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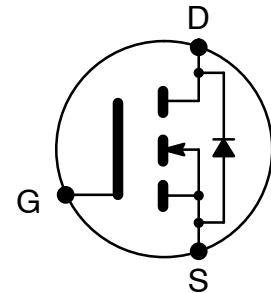
NTE2915 MOSFET N-Channel, Enhancement Mode High Speed Switch TO220 Type Package

Features:

- Low Gate-to-Drain Charge to Reduce Switching Losses
- Fully Characterized Capacitance Including Effective C_{OSS} to Simplify Design
- Fully Characterized Avalanche Voltage and Current

Applications:

- High Frequency DC-DC Converters



Absolute Maximum Ratings:

Continuous Drain Current ($V_{GS} = 10V$), I_D

$T_C = +25^\circ C$	31A
$T_C = +100^\circ C$	21A

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

Power Dissipation ($T_C = +25^\circ C$), P_D

Linear Derating Factor

Gate-Source Voltage, V_{GS}

Peak Diode Recovery dv/dt (Note 2), dv/dt

Single Pulse Avalanche Energy (Note 3), E_{AS}

Avalanche Current (Note 1), I_{AR}

Repetitive Avalanche Energy (Note 1), E_{AR}

Operating Junction Temperature Range, T_J

Storage Temperature Range, T_{stg}

Lead Temperature (During Soldering, 1.6mm from Case, 10 sec max.), T_L

Maximum Thermal Resistance, Junction-to-Case, R_{thJC}

Typical Thermal Resistance, Case-to-Sink (Flat, Greased Surface), R_{thCS}

Maximum Thermal Resistance, Junction-to-Ambient, R_{thJA}

Note 1. Repetitive rating: pulse width limited by maximum channel temperature.

Note 2. $I_{SD} \leq 18A$, $di/dt \leq 110A/s$, $V_{DD} \leq V_{(BR)DSS}$, $T_J +175^\circ C$.

Note 3. Starting $T_J = +25^\circ C$, $L = 3.8mH$, $R_G = 25\Omega$, $I_{AS} = 18A$.

Electrical Characteristics: ($T_J = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	200	–	–	V
Breakdown Voltage Temperature Coefficient	$\pm V_{(BR)DSS}/\pm T_J$	Reference to $+25^\circ\text{C}$, $I_D = 1\text{mA}$	–	0.25	–	$V/^\circ\text{C}$
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 18A$, Note 4	–	–	0.082	Ω
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	3.0	–	5.5	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS} = 200V, V_{GS} = 0V$	–	–	25	μA
		$V_{DS} = 160V, V_{GS} = 0V, T_J = +150^\circ\text{C}$	–	–	250	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 30V$	–	–	± 100	nA
Dynamic Characteristics						
Forward Transconductance	g_{fs}	$V_{DS} = 50V, I_D = 18A$	17	–	–	S
Total Gate Charge	Q_g	$I_D = 18A, V_{DS} = 160V,$ $V_{GS} = 10V$, Note 4	–	70	110	nC
Gate-to-Source Charge	Q_{gs}		–	18	27	nC
Gate-to-Drain (“Miller”) Charge	Q_{gd}		–	33	49	nC
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 100V, I_D = 18A,$ $R_G = 2.5\Omega, R_D = 4.5\Omega$, Note 4	–	16	–	ns
Rise Time	t_r		–	38	–	ns
Turn-Off Delay Time	$t_{d(off)}$		–	26	–	ns
Fall Time	t_f		–	10	–	ns
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 25V, f = 1\text{MHz}$	–	2370	–	pF
Output Capacitance	C_{oss}		–	390	–	pF
Reverse Transfer Capacitance	C_{rss}		–	78	–	pF
Output Capacitance	C_{oss}	$V_{GS} = 0V, V_{DS} = 1V, f = 1\text{MHz}$	–	2860	–	pF
		$V_{GS} = 0V, V_{DS} = 160V, f = 1\text{MHz}$	–	150	–	pF
Effective Output Capacitance	$C_{oss\text{ eff.}}$	$V_{GS} = 0V, V_{DS} = 0V$ to 160V, Note 5	–	170	–	pF

Note 4. Pulse width $\leq 300\mu\text{s}$; duty cycle $\leq 2\%$.

Note 5. $C_{oss\text{ eff.}}$ is a fixed capacitance that gives the same charging time as C_{oss} while V_{DS} is rising from 0 to 80% V_{DSS} .

Source-Drain Ratings and Characteristics:

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Continuous Source Current (Body Diode)	I_S		–	–	31	A
Pulsed Source Current (Body Diode)	I_{SM}	Note 1	–	–	124	A
Diode Forward Voltage	V_{SD}	$I_S = 18A, V_{GS} = 0V, T_J = +25^\circ\text{C}$, Note 4	–	–	1.3	V
Reverse Recovery Time	t_{rr}	$T_J = +25^\circ\text{C}, I_F = 18A,$ $di/dt = 100A/\mu\text{s}$, Note 4	–	200	300	ns
Reverse Recovery Charge	Q_{rr}		–	1.7	2.6	μC
Forward Turn-On Time	t_{on}	Intrinsic turn-on time is negligible (turn-on is dominated by $L_S + L_D$)				

Note 1. Repetitive rating: pulse width limited by maximum channel temperature.

Note 4. Pulse width $\leq 300\mu\text{s}$; duty cycle $\leq 2\%$.

