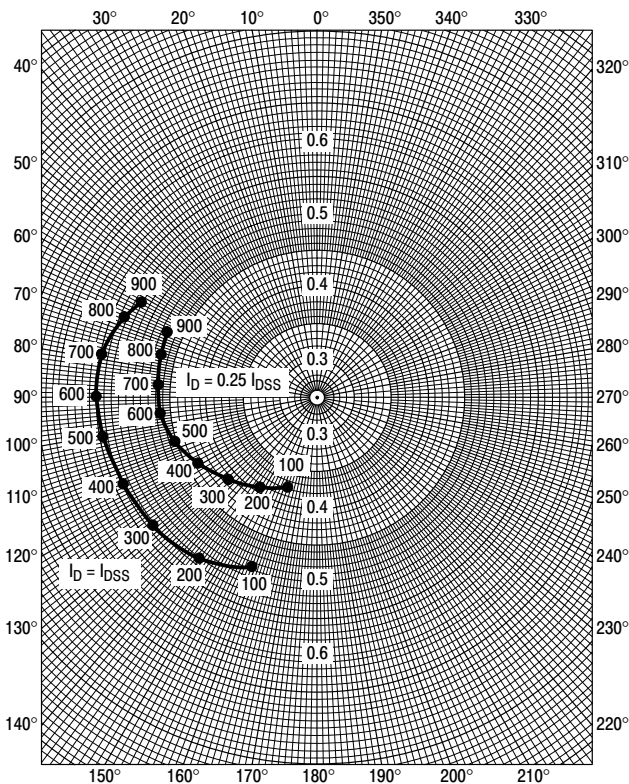


Figure 7. S_{21s}

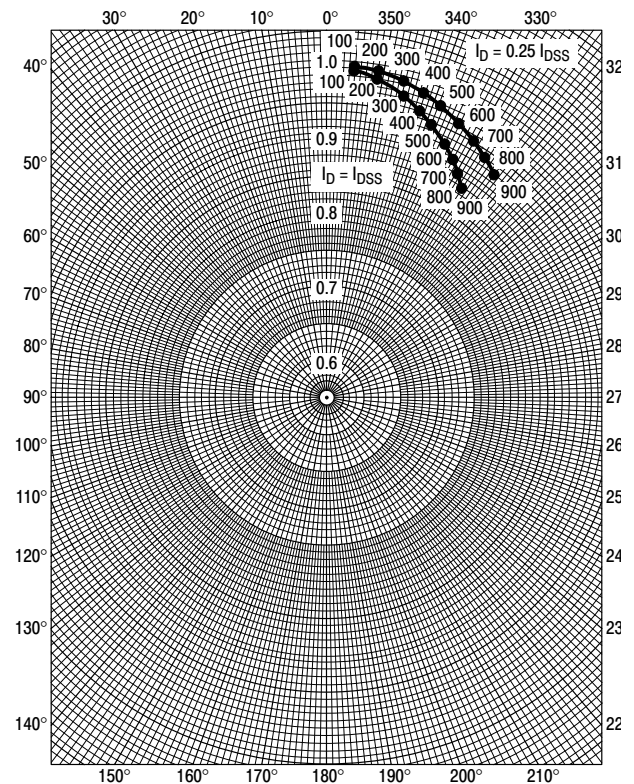
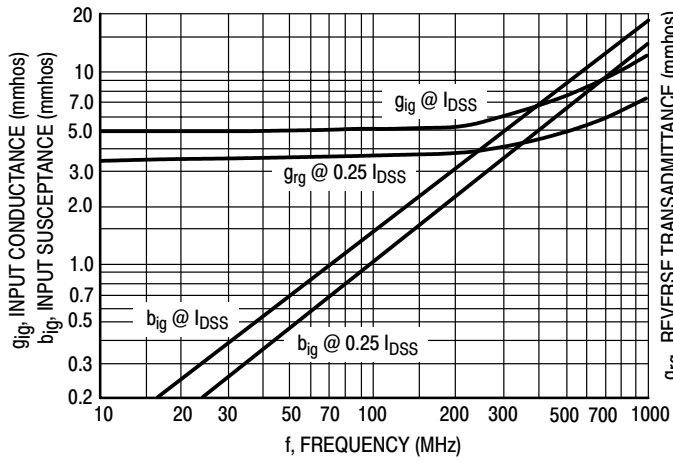
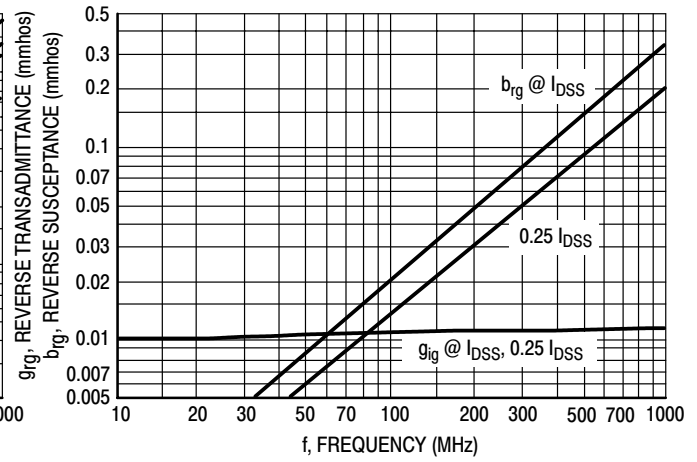
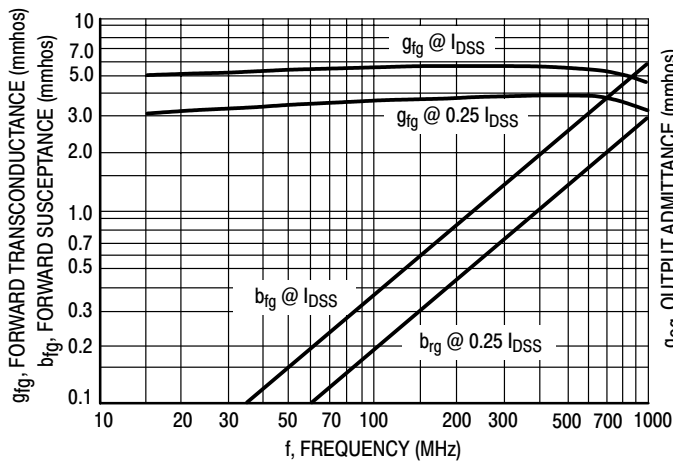
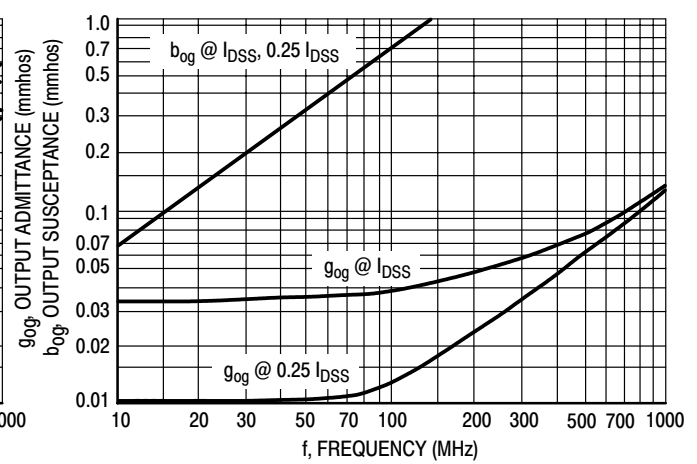


Figure 8. S_{22s}

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

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)

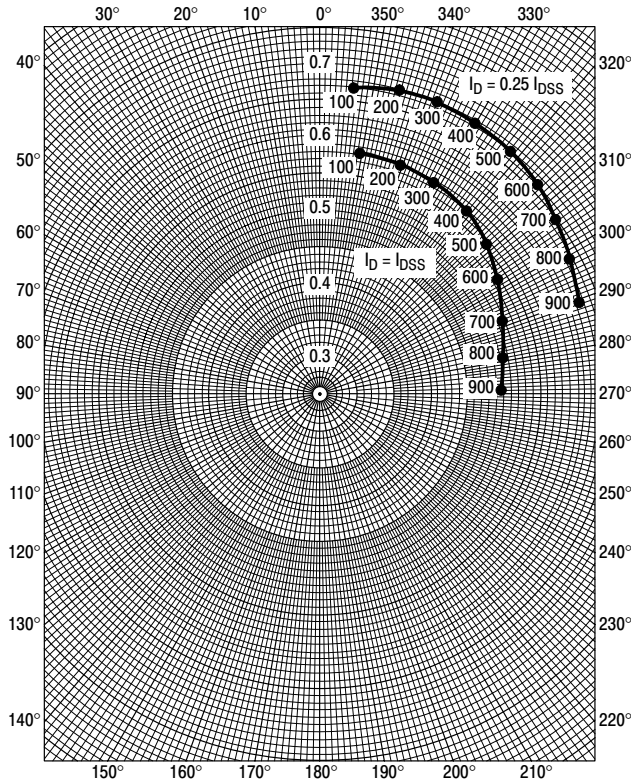


Figure 13. S_{11g}

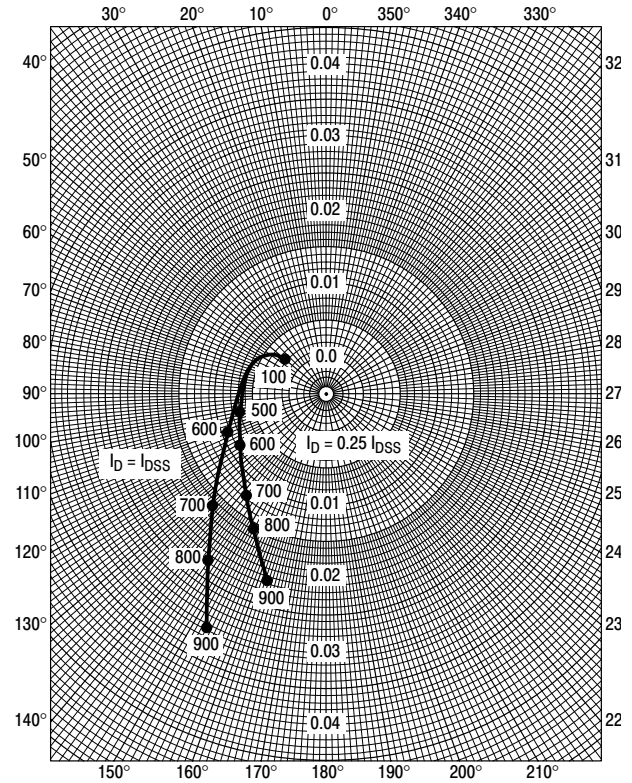


Figure 14. S_{12g}

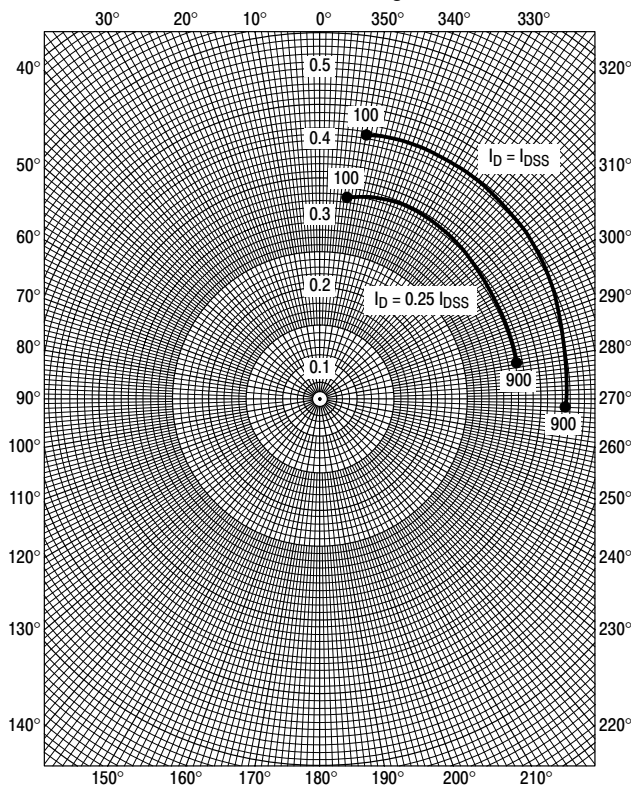


Figure 15. S_{21g}

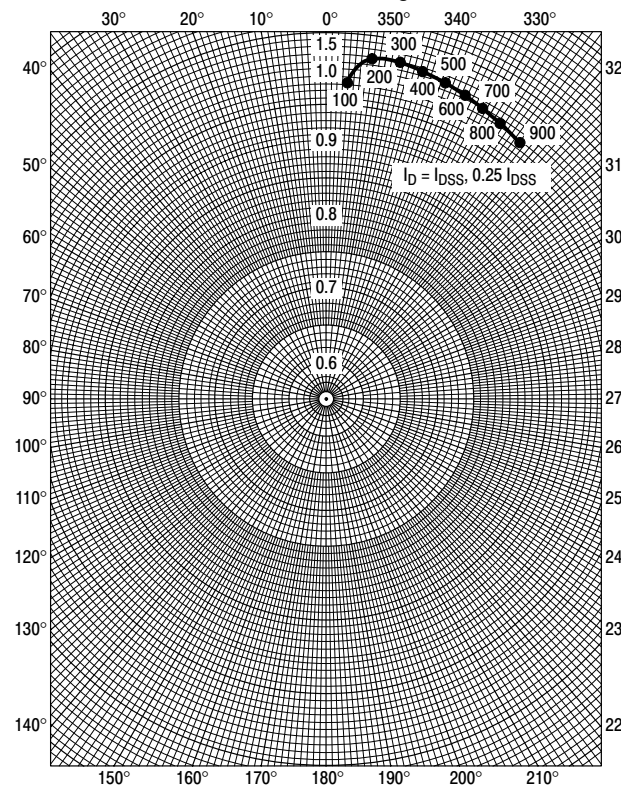
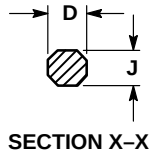
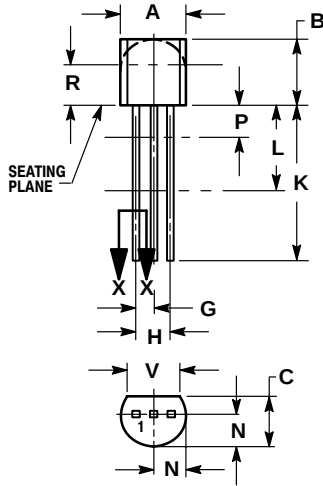


Figure 16. S_{22g}

2N3819

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
- GATE
- DRAIN

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