ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
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NTE2920
MOSFET
N–Ch, Enhancement Mode
High Speed Switch

Features:

- Dynamic dv/dt Rating
- Isolated Central Mounting Hole
- Fast Switching
- +175°C Operating Temperature
- Ease of Paralleling
- Simple Drive Requirements

Absolute Maximum Ratings:

Continuous Drain Current (V_{GS} = 10V), I_D
- T_C = +25°C (Note 5) 70A
- T_C = +100°C 64A

Pulsed Drain Current (Note 1), I_{DM} 360A

Power Dissipation (T_C = +25°C), P_D 230W
- Derate Linearly Above 25°C . . . . . 1.5W/°C

Gate–to–Source Voltage, V_{GS} . . . . . ±20

Single Pulse Avalanche Energy (Note 2), E_{AS} 640mJ

Peak Diode Recovery dv/dt (Note 3), dv/dt 4.5V/ns

Operating Junction Temperature Range, T_J . . . . . –55° to +175°C

Storage Temperature Range, T_{stg} . . . . . –55° to +175°C

Lead Temperature (During Soldering, 1.6mm from case for 10sec), T_L . . . . . +300°C

Mounting Torque (6–32 or M3 Screw) . . . . . 10 lbf•in (1.1N•m)

Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 0.65°C/W

Thermal Resistance, Junction–to–Ambient, R_{thJA} . . . . . 40°C/W

Typical Thermal Resistance, Case–to–Sink (Flat, Greased Surface), R_{thCS} . . . . . 0.24°C/W

Note 1. Repetitive rating; pulse width limited by maximum junction temperature.

Note 2. V_{DD} = 25V, starting T_J = +25°C, L = 92µH, R_G = 25Ω, I_{AS} = 90A

Note 3. $I_{SD} \le 90A$, di/dt ≤ 200A/µs, $V_{DD} \le 60V$, $T_J \le +175°C$

Note 4. Pules Width ≤ 300µs, Duty Cycle ≤ 2%.

Note 5. Current limited by the package, (Die Current = 90A).

Electrical Characteristics: (T_J = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain–to–Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	60	–	–	V
Breakdown Voltage Temp. Coefficient	$\frac{\Delta V_{(BR)DSS}}{\Delta T_J}$	Reference to +25°C, I_D = 1mA	–	0.056	–	V/°C
Static Drain–to–Source On–Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 54A, Note 4	–	–	0.014	Ω
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	2.0	–	4.0	V
Forward Transconductance	g_{fs}	V_{DS} = 25V, I_D = 54A, Note4	25	–	–	mhos
Drain–to–Source Leakage Current	I_{DSS}	V_{DS} = 60V, V_{GS} = 0V	–	–	25	μA
		V_{DS} = 48V, V_{GS} = 0V, T_J = +150°C	–	–	250	μA
Gate–to–Source Forward Leakage	I_{GSS}	V_{GS} = 20V	–	–	100	nA
Gate–to–Source Reverse Leakage	I_{GSS}	V_{GS} = –20V	–	–	–100	nA
Total Gate Charge	Q_g	I_D = 64A, V_{DS} = 48V, V_{GS} = 10V, Note 4	–	–	160	nC
Gate–to–Source Charge	Q_{gs}		–	–	48	nC
Gate–to–Drain (“Miller”) Charge	Q_{gd}		–	–	54	nC
Turn–On Delay Time	$t_{d(on)}$	V_{DD} = 30V, I_D = 64A, R_G = 6.2Ω, R_D = 0.45Ω, Note 4	–	20	–	ns
Rise Time	t_r		–	160	–	ns
Turn–Off Delay Time	$t_{d(off)}$		–	83	–	ns
Fall Time	t_f		–	150	–	ns
Internal Drain Inductance	L_D	Between lead, .250in. (6.0) mm from package and center of die contact	–	5.0	–	nH
Internal Source Inductance	L_S		–	13	–	nH
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz	–	4500	–	pF
Output Capacitance	C_{oss}		–	2000	–	pF
Reverse Transfer Capaticance	C_{rss}		–	300	–	pF

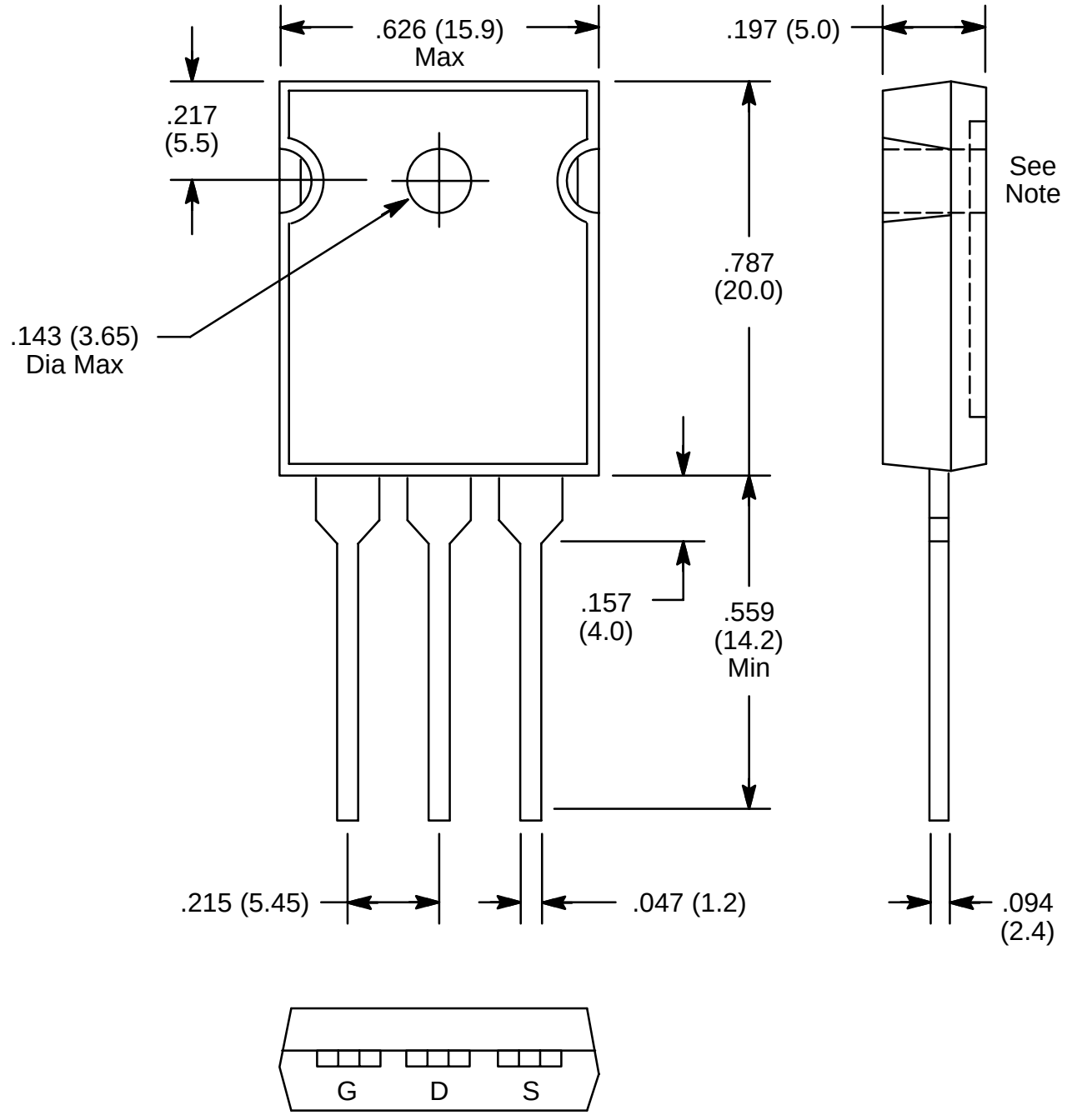
Source–Drain Ratings and Characteristics:

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Continuous Source Current (Body Diode)	I_S	Note 5	–	–	70	A
Pulsed Source Current (Body Diode)	I_{SM}	Note 1	–	–	360	A
Diode Forward Voltage	V_{SD}	T_J = +25°C, I_S = 90A, V_{GS} = 0V, Note 4	–	–	2.5	V
Reverse Recovery Time	t_{rr}	T_J = +25°C, I_F = 64A, di/dt = 100A/μs, Note 4	–	270	540	ns
Reverse Recovery Charge	Q_{rr}		–	1.1	2.2	μC
Forward Turn–On Time	t_{on}	Intrinsic turn–on time is neglegible (turn–on is dominated by L_S+L_D)				

Note 1. Repetitive rating; pulse width limited by maximum junction temperature.

Note 4. Pulse width ≤ 300μs; duty cycle ≤ 2%.

Note 5. Current limited by the package, (Die Current = 90A).



Note: Drain connected to metal part of mounting surface.