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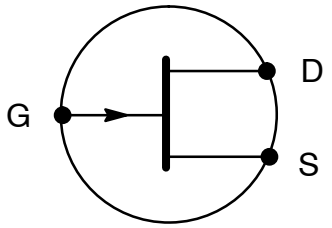
NTE312
N–Channel Silicon Junction Field Effect Transistor TO92 Type Package

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°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°C), P_D 360mW
Derate Above +25°C . . . . . 2.88mW/°C

Total Device Dissipation (T_C = +25°C), P_D 500mW
Derate Above +25°C . . . . . 4.0mW/°C

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

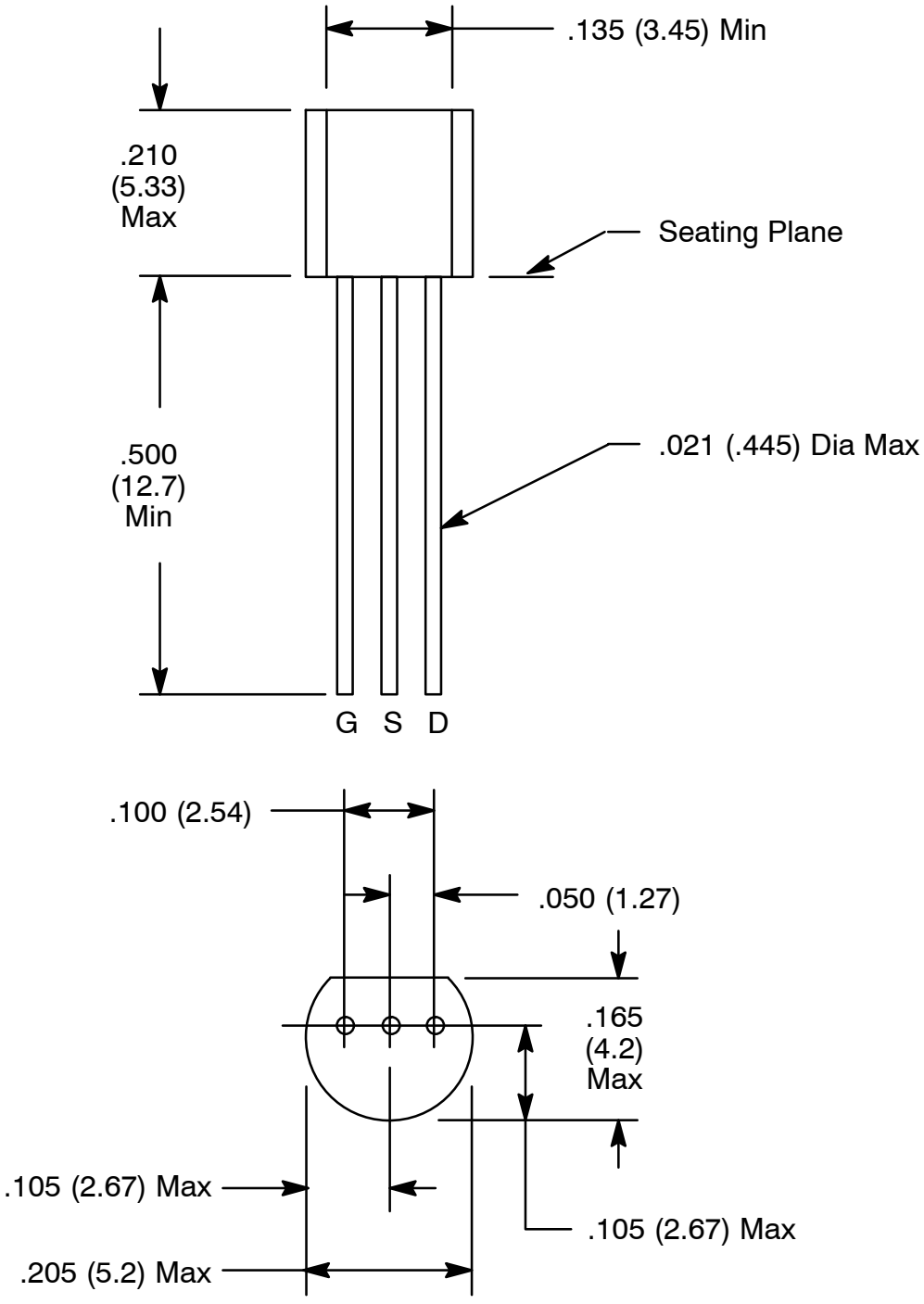
Lead Temperature, During Soldering (1/16 Inch from Case for 10sec), T_L . . . . . +260°C

Rev. 10–13

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		−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(Yis)	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(Yos)	100MHz	V_{DS} = 15V, V_{GS} = 0	–	–	1000	μmhos
		400MHz		–	–	4000	μmhos

Note 1. tp = 100ms, Duty Cycle = 10%.



NOTE: Drain and Source are interchangeable.