NTE2988
MOSFET
N−Channel, Enhancement Mode
High Speed Switch
# TO−52 Type Package

Description:

The NTE2988 is an N−Channel, enhancement mode, power field effect transistor in a TO−52 type package designed especially for low power inverters, interface to CMOS and TTL logic, and line drivers.

Features:

- High Input Impedance
- Extremely Fast Switching
- Rugged−Dissipation Limited SOA
- Internal Drain−Source Diode

Benefits:

- Reduced Component Count
- Simpler Designs − Directly Interfaces CMOS & TTL
- Improved Circuit Performance
- Increased Reliability
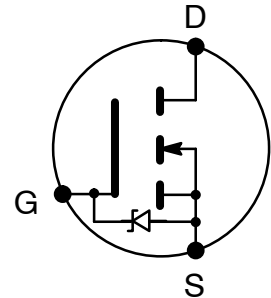
Absolute Maximum Ratings: (T_A = +25°C unless otherwise specified)

Drain−Source Voltage 60V

Drain−Gate Voltage 60V

Peak Gate Current 100mA

Gate−Source Voltage . . . . +15V, −0.3V

Drain Current
     Continuous (Note 1) . . . . ±0.2A
     Pulsed (Note 2) . . . . ±1.0A

Maximum Dissipation (T_C = +25°C) 315mW
     Linear Derating Factor . . . . 2.5mW/°C

Operating Temperature Range, T_{opr} . . . . −55° to +150°C

Storage Temperature Range, T_{stg} . . . . −55° to +150°C

Lead Temperature (During Soldering, 1/16" from case, 10sec), T_L . . . . +300°C

Note 1. Limited by package dissipation.

Note 2. Pulse test − 80μs to 300μs, 1% duty cycle.

Electrical Characteristics: (T$_C$ = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain−Source Breakdown Voltage	BV$_{DSS}$	I$_D$ = 1000μA, V$_{GS}$ = 0	60	–	–	V
Gate Threshold Voltage	V$_{GS(th)}$	V$_{DS}$ = V$_{GS}$, I$_D$ = 1mA	0.8	–	2.5	V
Gate−Body Leakage	I$_{GSS}$	V$_{GS}$ = 15V, V$_{DS}$ = 0	–	–	100	nA
Zero Gate Voltage Drain Current	I$_{DSS}$	V$_{DS}$ = 50V, V$_{GS}$ = 0	–	–	10	μA
On−State Drain Current	I$_{D(on)}$	V$_{GS}$ = 5V, I$_D$ = 0.2A, Note 2	–	–	1.5	V
		V$_{GS}$ = 10V, I$_D$ = 0.5A, Note 2	–	–	2.5	V
Static−Drain−Source On−State Resistance	r$_{DS(on)}$	V$_{GS}$ = 5V, I$_D$ = 0.2A, Note 2	–	–	7.5	Ω
		V$_{GS}$ = 10V, I$_D$ = 0.5A, Note 2	–	–	5.0	Ω
Dynamic Characteristics						
Forward Transconductance	g$_{fs}$	V$_{DS}$ = 15V, I$_D$ = 0.5A, Note 2	200	–	–	mS
Input Capacitance	C$_{iss}$	V$_{DS}$ = 25V, f = 1MHz	–	–	60	pF
Reverse Transfer Capacitance	C$_{rss}$		–	–	5	pF
Common Source Output Capacitance	C$_{oss}$		–	–	25	pF
Turn−On Time	t$_{ON}$	V$_{DD}$ = 15V, R$_L$ = 23Ω, R$_g$ = 25Ω, I$_D$ = 0.6A	–	–	10	ns
Turn−Off Time	t$_{OFF}$		–	–	10	ns
Drain−Source Diode Characteristics						
Forward ON Voltage	V$_{SD}$	I$_S$ = −0.5A, V$_{GS}$ = 0, Note 2	–	−0.85	–	V
Reverse Recovery Time	t$_{rr}$	V$_{GS}$ = 0, I$_F$ = I$_R$ = 0.5A	–	160	–	ns

Note 2. Pulse test − 80μs to 300μs, 1% duty cycle.
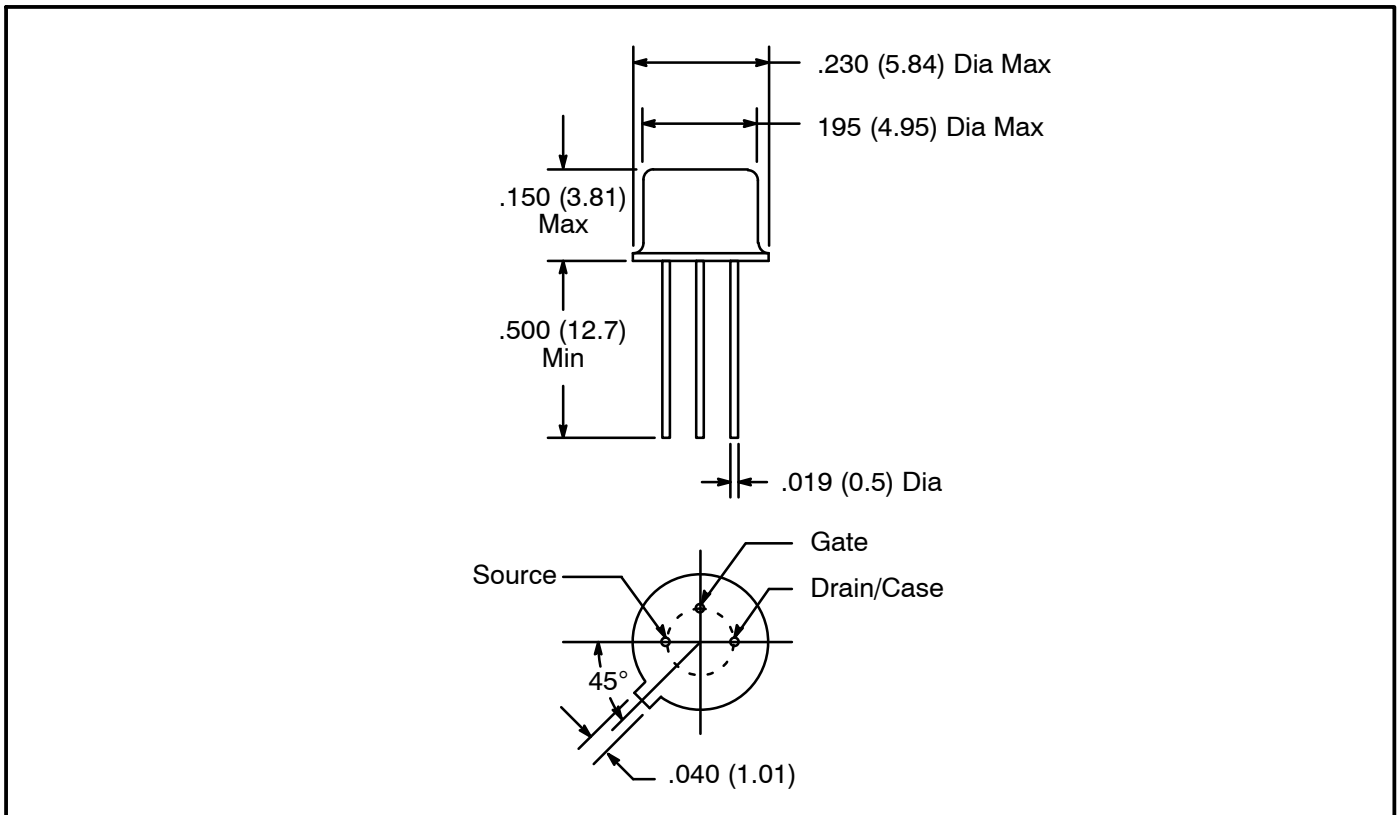
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