

NTE312

N-Channel Silicon Junction Field Effect Transistor

Description:

The NTE312 is a field effect transistor designed for VHF amplifier and mixer applications. The NTE312 comes in a TO-92 package.

Features:

- High Power Gain: 10dB Min at 400MHz
- High Transconductance: 4000 μmho Min at 400MHz
- Low C_{rss} : 1pF Max
- High $(Y_{fs}) / C_{iss}$ Ratio (High-Frequency Figure-of-Merit)
- Drain and Gate Leads Separated for High Maximum Stable Gain
- Cross-Modulation Minimized by Square-Law Transfer Characteristic
- For Use in VHF Amplifiers in FM, TV, and Mobile Communications Equipment

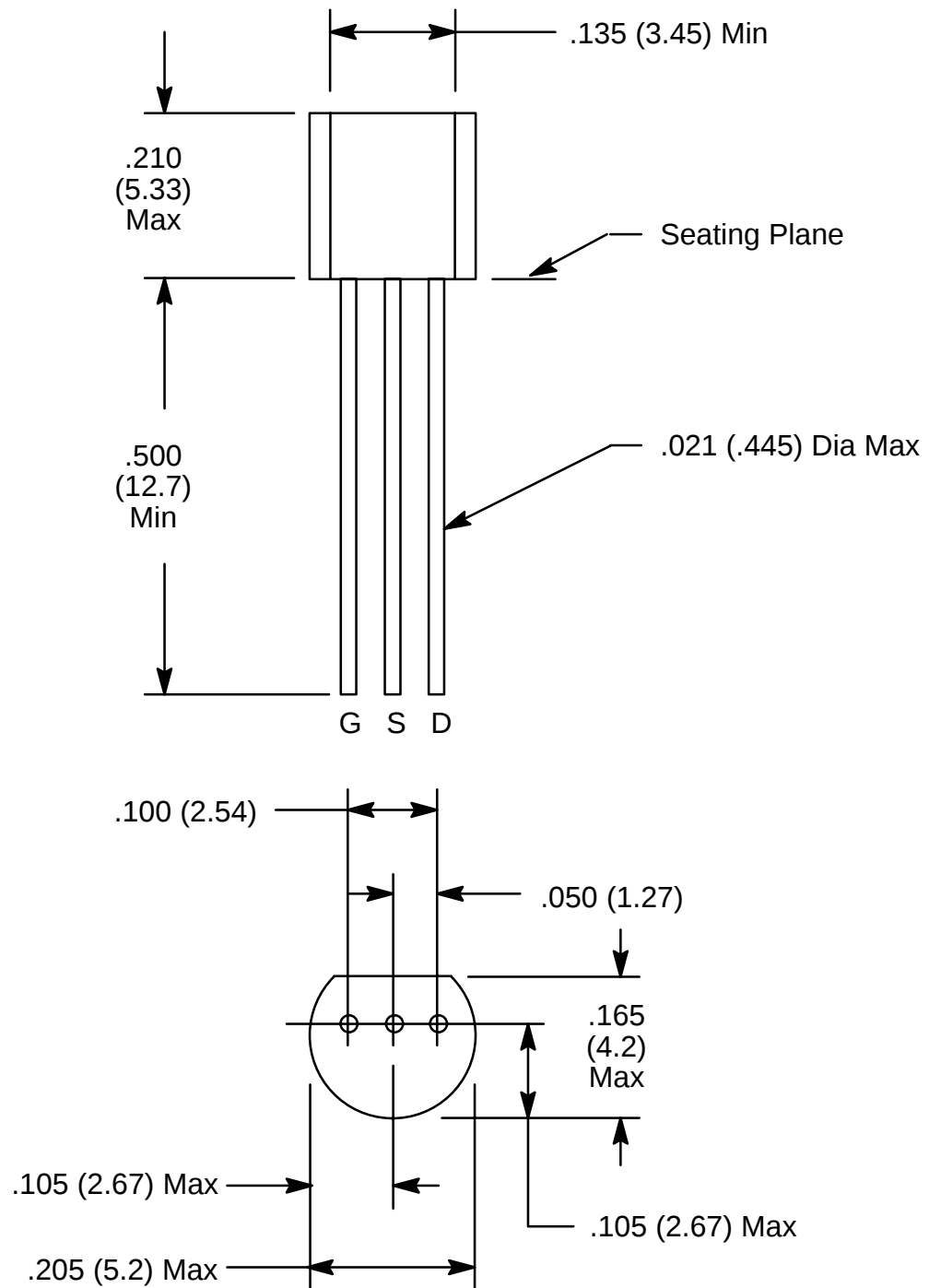
Absolute Maximum Ratings: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Drain-Gate Voltage, V_{DG}	30V
Gate-Source Voltage, V_{GS}	-30V
Gate Current, I_G	50mA
Total Device Dissipation ($T_A = +25^\circ\text{C}$), P_D	360mW
Derate Above $+25^\circ\text{C}$	2.88mW/ $^\circ\text{C}$
Total Device Dissipation ($T_C = +25^\circ\text{C}$), P_D	500mW
Derate Above $+25^\circ\text{C}$	4.0mW/ $^\circ\text{C}$
Storage Temperature Range, T_{stg}	-65° to $+150^\circ\text{C}$
Lead Temperature, During Soldering (1/16 Inch from Case for 10sec), T_L	$+260^\circ\text{C}$

Electrical Characteristics: ($T_A = +25^{\circ}\text{C}$ 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		−30	−	−	V
Gate Reverse Current	I _{GSS}	V _{GS} = −20V, V _{DS} = 0		−	−	−1.0	nA
Gate 1 Leakage Current	I _{G1SS}	V _{G1S} = −20V, V _{DS} = 0, T _A = +100°C		−	−	−0.5	μA
Gate–Source Cutoff Voltage	V _{GS(off)}	V _{DS} = 15V, I _D = 10mA		−1.0	−	−6.0	V
ON Characteristics							
Zero–Gate Voltage Drain Current	I _{DSS}	V _{DS} = 15V, V _{GS} = 0, Note 1		5.0	−	15	mA
Small–Signal Characteristics							
Forward Transfer Admittance	y _{fs}	V _{DS} = 15V, V _{GS} = 0, f = 1kHz		4500	−	7500	μmhos
Input Admittance	Re(y _{is})	100MHz	V _{DS} = 15V, V _{GS} = 0	−	−	100	μmhos
		400MHz		−	−	1000	μmhos
Output Admittance	y _{os}	V _{DS} = 15V, V _{GS} = 0, f = 1kHz		−	−	50	μmhos
Output Conductance	Re(y _{os})	100MHz	V _{DS} = 15V, V _{GS} = 0	−	−	75	μmhos
		400MHz		−	−	100	μmhos
Forward Transconductance	Re(y _{fs})	V _{DS} = 15V, V _{GS} = 0, f = 400MHz		4000	−	−	μmhos
Input Capacitance	C _{iss}	V _{DS} = 15V, V _{GS} = 0, f = 1.0MHz		−	−	4.5	pF
Reverse Transfer Capacitance	C _{rss}	V _{DS} = 15V, V _{GS} = 0, f = 1.0MHz		−	−	1.0	pF
Input Susceptance	I _M (Y _{is})	100MHz	V _{DS} = 15V, V _{GS} = 0	−	−	3.0	mmho
		400MHz		−	−	12.0	mmho
Functional Characteristics							
Noise Figure	NF	100MHz	V _{DS} = 15V, I _D = 5mA, R' _G = 1kΩ	−	−	2.0	dB
		400MHz		−	−	4.0	dB
Common Source Power Gain	G _{ps}	100MHz	V _{DS} = 15V, I _D = 5mA, R' _G = 1kΩ	18	−	−	dB
		400MHz		10	−	−	dB
Output Susceptance	I _M (Y _{os})	100MHz	V _{DS} = 15V, V _{GS} = 0	−	−	1000	μmhos
		400MHz		−	−	4000	μmhos

Note 1. $t_p = 100\text{ms}$, Duty Cycle = 10%.



NOTE: Drain and Source are interchangeable.