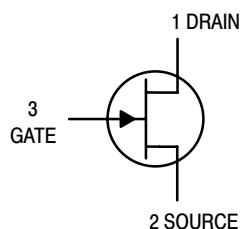


JFET Switching

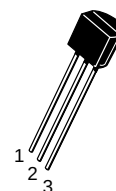
N-Channel — Depletion



2N5555

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
Forward Gate Current	I_{GF}	10	mAdc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	350 2.8	mW mW/ $^\circ\text{C}$
Junction Temperature Range	T_J	-65 to $+150$	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-65 to $+150$	$^\circ\text{C}$



CASE 29–11, STYLE 5
TO–92 (TO–226AA)

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

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Gate–Source Breakdown Voltage ($I_G = 10\ \mu\text{Adc}$, $V_{DS} = 0$)	$V_{(BR)GSS}$	25	—	Vdc
Gate Reverse Current ($V_{GS} = 15\ \text{Vdc}$, $V_{DS} = 0$)	I_{GSS}	—	1.0	nAdc
Drain Cutoff Current ($V_{DS} = 12\ \text{Vdc}$, $V_{GS} = -10\ \text{V}$) ($V_{DS} = 12\ \text{Vdc}$, $V_{GS} = -10\ \text{V}$, $T_A = 100^\circ\text{C}$)	$I_{D(off)}$	—	10 2.0	nAdc μAdc

ON CHARACTERISTICS

Zero–Gate–Voltage Drain Current ⁽¹⁾ ($V_{DS} = 15\ \text{Vdc}$, $V_{GS} = 0$)	I_{DSS}	15	—	mAdc
Gate–Source Forward Voltage ($I_{G(f)} = 1.0\ \text{mAdc}$, $V_{DS} = 0$)	$V_{GS(f)}$	—	1.0	Vdc
Drain–Source On–Voltage ($I_D = 7.0\ \text{mAdc}$, $V_{GS} = 0$)	$V_{DS(on)}$	—	1.5	Vdc
Static Drain–Source On Resistance ($I_D = 0.1\ \text{mAdc}$, $V_{GS} = 0$)	$r_{DS(on)}$	—	150	Ohms

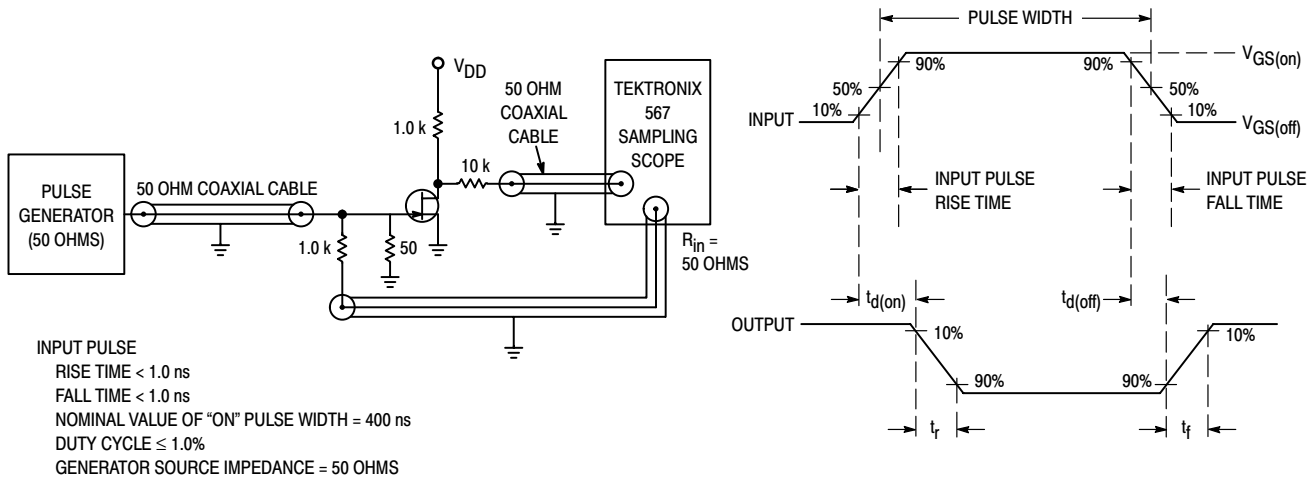
1. Pulse Test: Pulse Width $< 300\ \mu\text{s}$, Duty Cycle $< 3.0\%$.

SMALL–SIGNAL CHARACTERISTICS

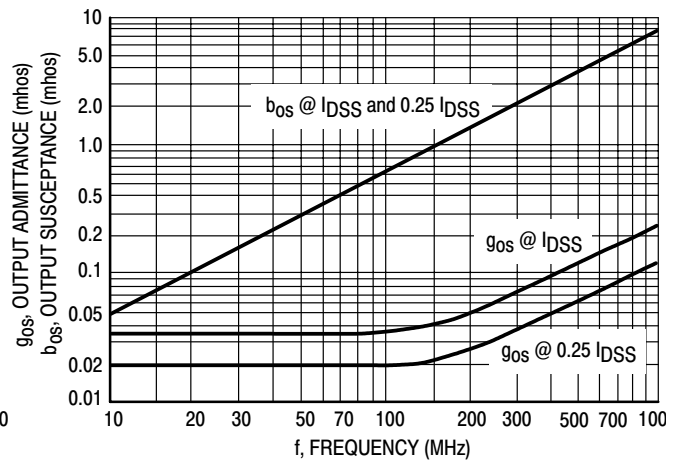
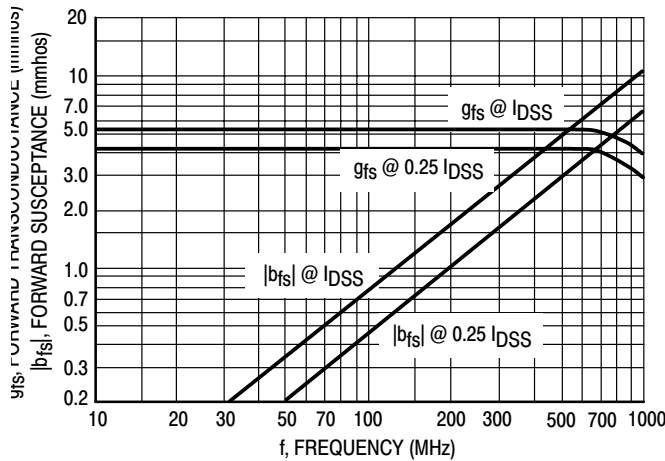
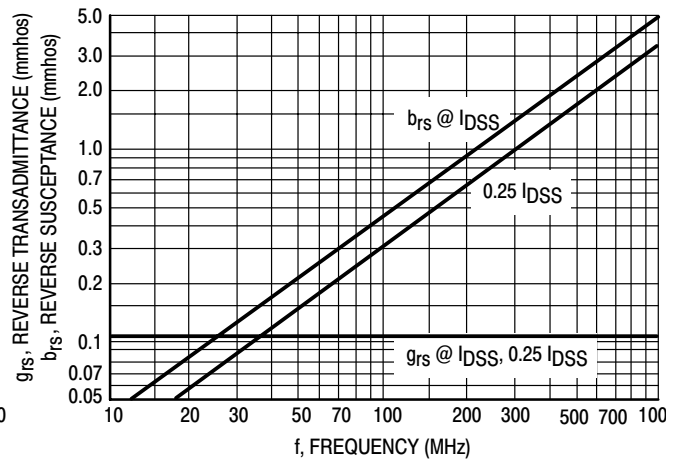
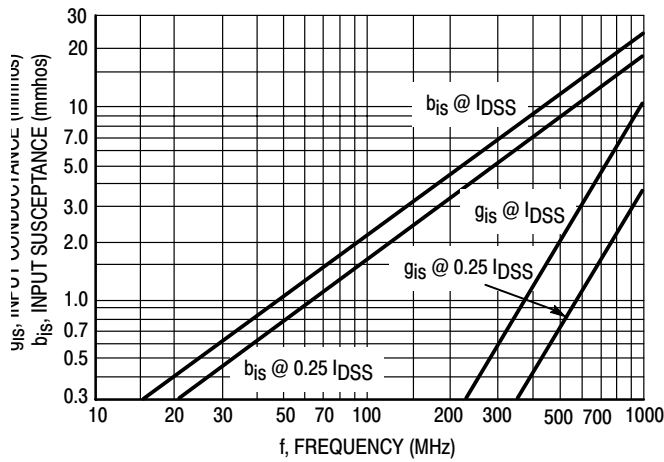
Small–Signal Drain–Source “ON” Resistance ($V_{GS} = 0$, $I_D = 0$, $f = 1.0\ \text{kHz}$)	$r_{ds(on)}$	—	150	Ohms
Input Capacitance ($V_{DS} = 15\ \text{Vdc}$, $V_{GS} = 0$, $f = 1.0\ \text{MHz}$)	C_{iss}	—	5.0	pF
Reverse Transfer Capacitance ($V_{DS} = 0$, $V_{GS} = 10\ \text{Vdc}$, $f = 1.0\ \text{MHz}$)	C_{rss}	—	1.2	pF

SWITCHING CHARACTERISTICS

Turn–On Delay Time	$(V_{DD} = 10\ \text{Vdc}$, $I_{D(on)} = 7.0\ \text{mAdc}$, $V_{GS(on)} = 0$, $V_{GS(off)} = -10\ \text{Vdc}$) (See Figure 1)	$t_{d(on)}$	—	5.0	ns
Rise Time		t_r	—	5.0	ns
Turn–Off Delay Time	$(V_{DD} = 10\ \text{Vdc}$, $I_{D(on)} = 7.0\ \text{mAdc}$, $V_{GS(on)} = 0$, $V_{GS(off)} = -10\ \text{Vdc}$) (See Figure 1)	$t_{d(off)}$	—	15	ns
Fall Time		t_f	—	10	ns



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



COMMON SOURCE CHARACTERISTICS

S-PARAMETERS

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

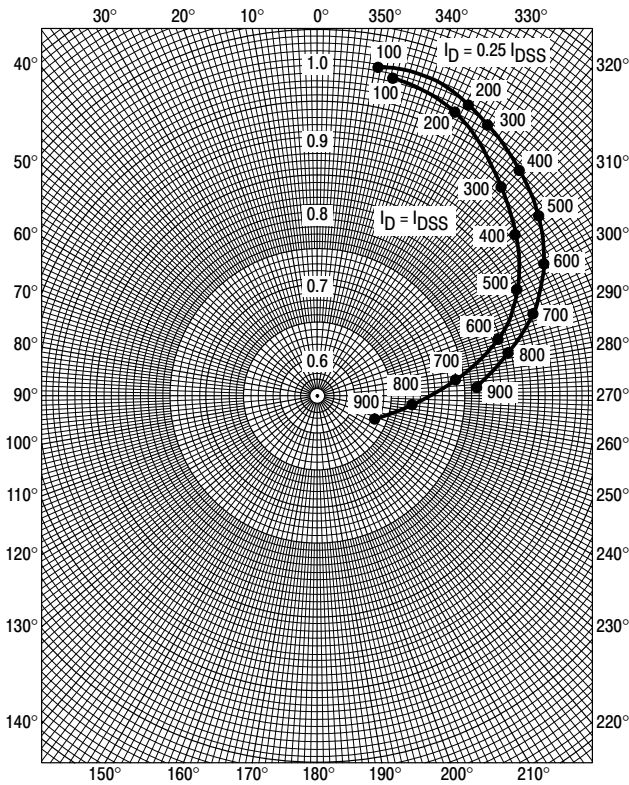


Figure 6. S_{11s}

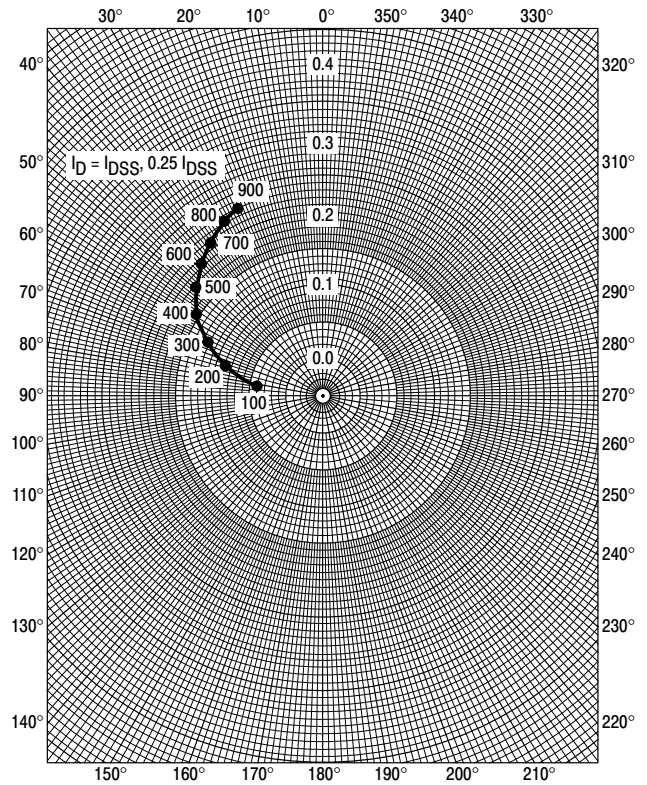


Figure 7. S_{12s}

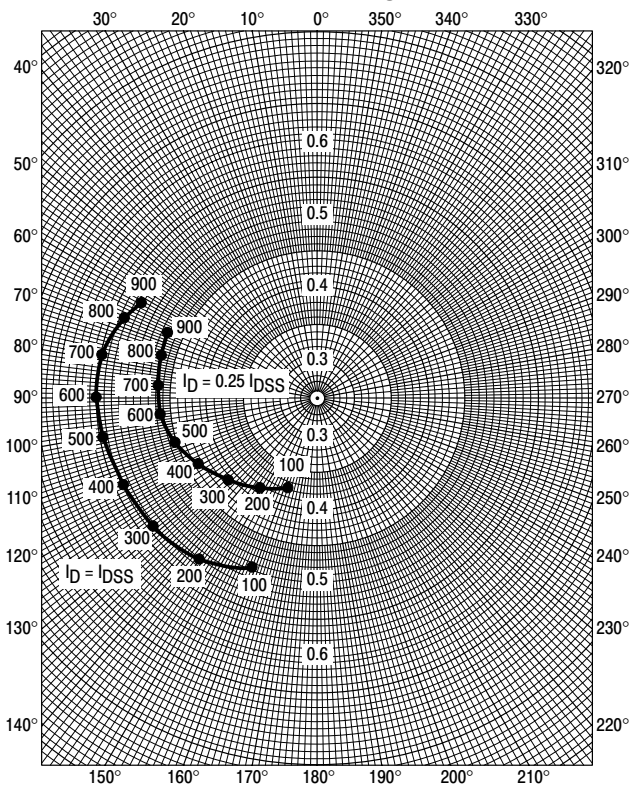


Figure 8. S_{21s}

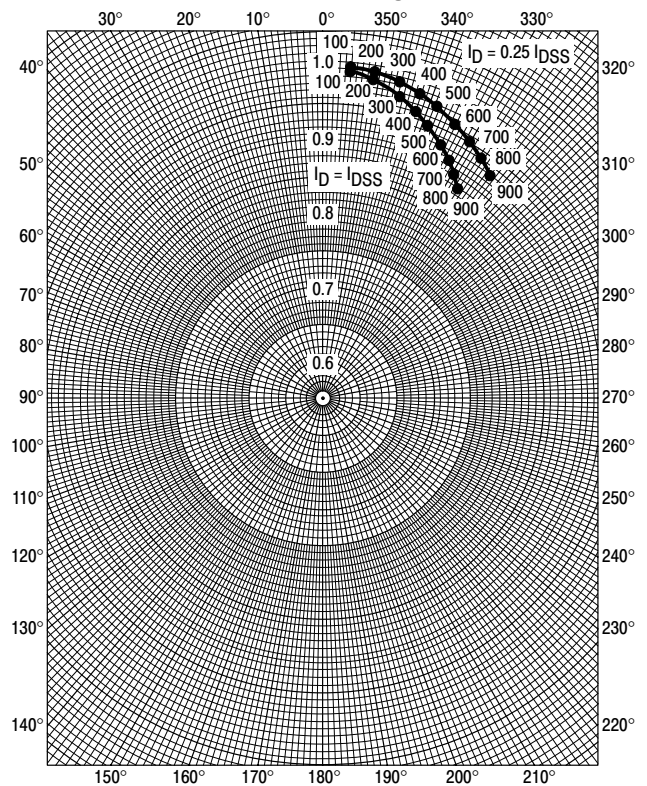
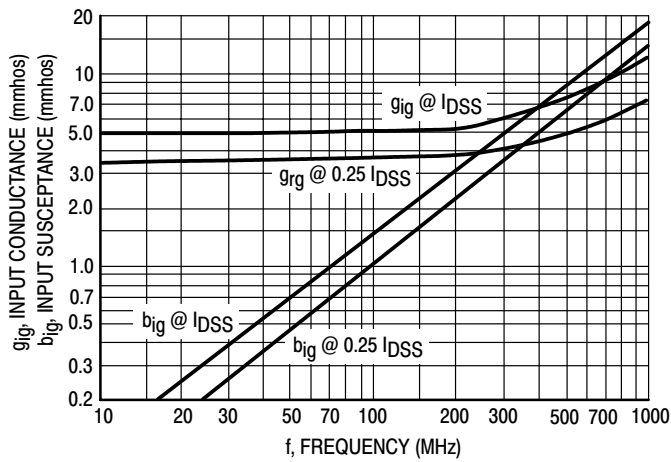
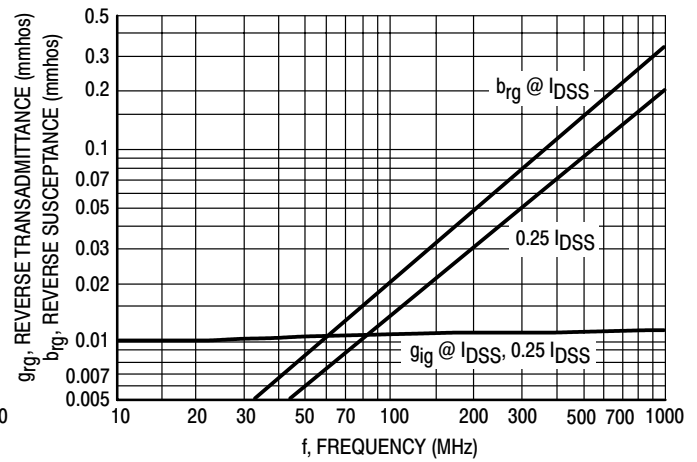
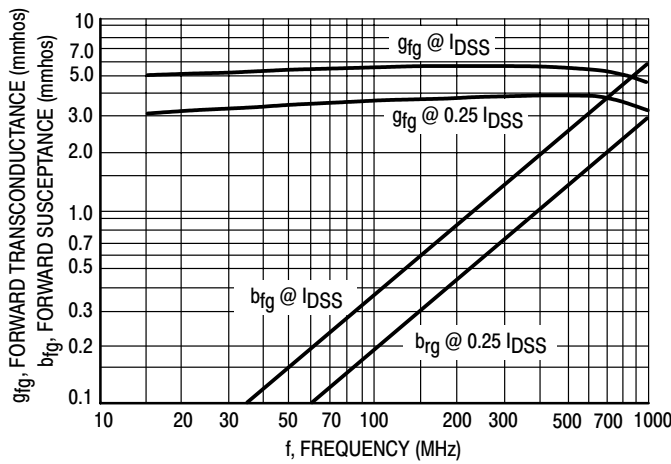
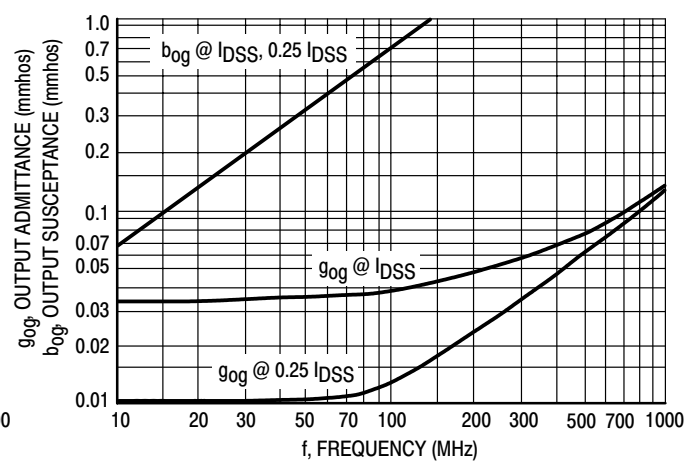


Figure 9. S_{22s}

COMMON GATE CHARACTERISTICS

ADMITTANCE PARAMETERS

 $(V_{DG} = 15 \text{ Vdc}, T_{\text{channel}} = 25^\circ\text{C})$ Figure 10. Input Admittance (y_{ig})Figure 11. Reverse Transfer Admittance (y_{rg})Figure 12. Forward Transfer Admittance (y_{fg})Figure 13. 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)

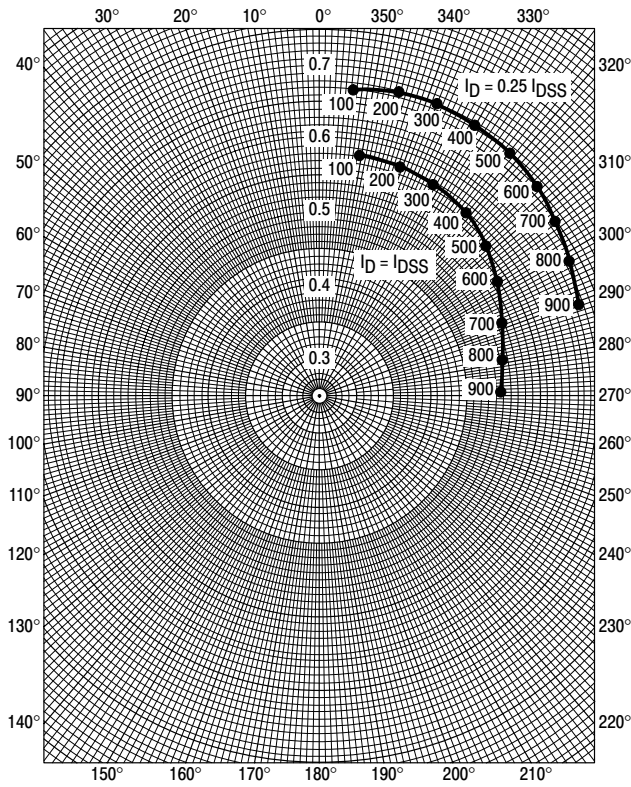


Figure 14. S11g

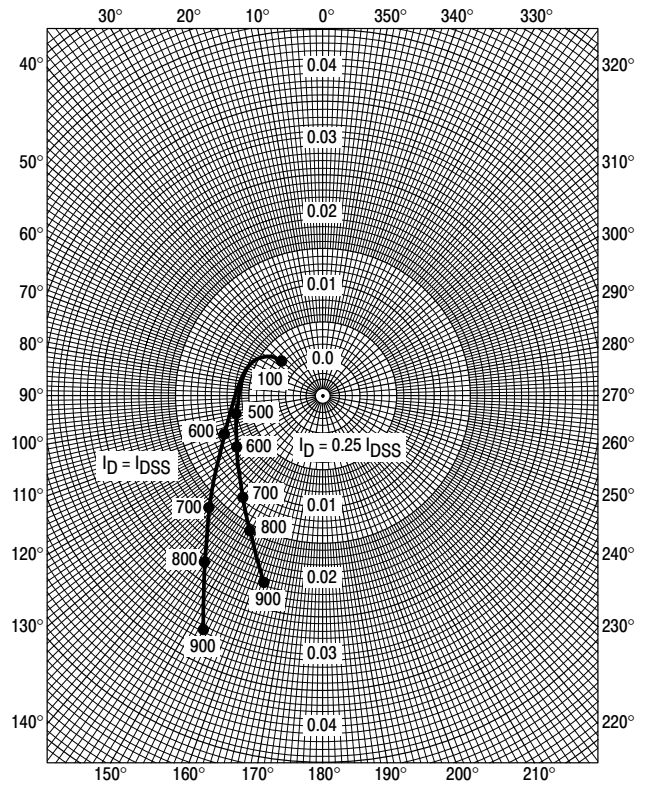


Figure 15. S12g

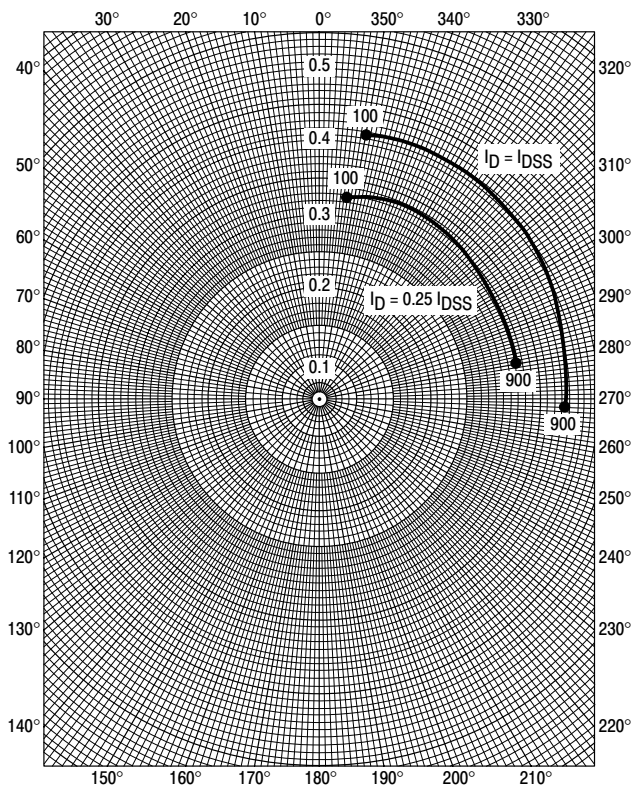


Figure 16. S21g

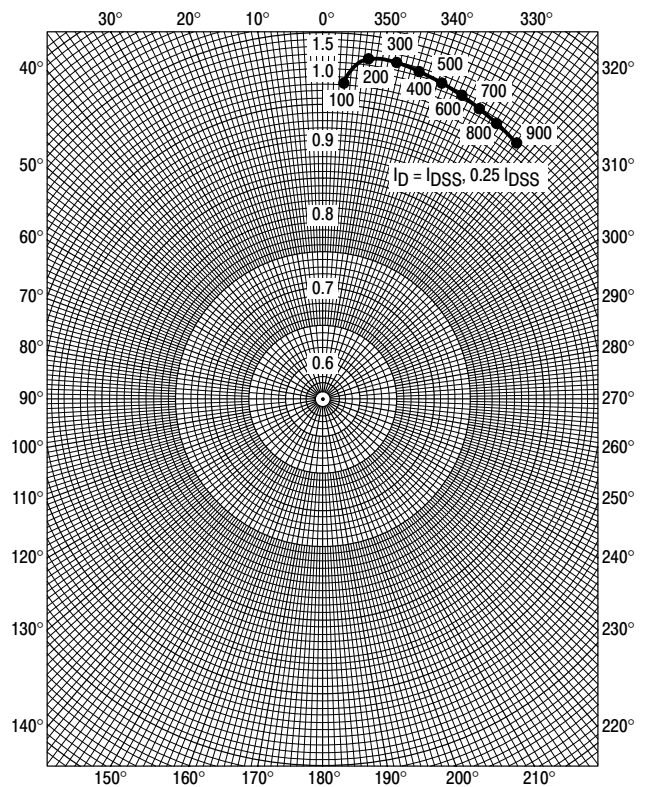
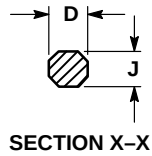
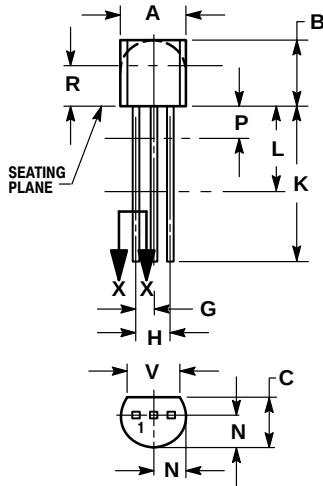


Figure 17. S22g

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PACKAGE DIMENSIONS

TO-92 (TO-226AA)
CASE 29-11
ISSUE AL



STYLE 5:
PIN 1. DRAIN
2. SOURCE
3. GATE

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
E	0.045	0.055	1.15	1.39
F	0.095	0.105	2.42	2.66
G	0.015	0.020	0.39	0.50
H	0.500	---	12.70	---
I	0.250	---	6.35	---
J	0.080	0.105	2.04	2.66
K	---	0.100	---	2.54
L	0.115	---	2.93	---
M	0.135	---	3.43	---

Notes

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