



NDUL03N150C

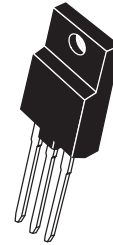
N-Channel Power MOSFET 1500V, 2.5A, 10.5Ω, TO-3PF-3L

ON Semiconductor®

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Features

- ON-resistance $R_{DS(on)}=8\Omega$ (typ.)
- Input capacitance $C_{iss}=650\text{pF}$ (typ.)
- 10V drive



TO-3PF-3L

Specifications

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain to Source Voltage	V_{DS}		1500	V
Gate to Source Voltage	V_{GS}		± 30	V
Drain Current (DC)	I_D	Limited only maximum temperature $T_{ch}=150^\circ\text{C}$	2.5	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	5	A
Allowable Power Dissipation	P_D		3.0	W
		$T_c=25^\circ\text{C}$	50	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$
Avalanche Energy (Single Pulse) *1	E_{AS}		34	mJ
Avalanche Current *2	I_{AV}		2.5	A

Note : *1 $V_{DD}=50\text{V}$, $L=10\text{mH}$, $I_{AV}=2.5\text{A}$ (Fig.1)*2 $L \leq 10\text{mH}$, single pulse

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

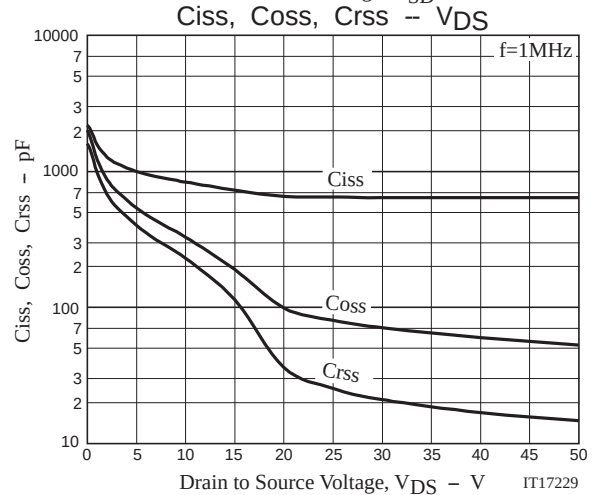
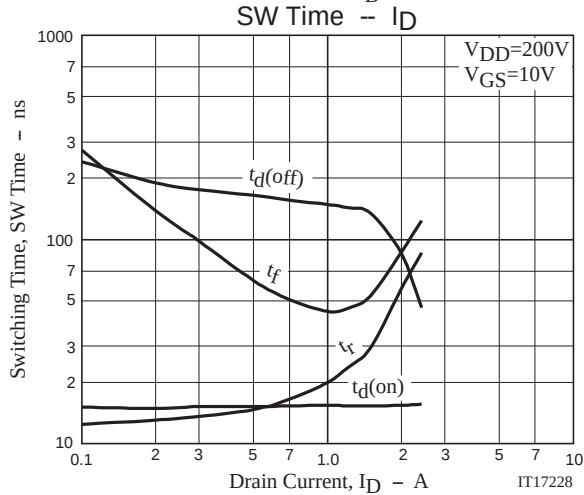
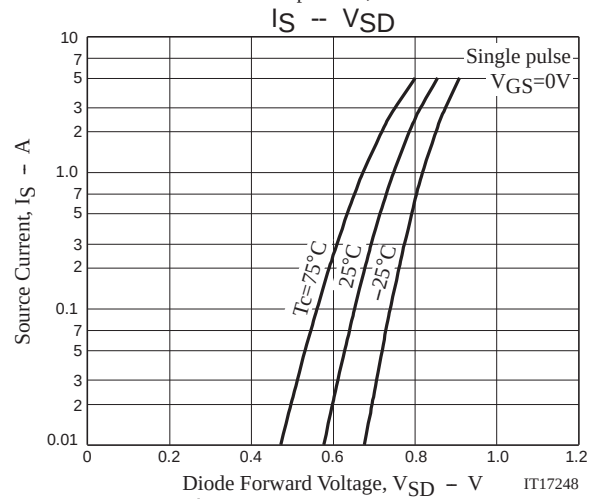
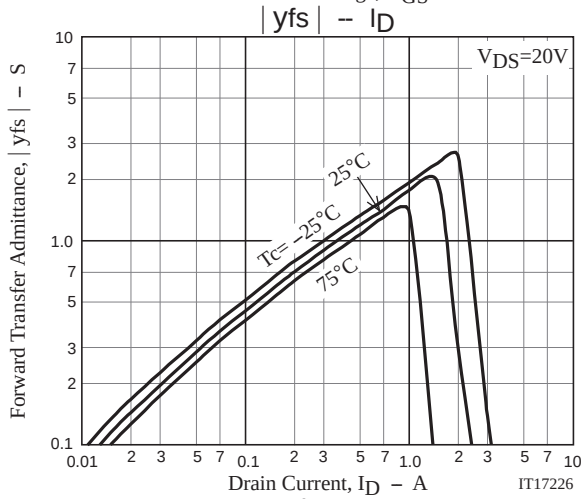
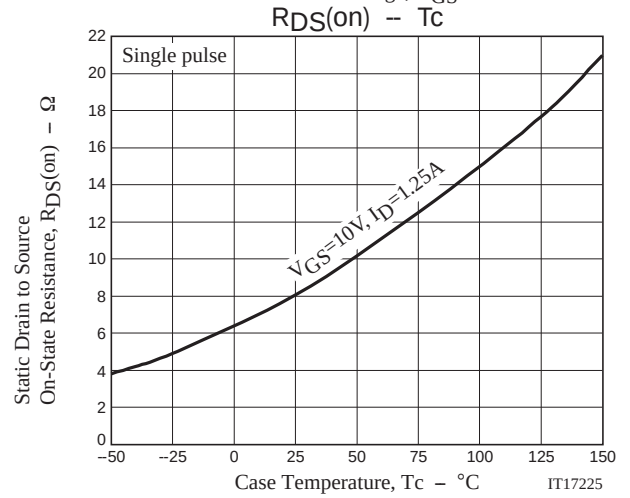
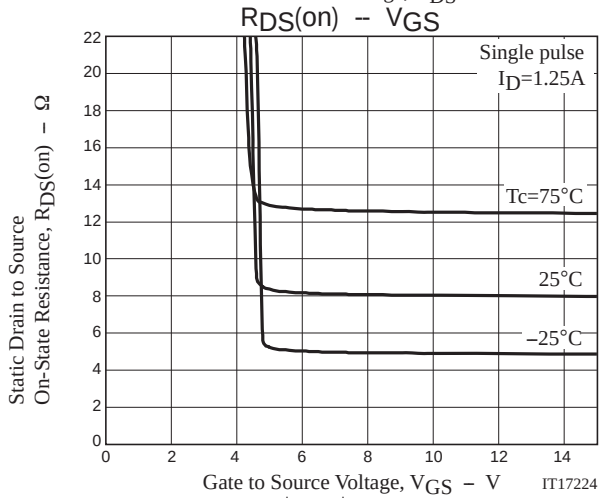
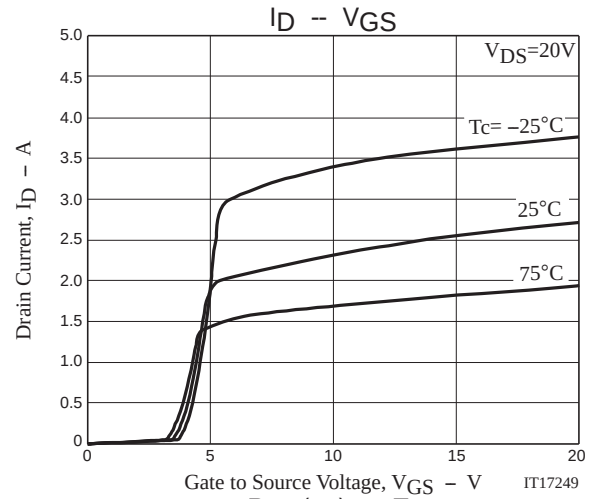
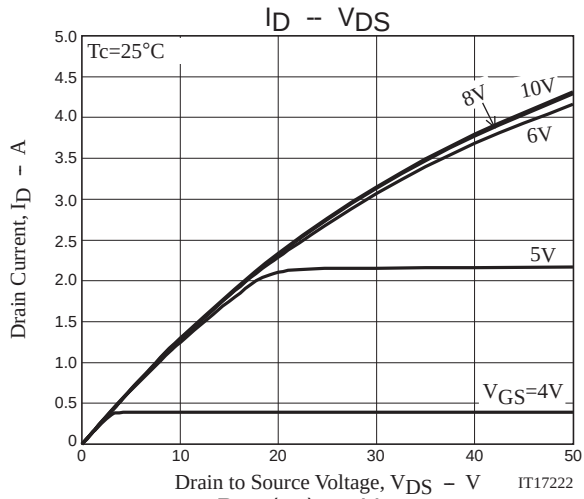
Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=10\text{mA}$, $V_{GS}=0\text{V}$	1500			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=1200\text{V}$, $V_{GS}=0\text{V}$			1	mA
Gate to Source Leakage Current	I_{GSS}	$V_{GS}=\pm 30\text{V}$, $V_{DS}=0\text{V}$			± 100	nA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}$, $I_D=1\text{mA}$	2		4	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=20\text{V}$, $I_D=1.25\text{A}$		1.9		S
Static Drain to Source On-State Resistance	$R_{DS(on)}$	$I_D=1.25\text{A}$, $V_{GS}=10\text{V}$		8	10.5	Ω
Input Capacitance	C_{iss}	$V_{DS}=30\text{V}$, $f=1\text{MHz}$		650		pF
Output Capacitance	C_{oss}			70		pF
Reverse Transfer Capacitance	C_{rss}			20		pF
Turn-ON Delay Time	$t_d(on)$			15		ns
Rise Time	t_r	See Fig.2		24		ns
Turn-OFF Delay Time	$t_d(off)$			140		ns
Fall Time	t_f			47		ns
Total Gate Charge	Q_g	$V_{DS}=200\text{V}$, $V_{GS}=10\text{V}$, $I_D=2.5\text{A}$		34		nC
Gate to Source Charge	Q_{gs}			4.7		nC
Gate to Drain "Miller" Charge	Q_{gd}			15		nC
Diode Forward Voltage	V_{SD}	$I_S=2.5\text{A}$, $V_{GS}=0\text{V}$		0.8	1.5	V
Reverse Recovery Time	t_{rr}	See Fig.3		350		ns
Reverse Recovery Charge	Q_{rr}	$I_S=2.5\text{A}$, $V_{GS}=0\text{V}$, $di/dt=100\text{A}/\mu\text{s}$		2220		nC

ORDERING INFORMATION

See detailed ordering and shipping information on page 4 of this data sheet.

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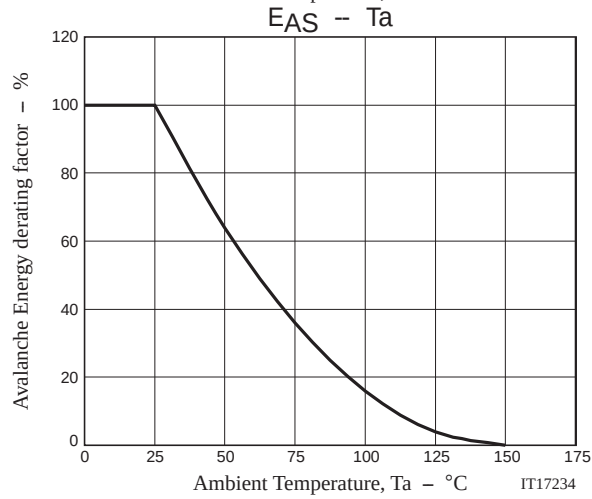
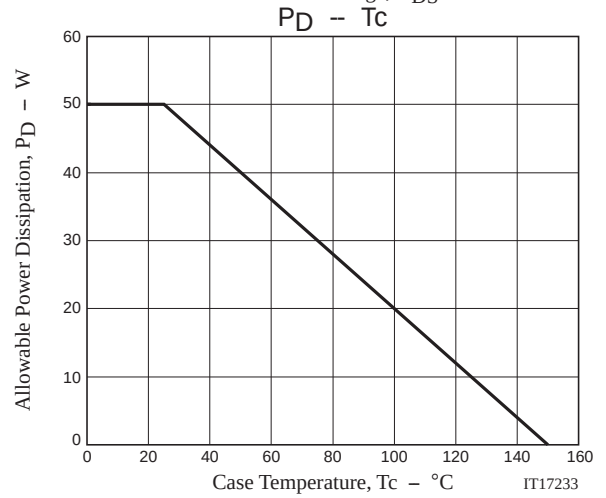
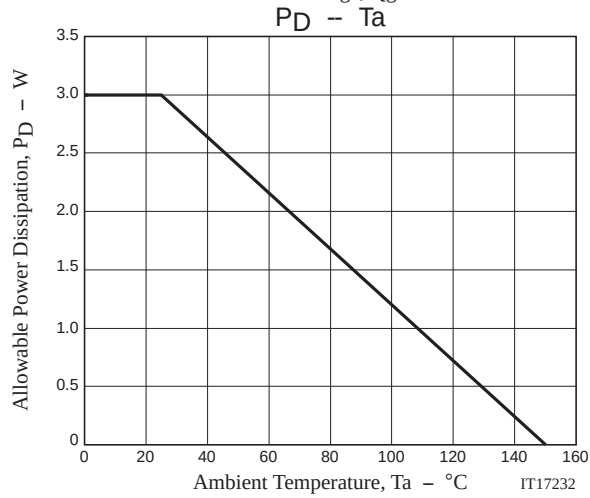
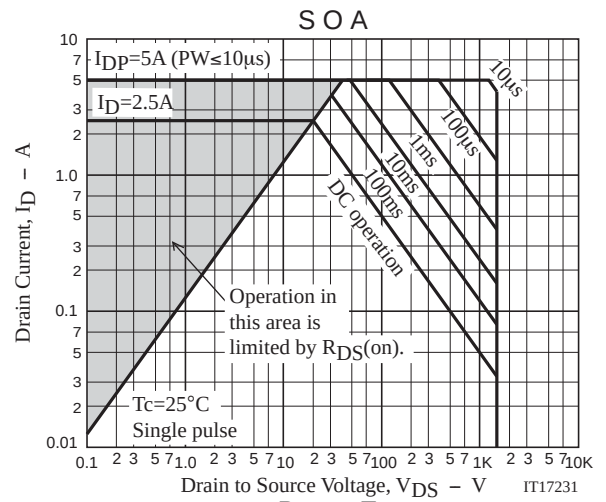
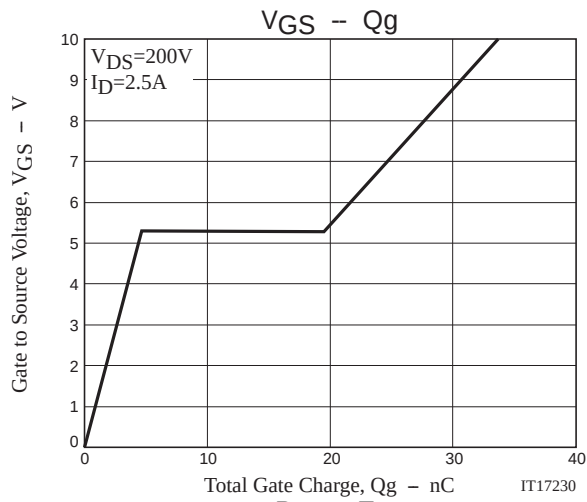


Fig.1 Unclamped Inductive Switching Test Circuit

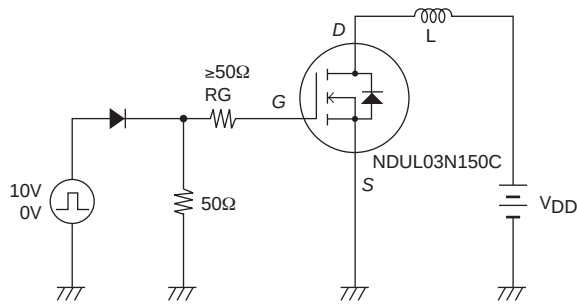


Fig.2 Switching Time Test Circuit

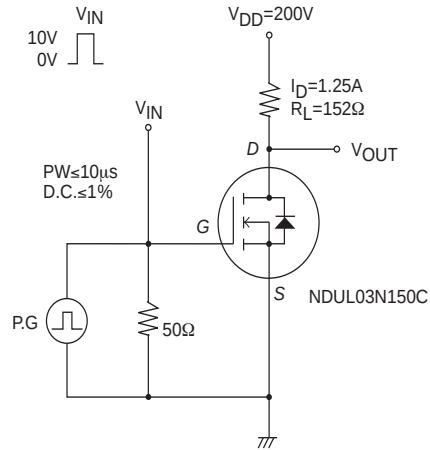
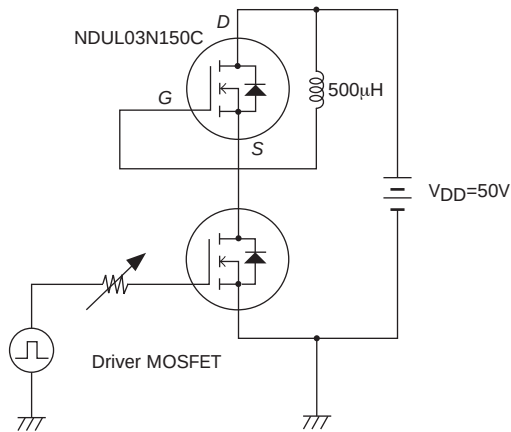


Fig.3 Reverse Recovery Time Test Circuit



Note on usage : Since the NDUL03N150C is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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