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# 2N5486

## JFET VHF/UHF Amplifiers

### N-Channel — Depletion

#### Features

- Pb-Free Packages are Available\*

#### MAXIMUM RATINGS (T<sub>J</sub> = 25°C unless otherwise noted)

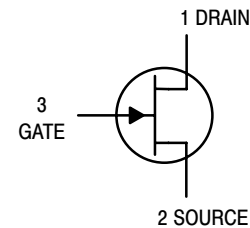
Rating	Symbol	Value	Unit
Drain-Gate Voltage	V <sub>DG</sub>	25	Vdc
Reverse Gate-Source Voltage	V <sub>GSR</sub>	25	Vdc
Drain Current	I <sub>D</sub>	30	mAdc
Forward Gate Current	I <sub>G(f)</sub>	10	mAdc
Total Device Dissipation @ T <sub>C</sub> = 25°C Derate above 25°C	P <sub>D</sub>	350 2.8	mW mW/°C
Operating and Storage Junction Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-65 to +150	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.



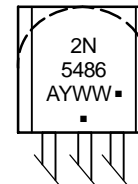
**ON Semiconductor®**

<http://onsemi.com>



**TO-92 (TO-226AA)  
CASE 29-11  
STYLE 5**

#### MARKING DIAGRAM



2N5486 = Device Code  
A = Assembly Location  
Y = Year  
WW = Work Week  
■ = Pb-Free Package  
(Note: Microdot may be in either location)

#### ORDERING INFORMATION

Device	Package	Shipping
2N5486	TO-92	1000 Units / Bulk
2N5486G	TO-92 (Pb-Free)	1000 Units / Bulk

\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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

Characteristic	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>					
Gate-Source Breakdown Voltage ( $I_G = -1.0 \mu\text{A}_{dc}, V_{DS} = 0$ )	$V_{(BR)GSS}$	-25	-	-	Vdc
Gate Reverse Current ( $V_{GS} = -20 \text{ Vdc}, V_{DS} = 0$ ) ( $V_{GS} = -20 \text{ Vdc}, V_{DS} = 0, T_A = 100^\circ\text{C}$ )	$I_{GSS}$	-	-	-1.0 -0.2	nAdc $\mu\text{A}_{dc}$
Gate Source Cutoff Voltage ( $V_{DS} = 15 \text{ Vdc}, I_D = 10 \text{ nAdc}$ )	$V_{GS(off)}$	-2.0	-	-6.0	Vdc
<b>ON CHARACTERISTICS</b>					
Zero-Gate Voltage Drain Current ( $V_{DS} = 15 \text{ Vdc}, V_{GS} = 0$ )	$I_{DSS}$	8.0	-	20	mAdc
<b>SMALL-SIGNAL CHARACTERISTICS</b>					
Forward Transfer Admittance ( $V_{DS} = 15 \text{ Vdc}, V_{GS} = 0, f = 1.0 \text{ kHz}$ )	$ y_{fs} $	4000	-	8000	$\mu\text{mhos}$
Input Admittance ( $V_{DS} = 15 \text{ Vdc}, V_{GS} = 0, f = 400 \text{ MHz}$ )	$\text{Re}(y_{is})$	-	-	1000	$\mu\text{mhos}$
Output Admittance ( $V_{DS} = 15 \text{ Vdc}, V_{GS} = 0, f = 1.0 \text{ kHz}$ )	$ y_{os} $	-	-	75	$\mu\text{mhos}$
Output Conductance ( $V_{DS} = 15 \text{ Vdc}, V_{GS} = 0, f = 400 \text{ MHz}$ )	$\text{Re}(y_{os})$	-	-	100	$\mu\text{mhos}$
Forward Transconductance ( $V_{DS} = 15 \text{ Vdc}, V_{GS} = 0, f = 400 \text{ MHz}$ )	$\text{Re}(y_{fs})$	3500	-	-	$\mu\text{mhos}$
Input Capacitance ( $V_{DS} = 15 \text{ Vdc}, V_{GS} = 0, f = 1.0 \text{ MHz}$ )	$C_{iss}$	-	-	5.0	pF
Reverse Transfer Capacitance ( $V_{DS} = 15 \text{ Vdc}, V_{GS} = 0, f = 1.0 \text{ MHz}$ )	$C_{rss}$	-	-	1.0	pF
Output Capacitance ( $V_{DS} = 15 \text{ Vdc}, V_{GS} = 0, f = 1.0 \text{ MHz}$ )	$C_{oss}$	-	-	2.0	pF

**COMMON SOURCE CHARACTERISTICS ADMITTANCE PARAMETERS**

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

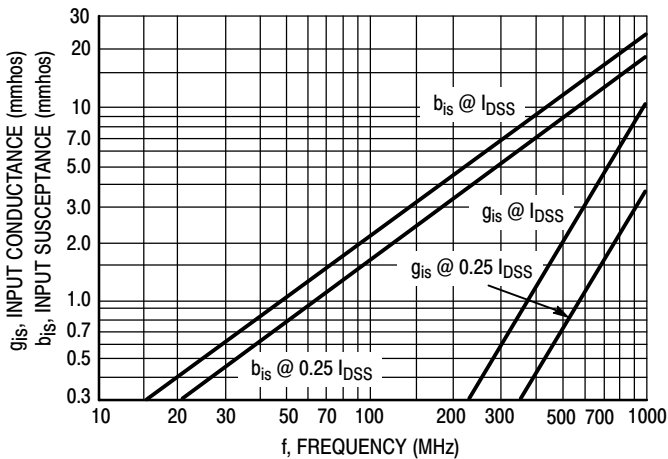


Figure 1. Input Admittance ( $y_{is}$ )

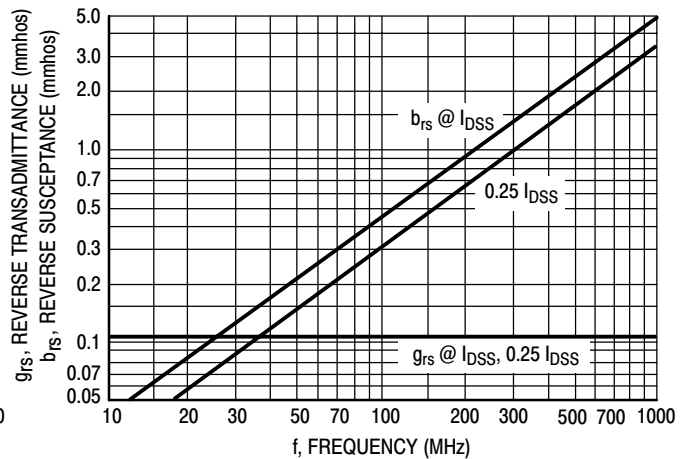


Figure 2. Reverse Transfer Admittance ( $y_{rs}$ )

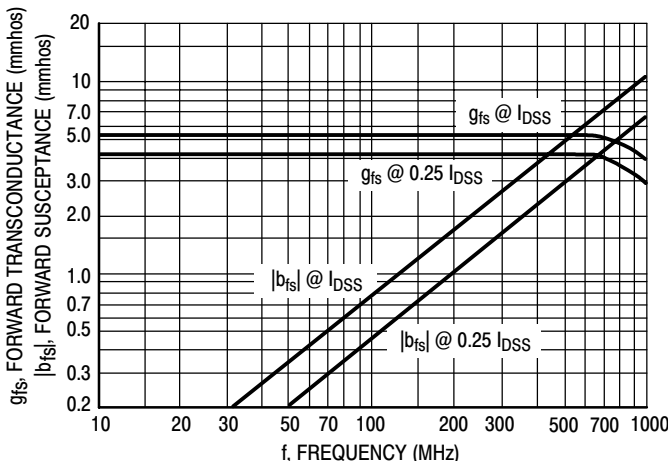


Figure 3. Forward Transadmittance ( $y_{fs}$ )

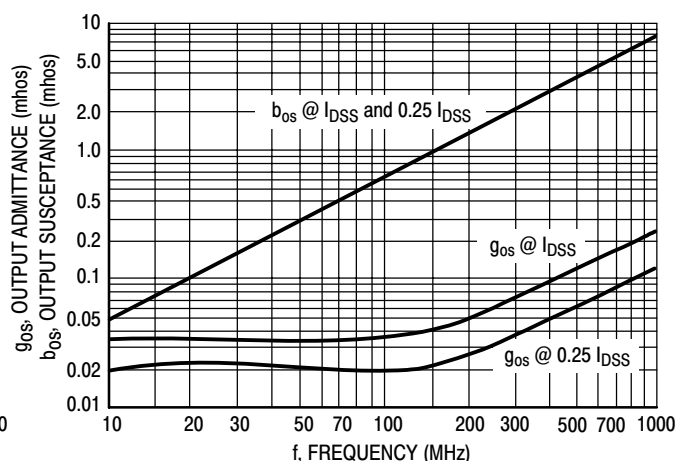


Figure 4. Output Admittance ( $y_{os}$ )

**COMMON SOURCE CHARACTERISTICS**  
**S-PARAMETERS**

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

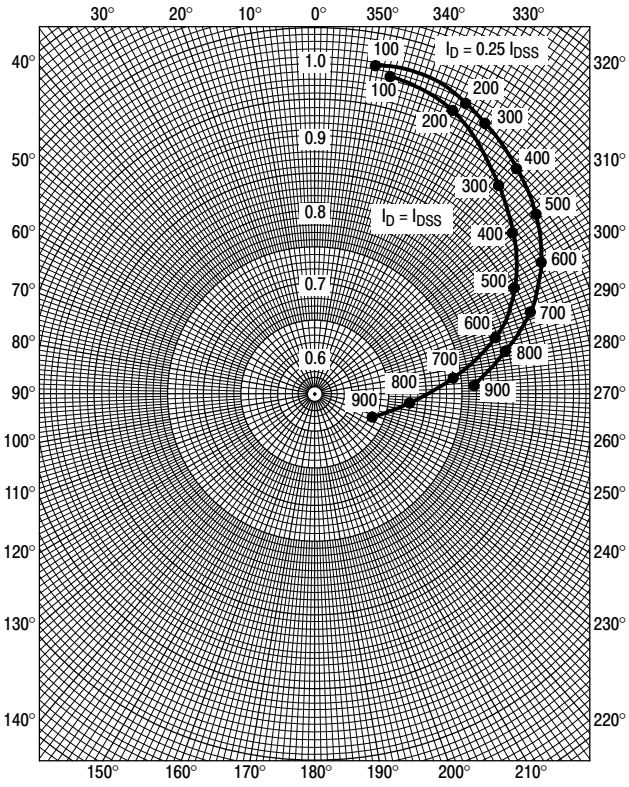


Figure 5.  $S_{11s}$

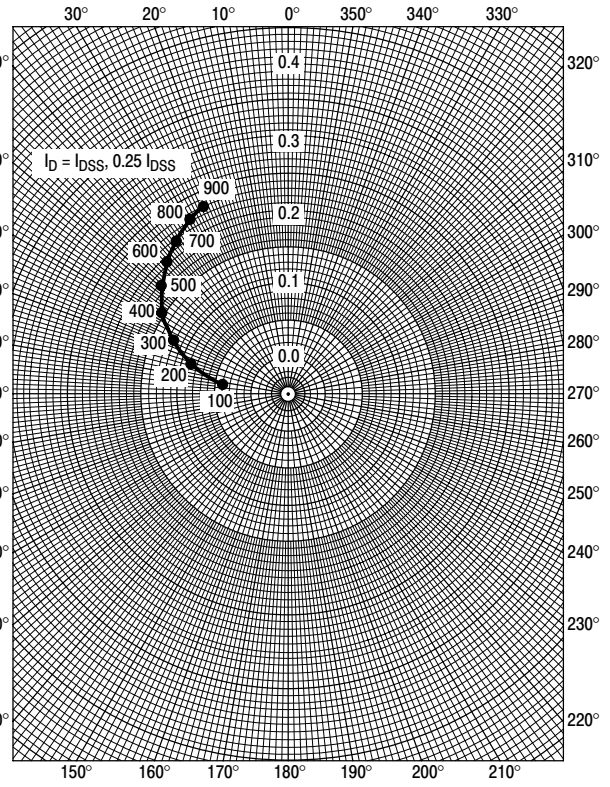


Figure 6.  $S_{12s}$

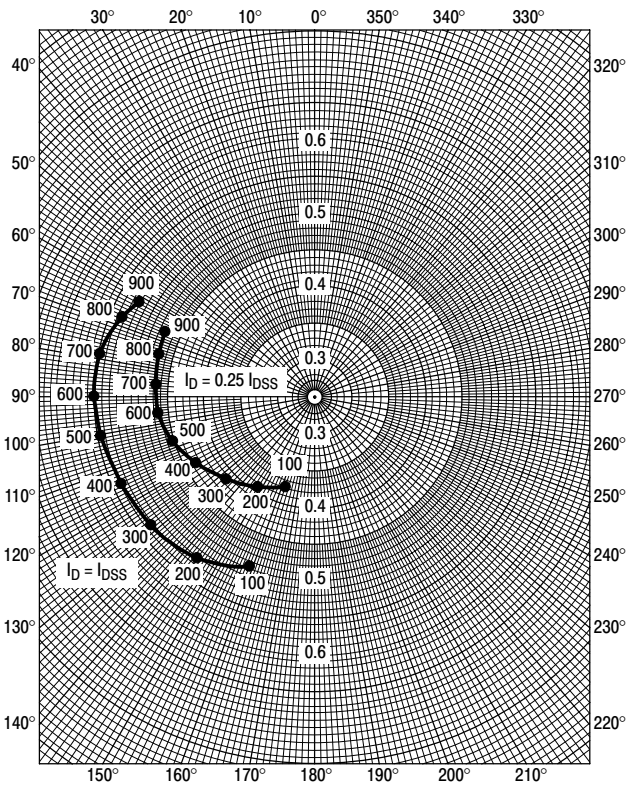


Figure 7.  $S_{21s}$

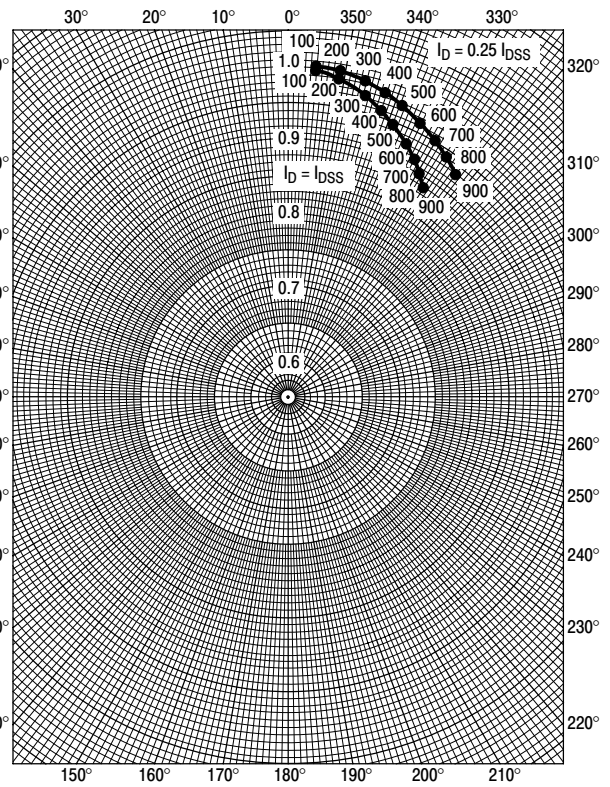


Figure 8.  $S_{22s}$

COMMON GATE CHARACTERISTICS

ADMITTANCE PARAMETERS

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

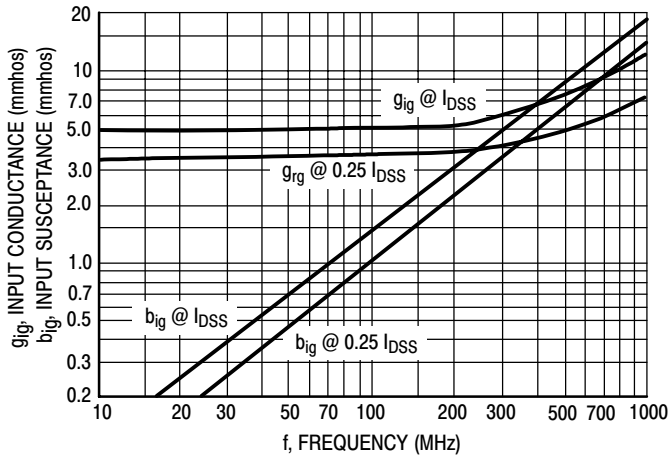


Figure 9. Input Admittance ( $y_{ig}$ )

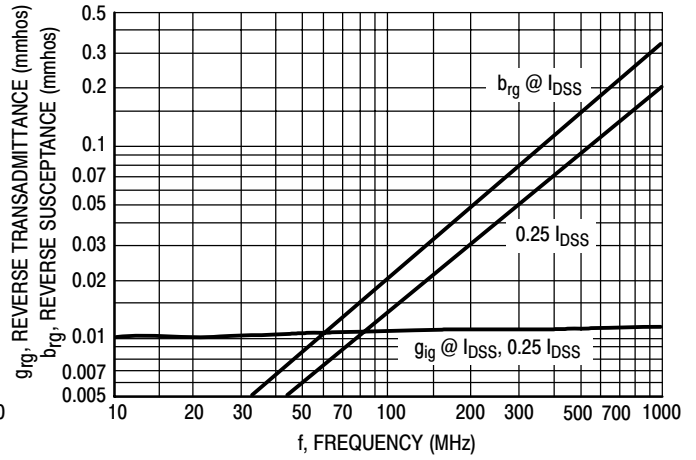


Figure 10. Reverse Transfer Admittance ( $y_{rg}$ )

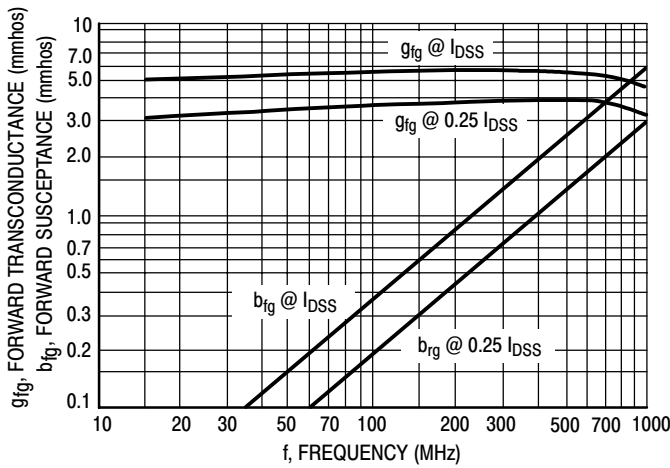


Figure 11. Forward Transfer Admittance ( $y_{fg}$ )

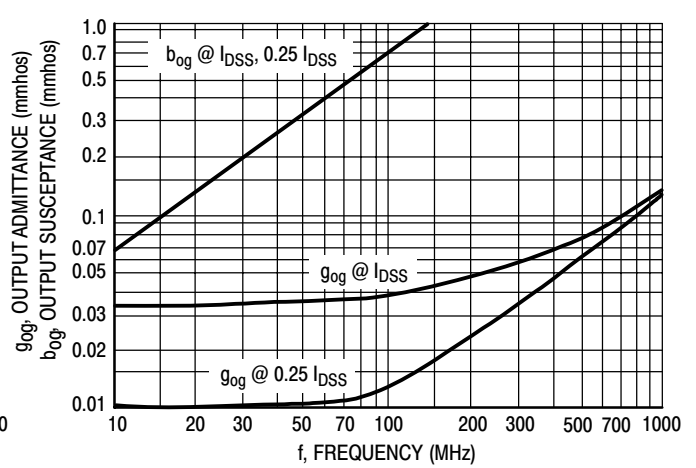


Figure 12. Output Admittance ( $y_{og}$ )

**COMMON GATE CHARACTERISTICS  
S-PARAMETERS**

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

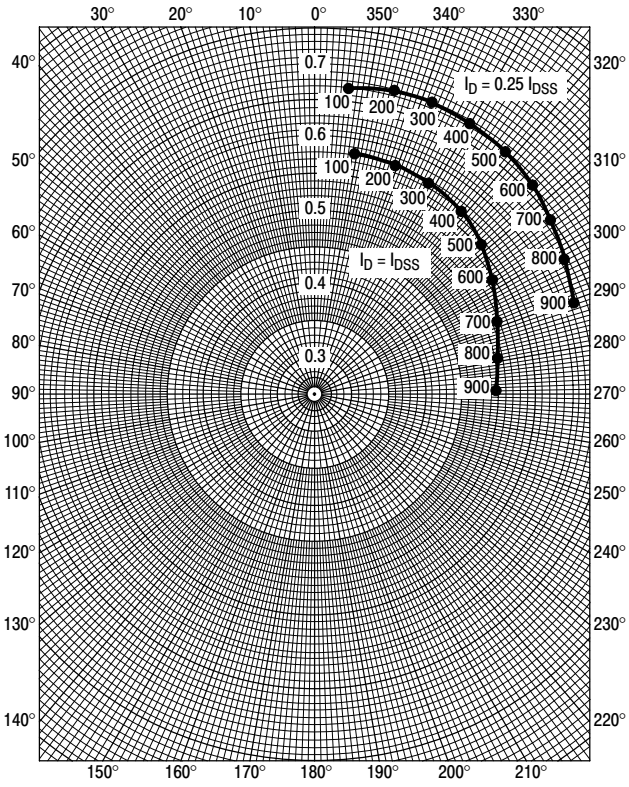


Figure 13.  $S_{11g}$

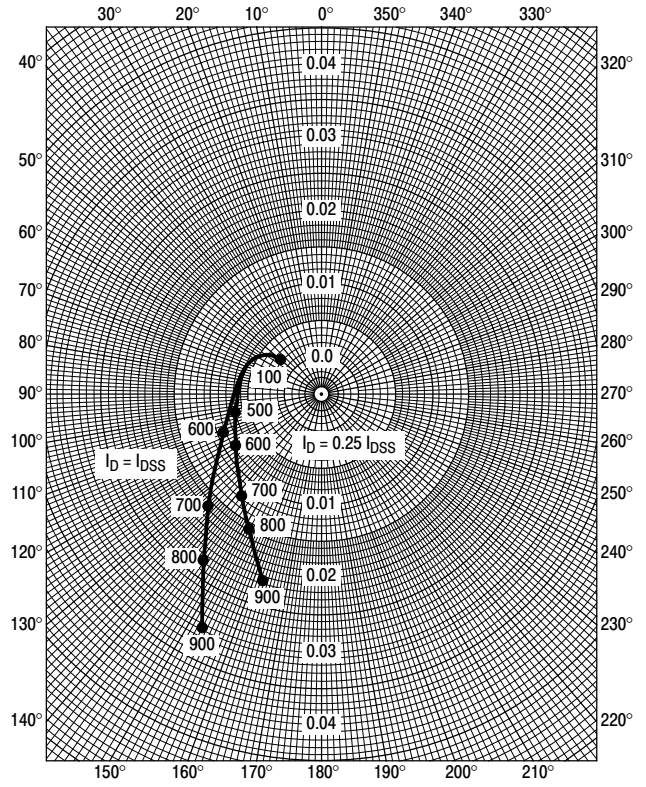


Figure 14.  $S_{12g}$

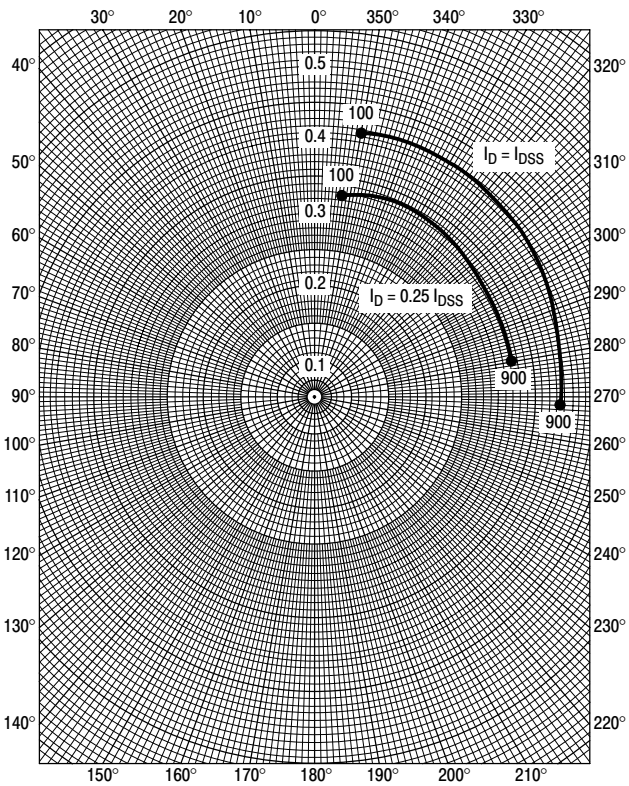


Figure 15.  $S_{21a}$

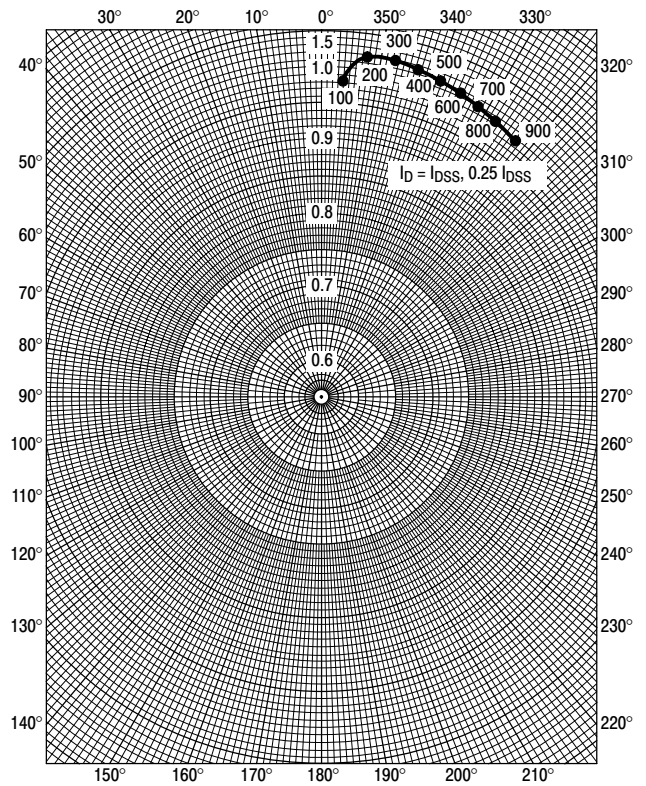
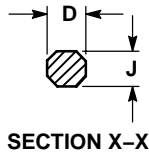
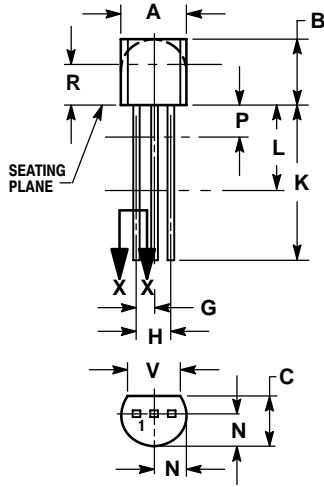


Figure 16.  $S_{22a}$

# 2N5486

## PACKAGE DIMENSIONS

TO-92 (TO-226AA)  
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 5:**

- PIN 1. DRAIN
2. SOURCE
3. GATE

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