

2N3819

JFET VHF/UHF Amplifier

N-Channel – Depletion

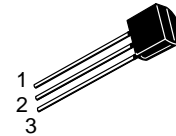
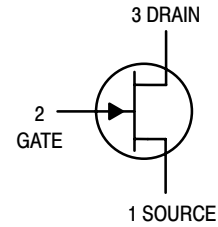


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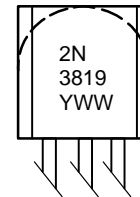
MAXIMUM RATINGS

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	$^\circ\text{C}$



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°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Gate–Source Breakdown Voltage (I _G = 1.0 μA _{dc} , V _{DS} = 0)	V _{(BR)GSS}	25	–	–	V _{dc}
Gate–Source (V _{DS} = 15 V _{dc} , I _D = 200 μA _{dc})	V _{GS}	0.5	–	7.5	V _{dc}
Gate–Source Cutoff Voltage (V _{DS} = 15 V _{dc} , I _D = 10 nA _{dc})	V _{GS(off)}	–	–	–8.0	V _{dc}
Gate Reverse Current (V _{GS} = 15 V _{dc} , V _{DS} = 0)	I _{GSS}	–	–	210	nA _{dc}

ON CHARACTERISTICS

Zero–Gate–Voltage Drain Current (V _{DS} = 15 V _{dc} , V _{GS} = 0)	I _{DSS}	2.0	–	20	mA _{dc}
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SMALL–SIGNAL CHARACTERISTICS

Forward Transfer Admittance (V _{DS} = 15 V _{dc} , V _{GS} = 0, f = 1.0 kHz)	Y _{fs}	3.0	–	6.5	mmhos
Output Admittance (V _{DS} = 15 V _{dc} , V _{GS} = 0, f = 1.0 kHz)	Y _{os}	–	40	–	μmhos
Forward Transfer Admittance (V _{DS} = 15 V _{dc} , V _{GS} = 0, f = 200 MHz)	Y _{fs}	–	5.6	–	mmhos
Reverse Transfer Admittance (V _{DS} = 15 V _{dc} , V _{GS} = 0, f = 200 MHz)	Y _{rs}	–	1.0	–	mmhos
Input Capacitance (V _{DS} = 20 V _{dc} , –V _{GS} = 1.0 V _{dc})	C _{iss}	–	3.0	–	pF
Reverse Transfer Capacitance (V _{DS} = 20 V _{dc} , –V _{GS} = 1.0 V _{dc} , f = 1.0 MHz)	C _{rss}	–	0.7	–	pF
Output Capacitance (V _{DS} = 20 V _{dc} , –V _{GS} = 1.0 V _{dc} , f = 1.0 MHz)	C _{oss}	–	0.9	–	pF
Cut–off Frequency (Note 1) (V _{DS} = 15 V _{dc} , 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

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

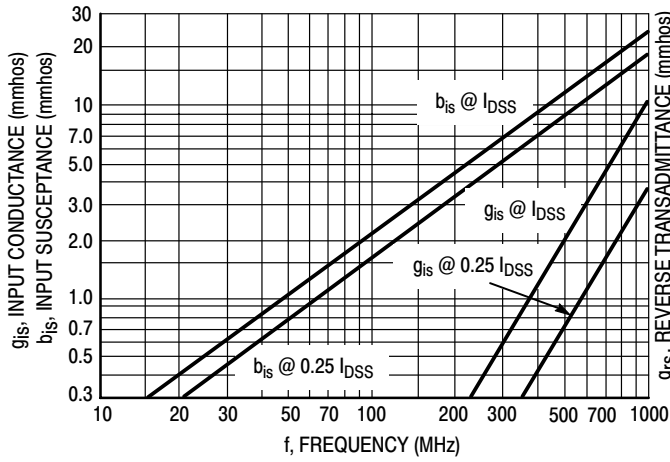


Figure 1. Input Admittance (y_{is})

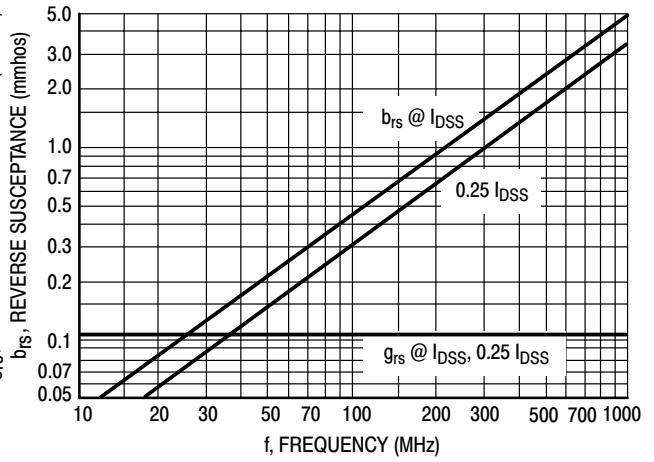


Figure 2. Reverse Transfer Admittance (y_{rs})

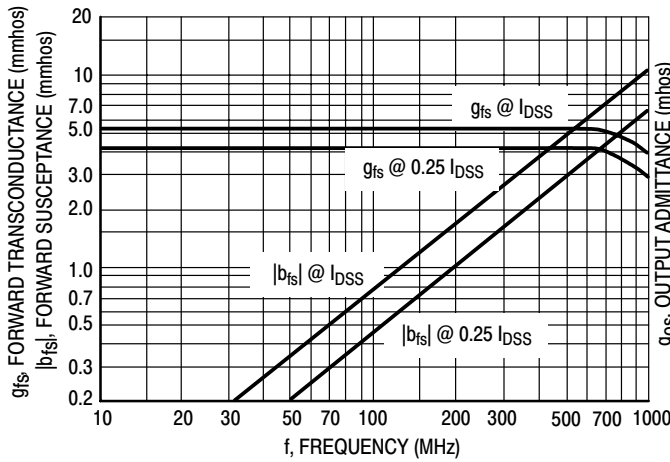


Figure 3. Forward Transadmittance (y_{fs})

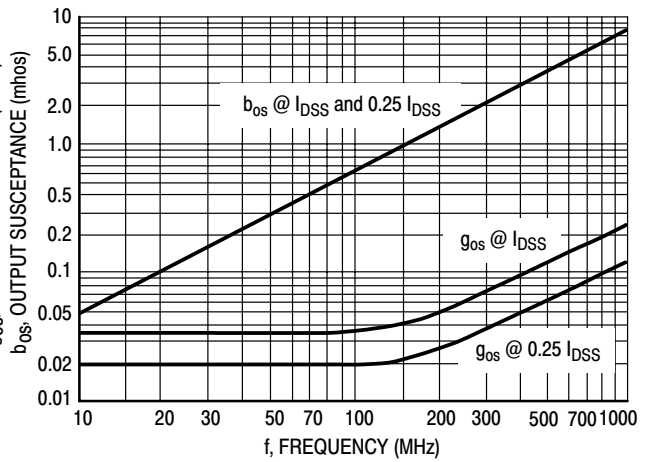


Figure 4. Output Admittance (y_{os})

COMMON SOURCE CHARACTERISTICS
S-PARAMETERS

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

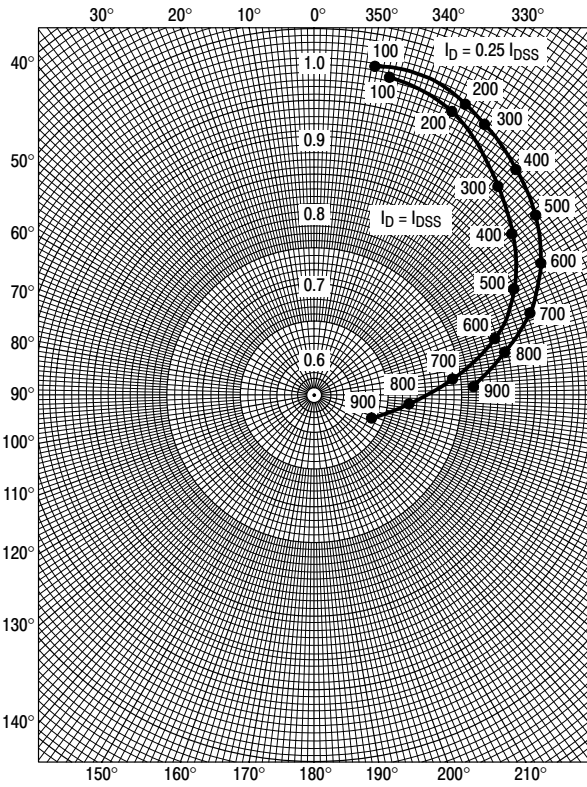


Figure 5. S_{11s}

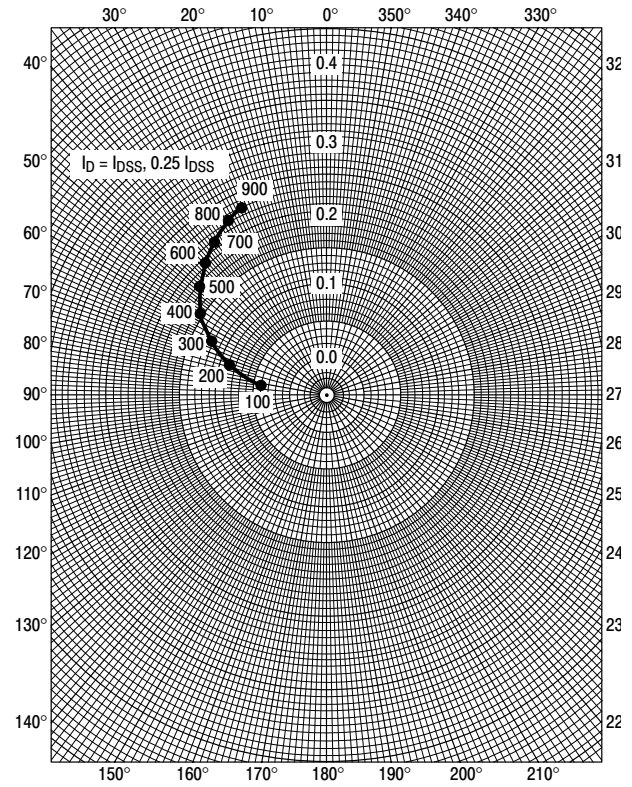


Figure 6. S_{12s}

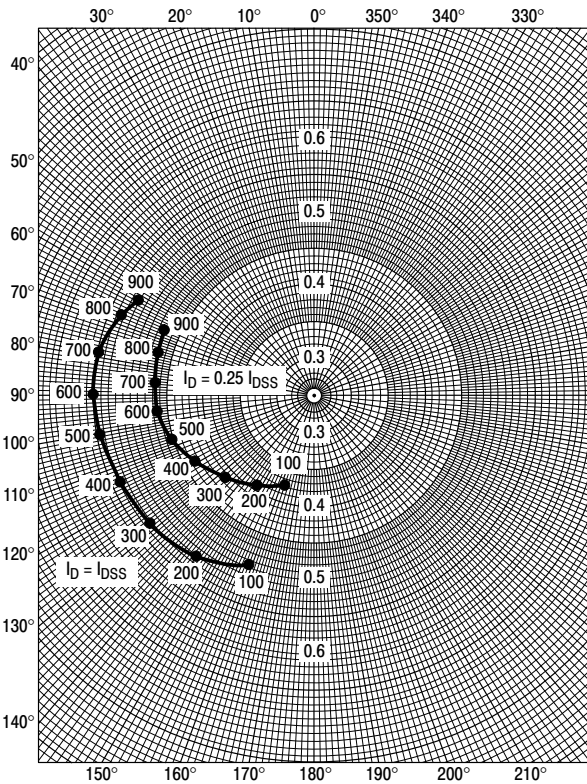


Figure 7. S_{21s}

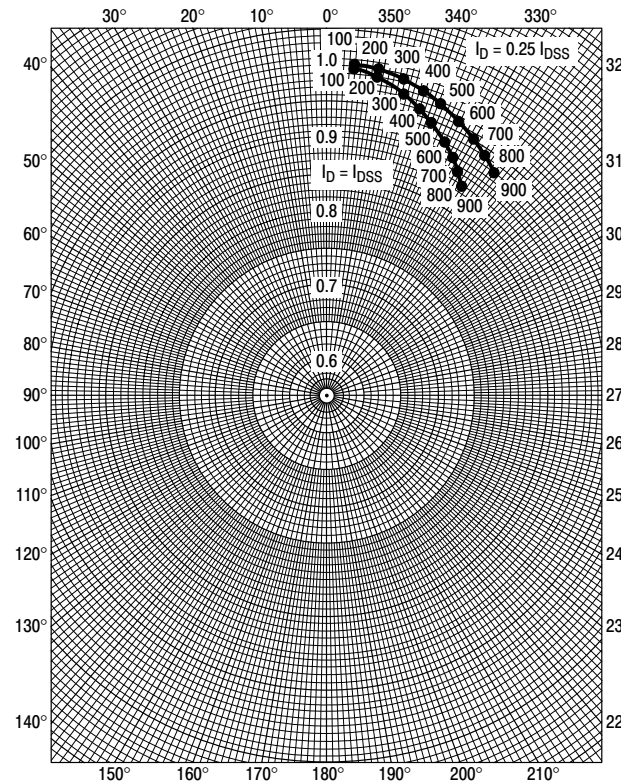


Figure 8. S_{22s}

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

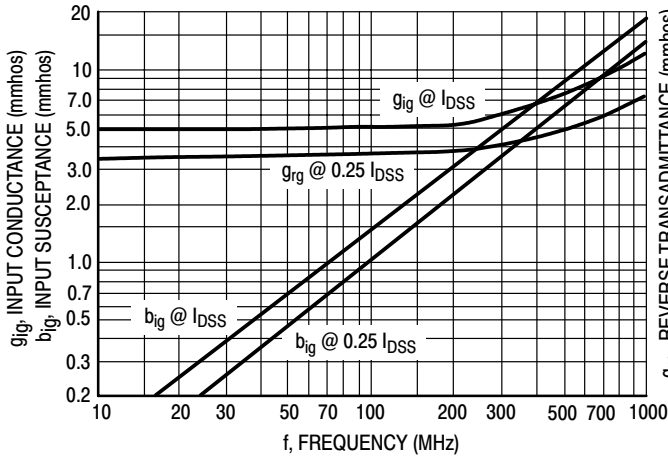


Figure 9. Input Admittance (y_{ig})

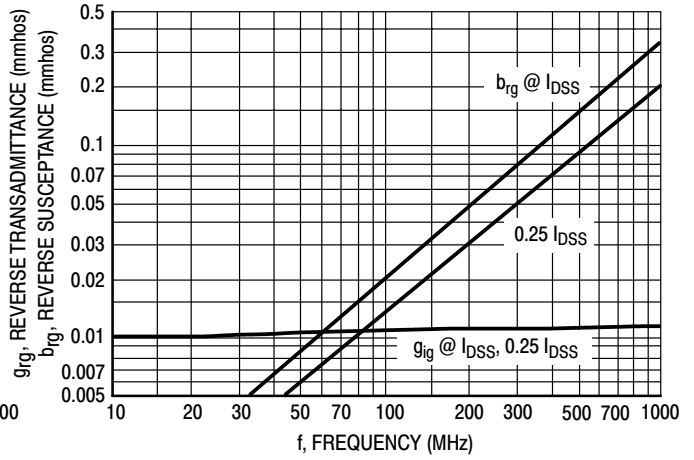


Figure 10. Reverse Transfer Admittance (y_{rg})

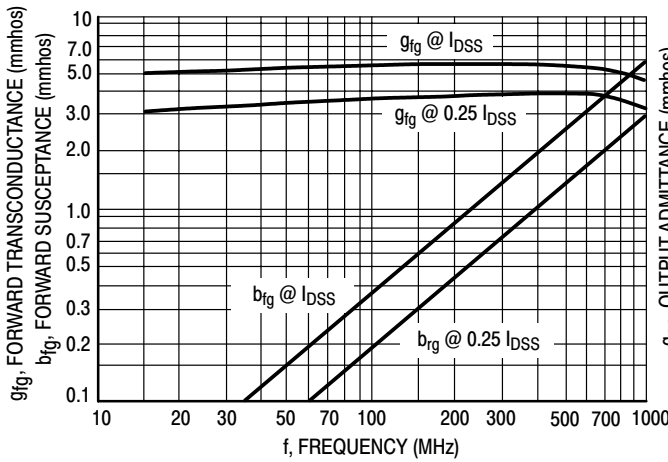


Figure 11. Forward Transfer Admittance (y_{fg})

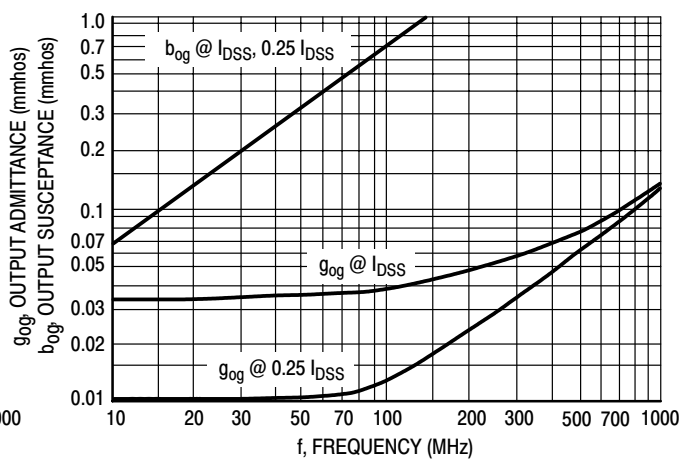


Figure 12. Output Admittance (y_{og})

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

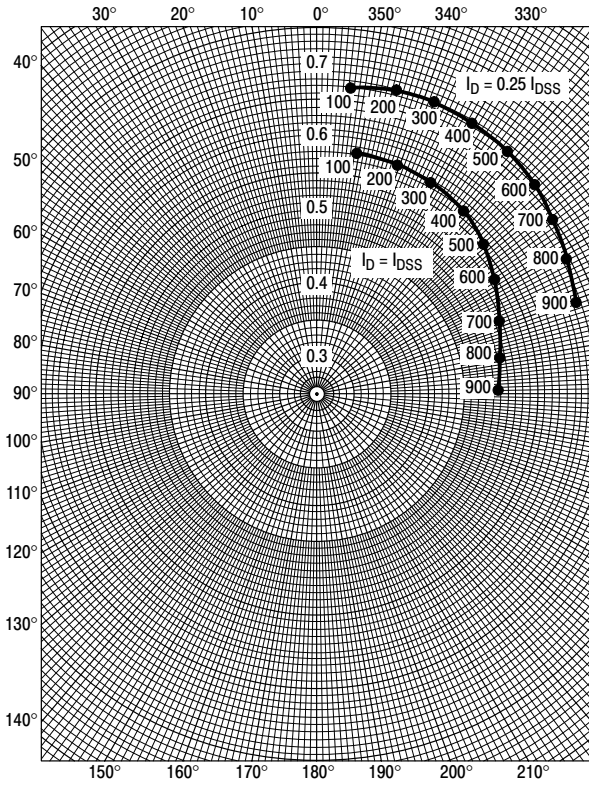


Figure 13. S_{11g}

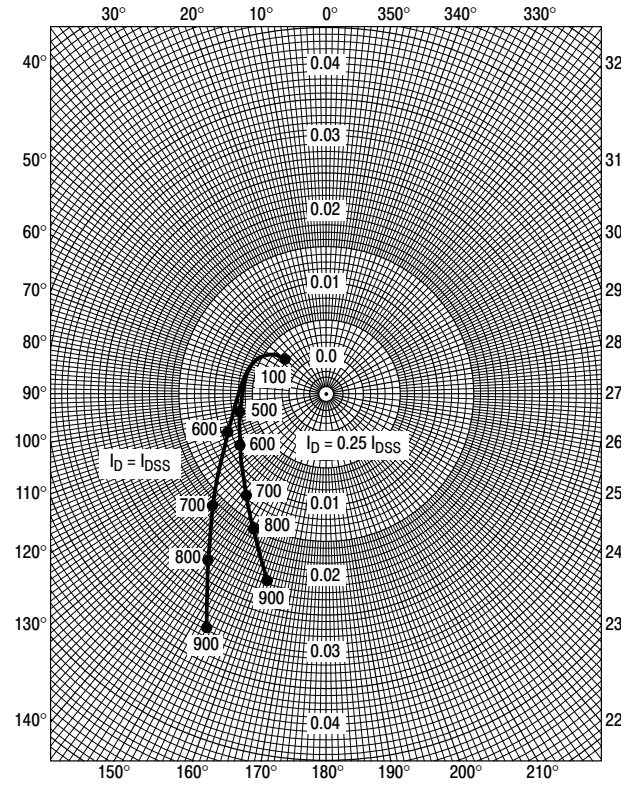


Figure 14. S_{12g}

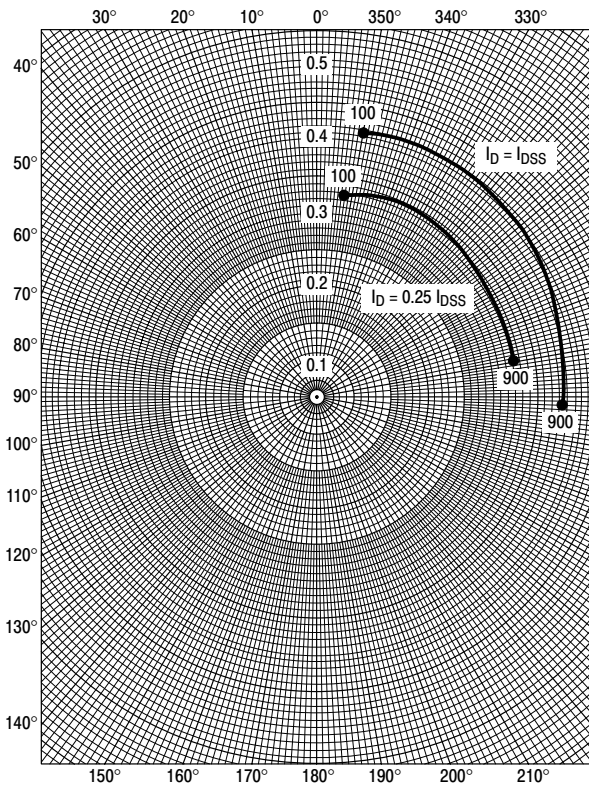


Figure 15. S_{21g}

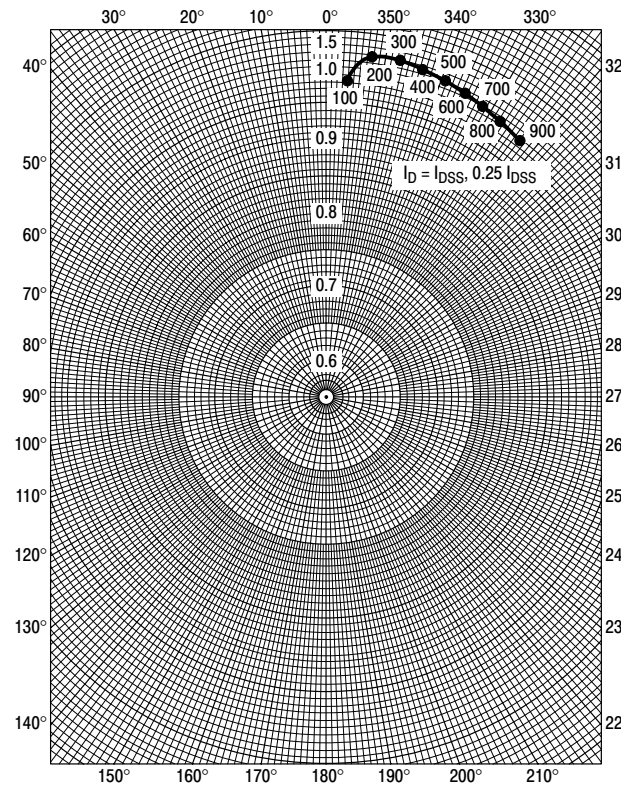
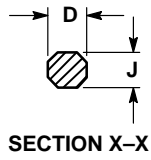
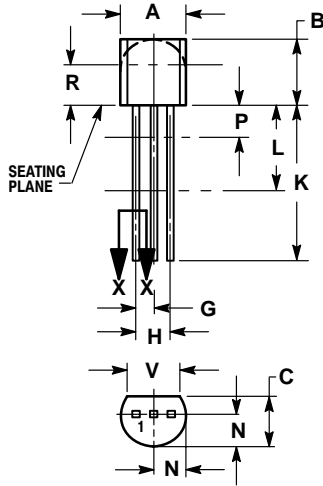


Figure 16. S_{22g}

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
2. GATE
3. DRAIN

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