2N3819

JFET VHF/UHF Amplifier

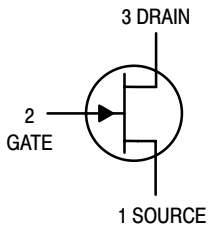
N–Channel – Depletion

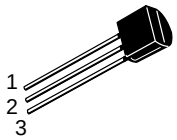
ON Semiconductor®

http://onsemi.com

MAXIMUM RATINGS

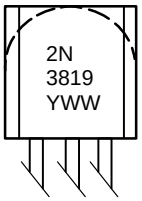
Rating	Symbol	Value	Unit
Drain–Source Voltage	V_{DS}	25	Vdc
Drain–Gate Voltage	V_{DG}	25	Vdc
Gate–Source Voltage	V_{GS}	25	Vdc
Drain Current	I_D	100	mAdc
Forward Gate Current	$I_{G(f)}$	10	mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	 350 2.8	 mW mW/°C
Storage Channel Temperature Range	T_{stg}	–65 to +150	°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

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Gate–Source Breakdown Voltage (I_G = 1.0 μAdc, V_{DS} = 0)		$V_{(BR)GSS}$	25	–	–	Vdc
Gate–Source (V_{DS} = 15 Vdc, I_D = 200 μAdc)		V_{GS}	0.5	–	7.5	Vdc
Gate–Source Cutoff Voltage (V_{DS} = 15 Vdc, I_D = 10 nAdc)		$V_{GS(off)}$	–	–	–8.0	Vdc
Gate Reverse Current (V_{GS} = 15 Vdc, V_{DS} = 0)		I_{GSS}	–	–	210	nAdc
ON CHARACTERISTICS						
Zero–Gate–Voltage Drain Current (V_{DS} = 15 Vdc, V_{GS} = 0)		I_{DSS}	2.0	–	20	mAdc
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 (Note 1)	(V_{DS} = 15 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 Vdc, $T_{channel}$ = 25°C)

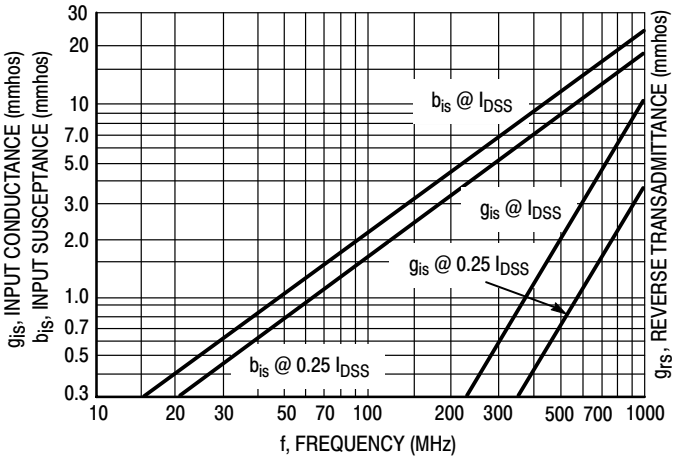


Figure 1. Input Admittance (y_{is})

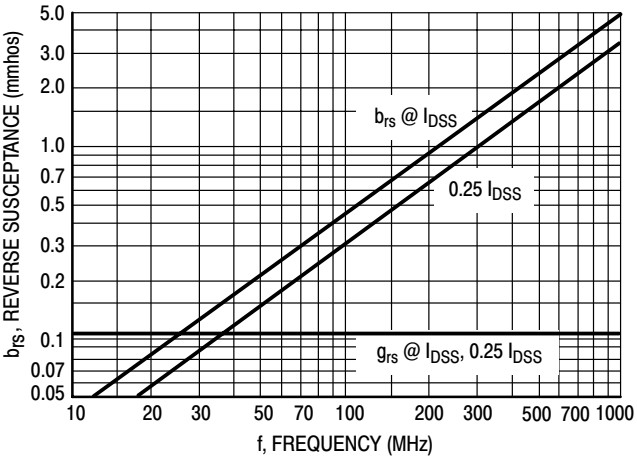


Figure 2. Reverse Transfer Admittance (y_{rs})

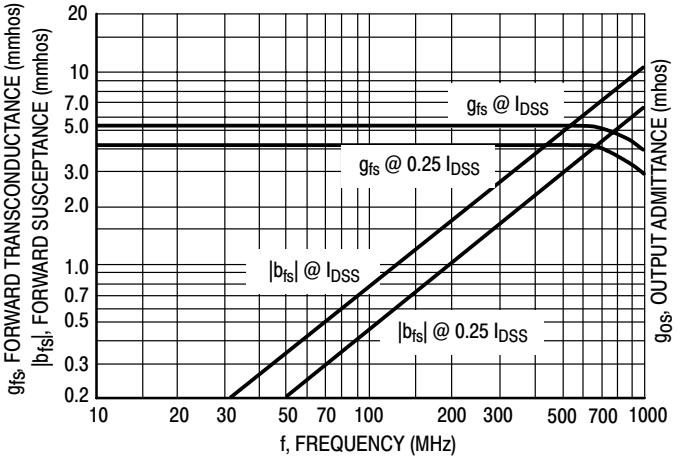


Figure 3. Forward Transadmittance (y_{fs})

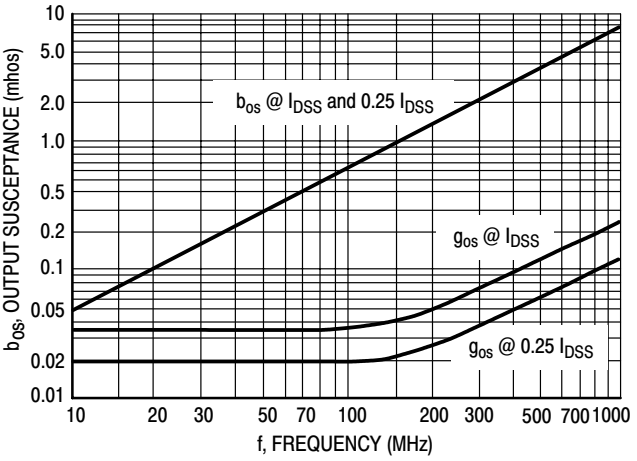


Figure 4. Output Admittance (y_{os})

COMMON SOURCE CHARACTERISTICS

S–PARAMETERS

(V_{DS} = 15 Vdc, $T_{channel}$ = 25°C, Data Points in MHz)

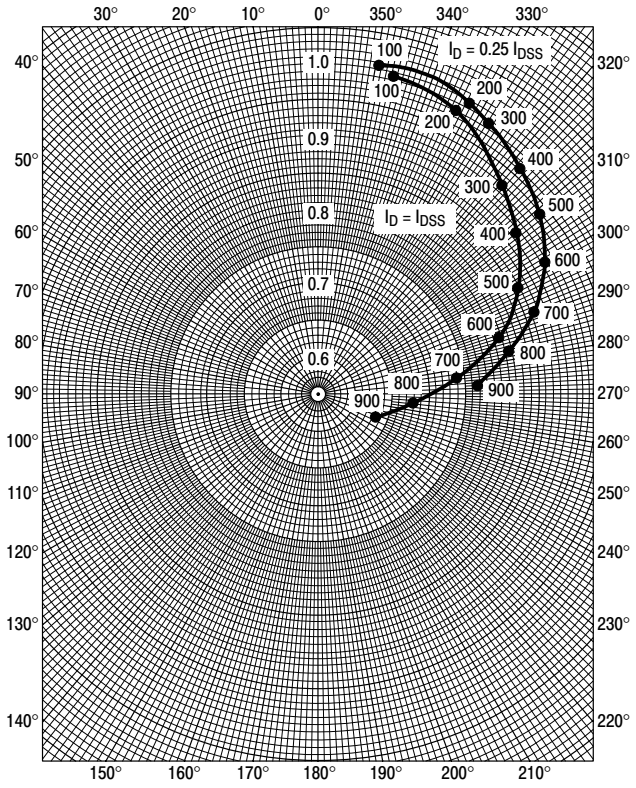


Figure 5. S_{11s}

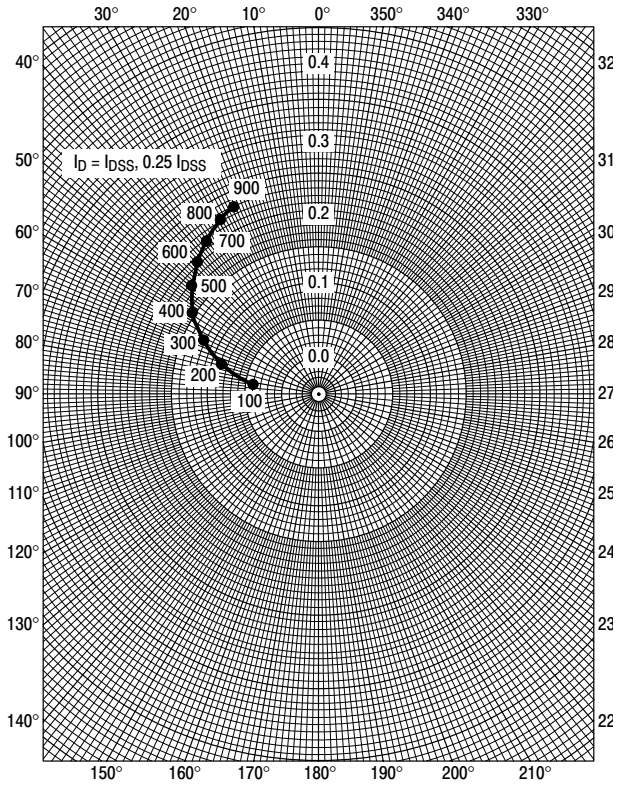


Figure 6. S_{12s}

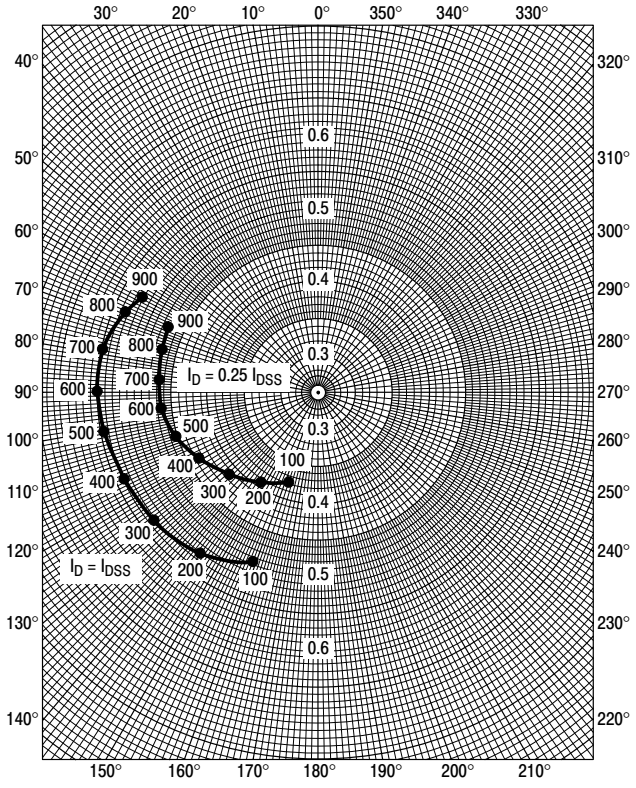


Figure 7. S_{21s}

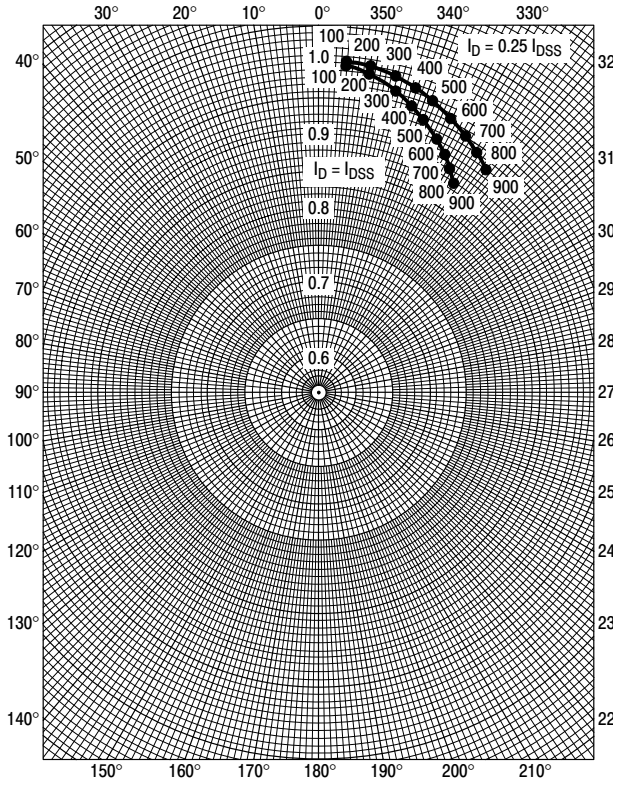


Figure 8. S_{22s}

COMMON GATE CHARACTERISTICS

ADMITTANCE PARAMETERS

(V_{DG} = 15 Vdc, $T_{channel}$ = 25°C)

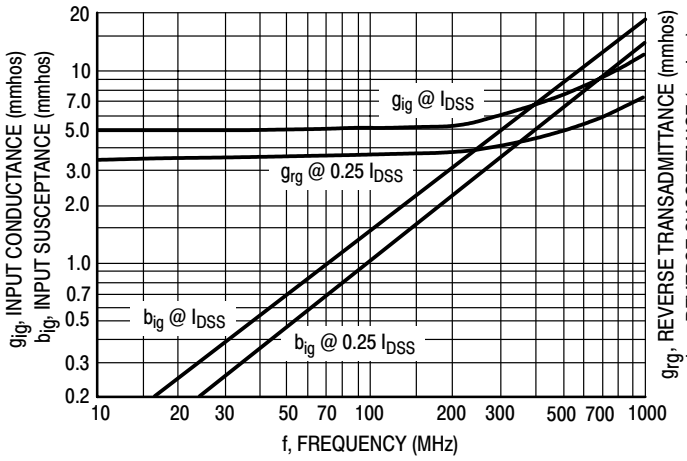


Figure 9. Input Admittance (y_{ig})

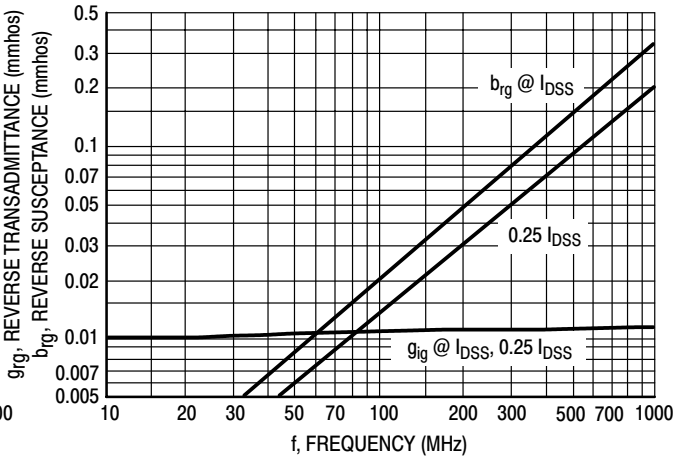


Figure 10. Reverse Transfer Admittance (y_{rg})

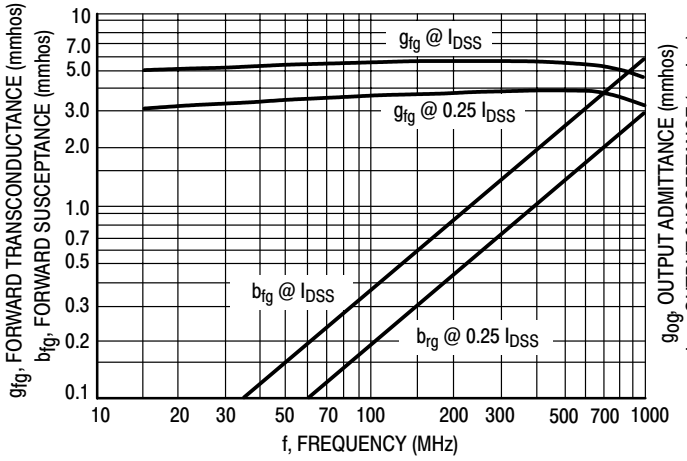


Figure 11. Forward Transfer Admittance (y_{fg})

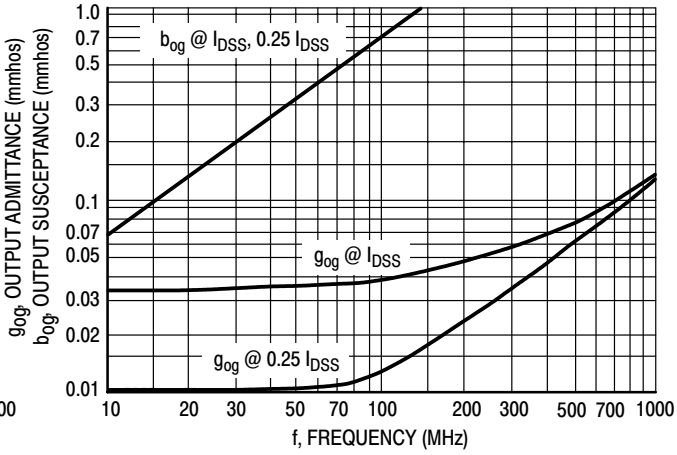


Figure 12. Output Admittance (y_{og})

COMMON GATE CHARACTERISTICS

S–PARAMETERS

(V_{DS} = 15 Vdc, $T_{channel}$ = 25°C, Data Points in MHz)

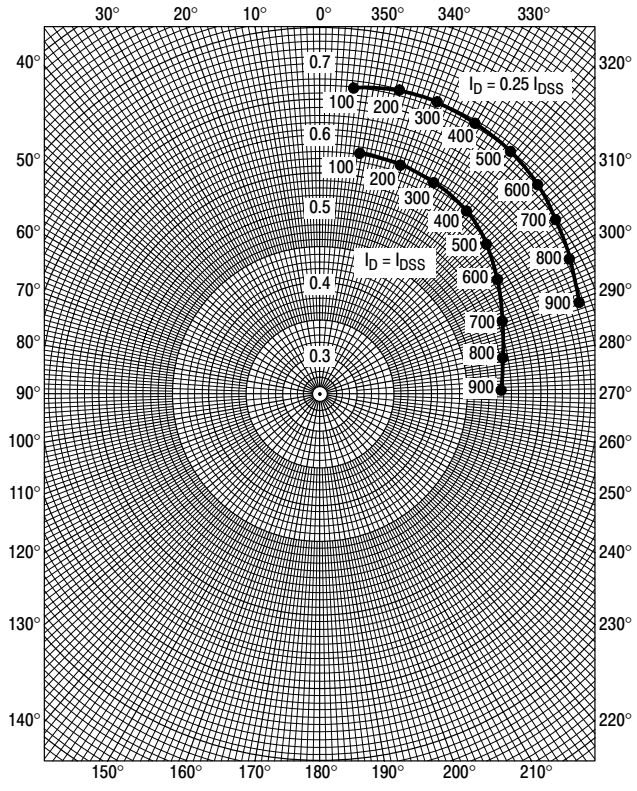


Figure 13. S_{11g}

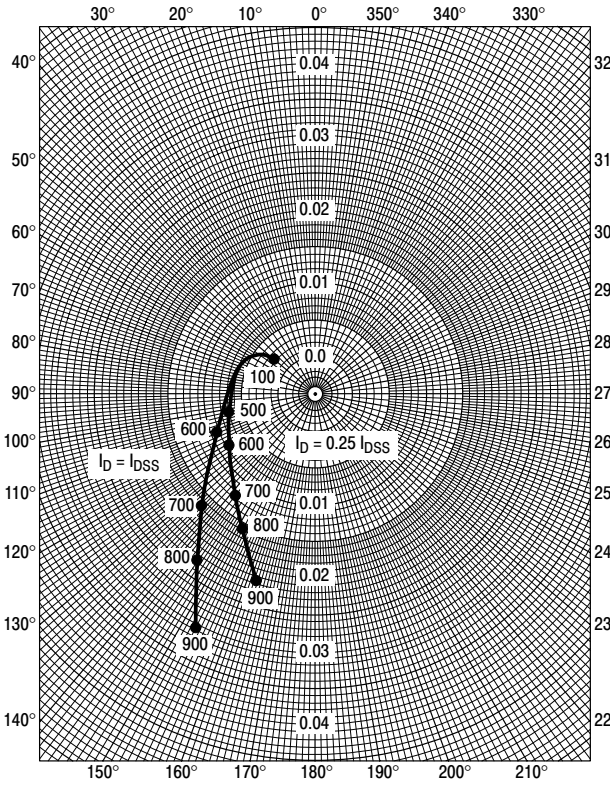


Figure 14. S_{12g}

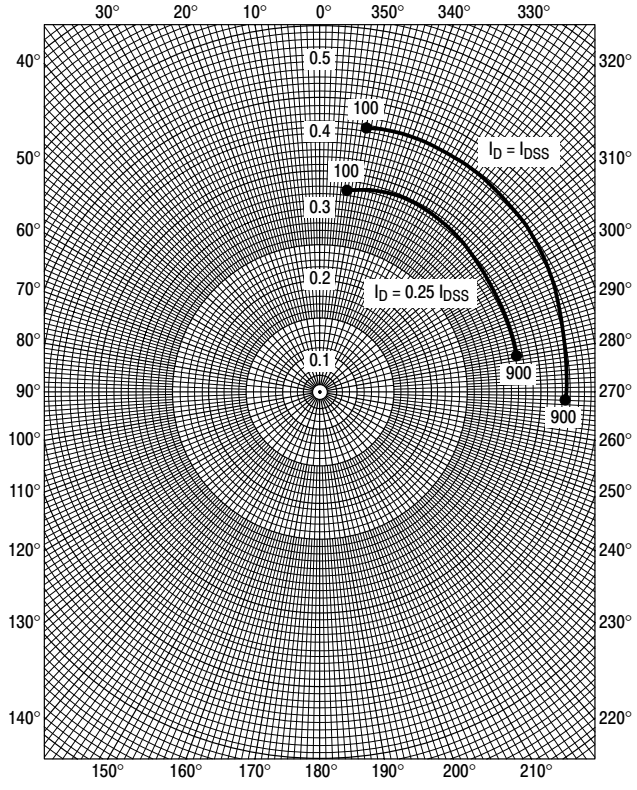


Figure 15. S_{21g}

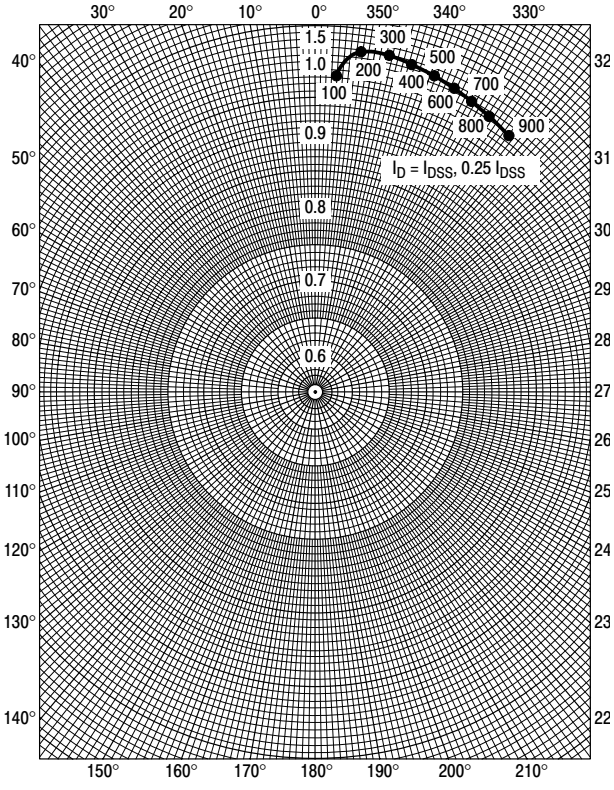
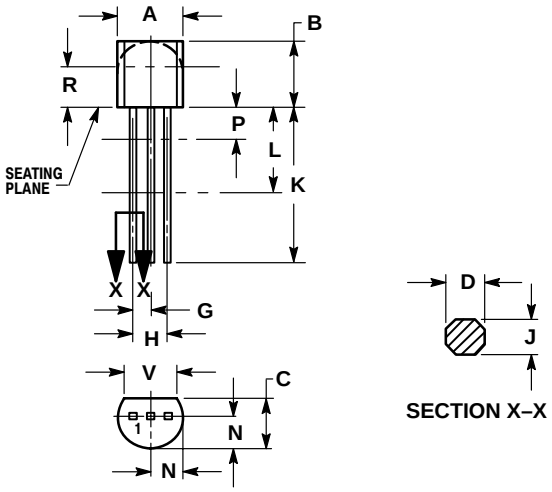


Figure 16. S_{22g}

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.

	INCHES		MILLIMETERS	
DIM	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

PUBLICATION ORDERING INFORMATION

Literature Fulfillment:
Literature Distribution Center for ON Semiconductor
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