RoHS
2002/95/EC

NTE2902
N-Channel Silicon Junction
Field Effect Transistor

Description:

The NTE2902 is a field effect transistor in a TO92 type package designed for use in VHF/UHF amplifier applications.

Absolute Maximum Ratings: (Note 1)

Drain-Source Voltage, V_{DS} 25V

Gate-Source Voltage, V_{GS} 25V

Forward Gate Current, I_{GF} 10mA

Total Device Dissipation (T_A = +25°C), P_D 350mW
      Derate Above +25°C .... 2.8mW/°C

Operating Junction Temperature Range, T_J .... -65° to +125°C

Storage Temperature Range, T_{stg} .... -65° to +150°C

Note 1. Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.
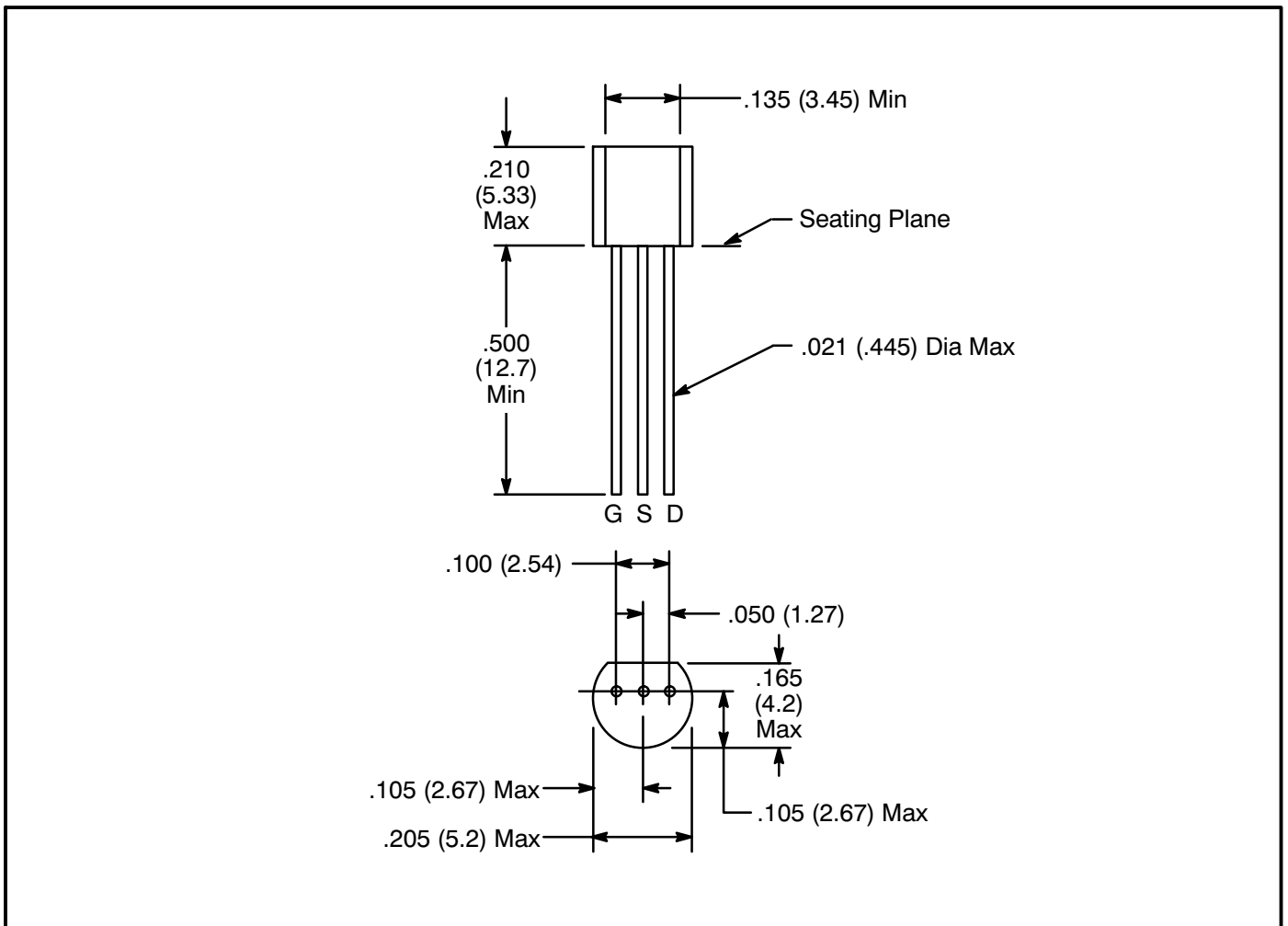
Electrical Characteristics: (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
OFF Characteristics							
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	I_G = 1.0µA, V_{DS} = 0		-25	-	-	V
Gate Reverse Current	I_{GSS}	V_{GS} = 15V, V_{DS} = 0	T_A = +25°C	-	-	-1.0	nA
			T_A = +125°C	-	-	-1.0	µA
Gate-Source Cutoff Voltage	$V_{GS(off)}$	V_{DS} = 10V, I_D = 1nA		-2.0	-	-6.5	V
ON Characteristics							
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS} = 10V, V_{GS} = 0, Note 2		24	-	60	mA
Gate-Source Forward Voltage	$V_{GS(f)}$	V_{DS} = 0, I_G = 1mA		-	-	1.0	V

Note 2. Pulse test: Pulse Width ≤ 300µs, Duty Cycle ≤ 3%.

Electrical Characteristics (Cont'd): (T$_A$ = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Small-Signal Characteristics							
Common-Source Input Conductance	Re(y$_{is}$)	V$_{DS}$ = 10V, I$_D$ = 10mA	f = 100MHz	-	0.5	-	mmhos
Common-Source Output Conductance	Re(y$_{os}$)		f = 100MHz	-	0.25	-	mmhos
	g$_{os}$		f = 1kHz	-	-	250	µmhos
Common-Gate Power Gain	G$_{pg}$		f = 100MHz	-	16	-	dB
Common-Source Forward Transconductance	Re(y$_{fs}$)		f = 100MHz	-	12	-	mmhos
	g$_{fs}$		f = 1kHz	8000	-	18000	µmhos
Common-Gate Input Conductance	Re(y$_{ig}$)		f = 100MHz	-	12	-	mmhos
Common-Gate Forward Transconductance	g$_{fg}$	V$_{DS}$ = 10V, I$_D$ = 10mA, f = 1kHz		-	150	-	µmhos
Common-Gate Output Conductance	g$_{og}$			-	150	-	µmhos
Gate-Drain Capacitance	C$_{gd}$	V$_{DS}$ = 0, V$_{GS}$ = -10V, f = 1MHz		-	1.8	2.5	pF
Gate-Source Capacitance	C$_{gs}$			-	4.3	5.0	pF
Functional Characteristics							
Equivalent Short-Circuit Input Noise Voltage	$\overline{e}_n$	V$_{DS}$ = 10V, I$_D$ = 10mA, f = 100Hz		-	10	-	nV/√Hz

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