



# NDUL03N150C

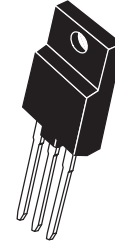
## N-Channel Power MOSFET 1500V, 2.5A, 10.5Ω, TO-3PF-3L

ON Semiconductor®

<http://onsemi.com>

### 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	$V_{DSS}$		1500	V
Gate to Source Voltage	$V_{GSS}$		$\pm 30$	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	PD		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.

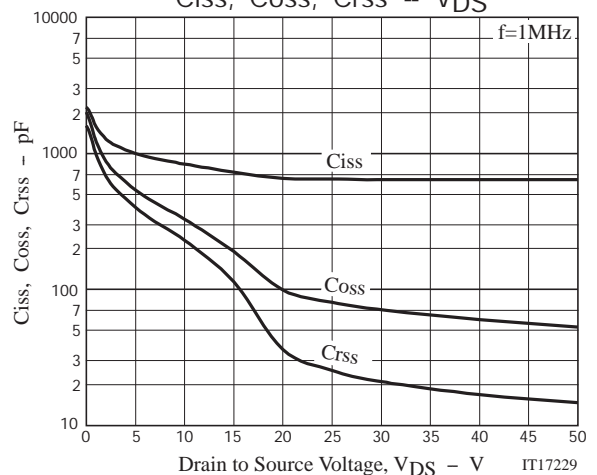
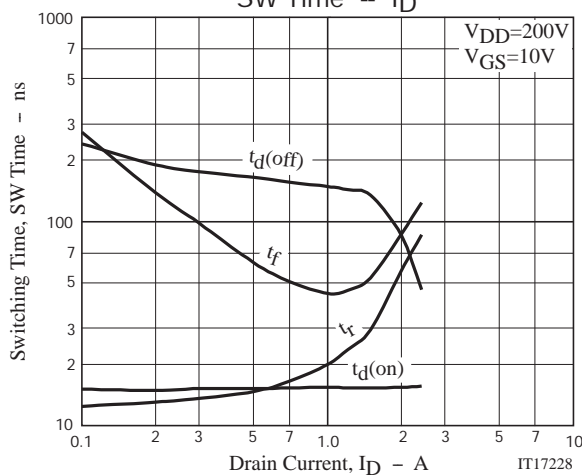
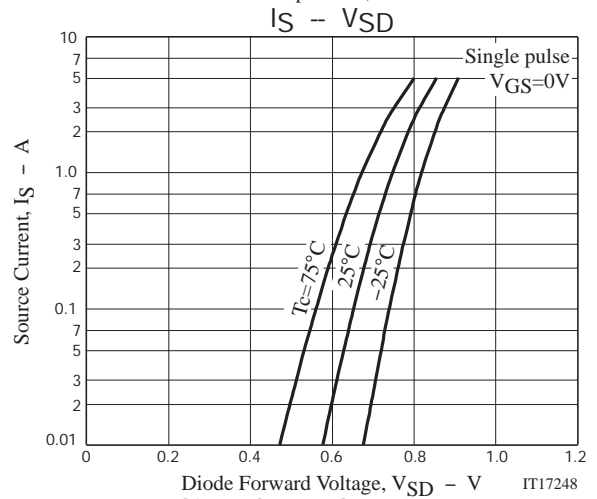
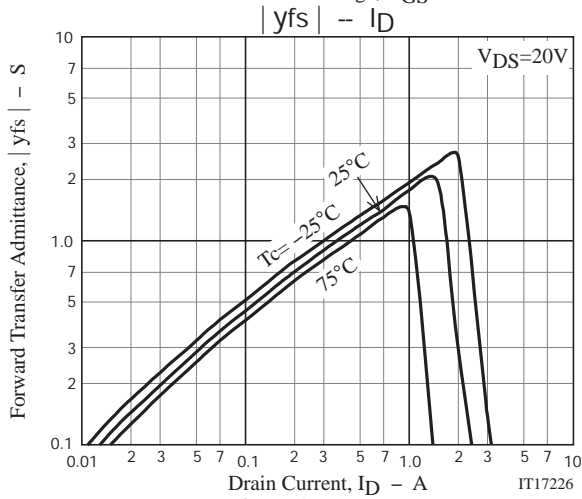
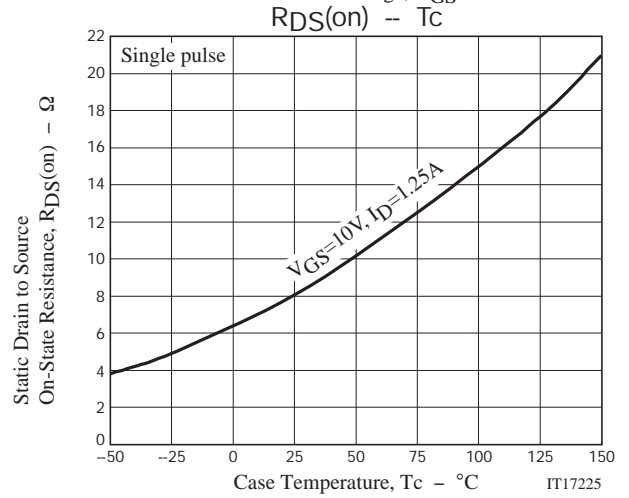
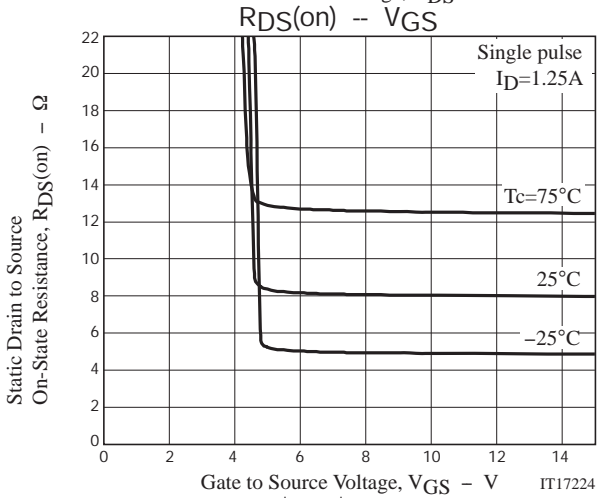
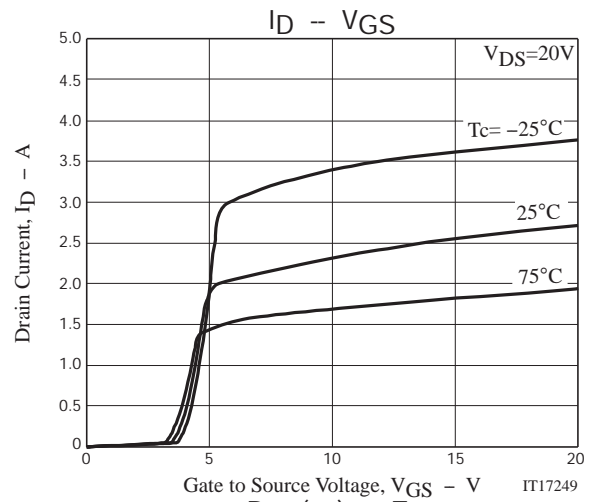
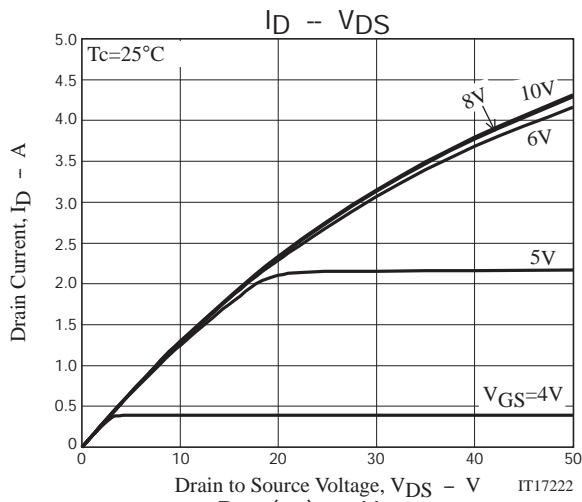
#### Electrical Characteristics at $T_a=25^\circ\text{C}$

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	$I_{GSS}$	$V_{GS}=\pm 30\text{V}$ , $V_{DS}=0\text{V}$			$\pm 100$	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	$\Omega$
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	$t_d(on)$		See Fig.2		15	
Rise Time	$t_r$				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

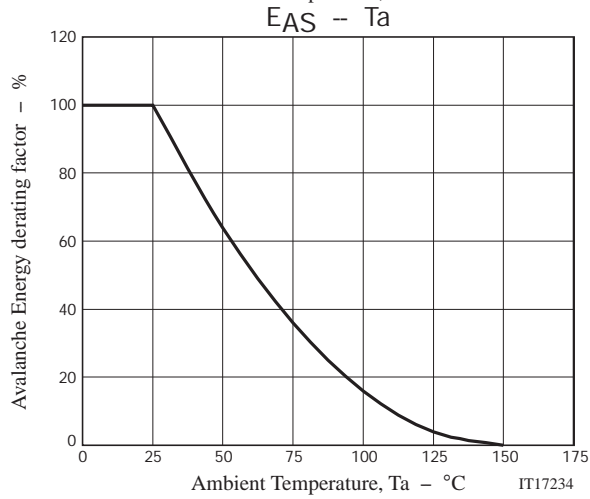
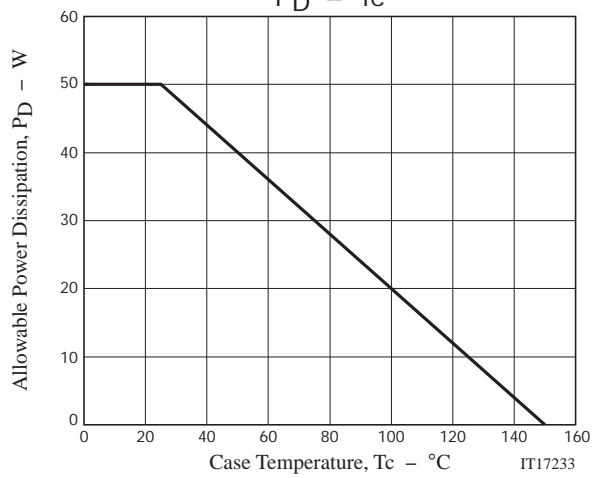
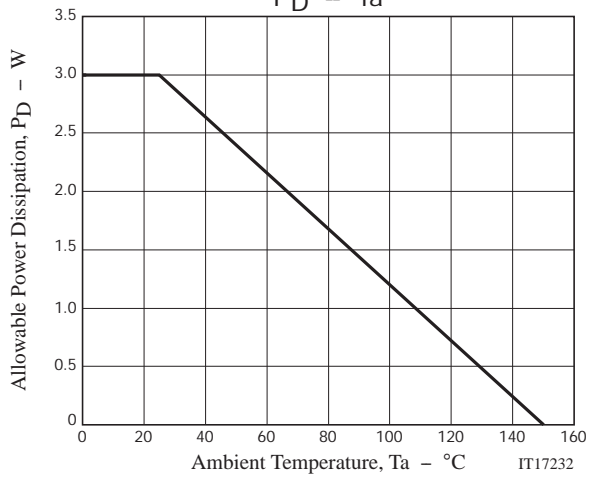
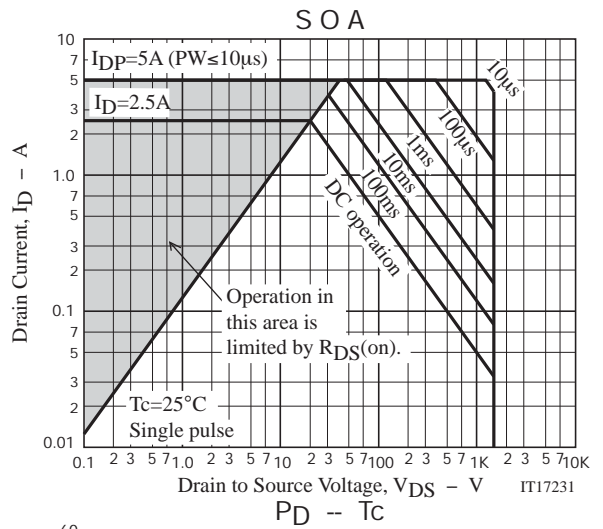
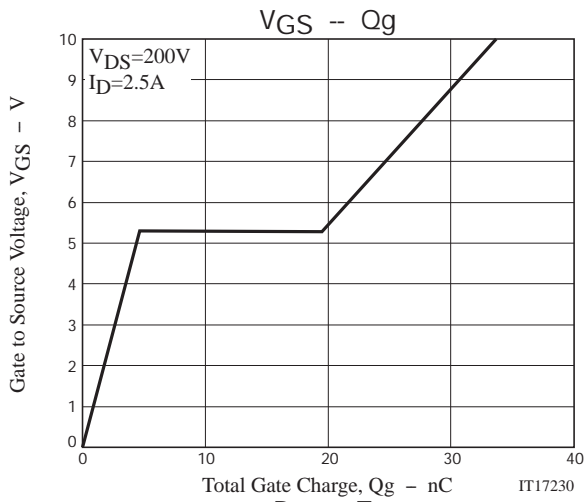
### ORDERING INFORMATION

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

# NDUL03N150C



# NDUL03N150C



# NDUL03N150C

## Package Dimensions

NDUL03N150CG

TO-3PF-3L

CASE 340AH

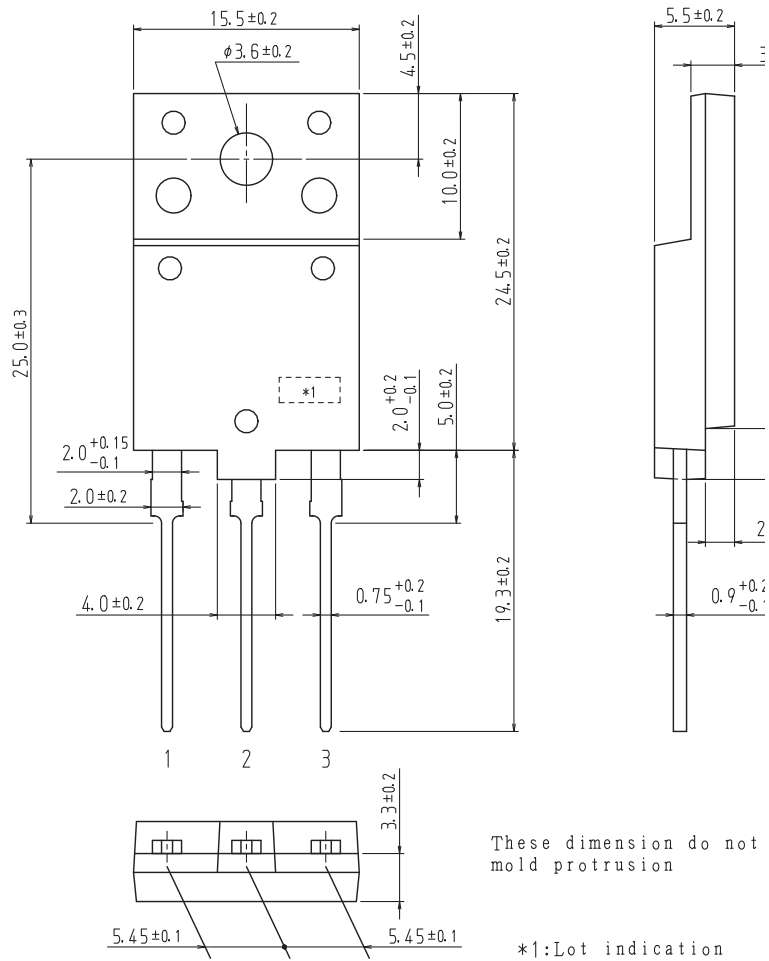
ISSUE O

Unit : mm

1: Gate

2: Drain

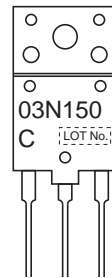
3: Source



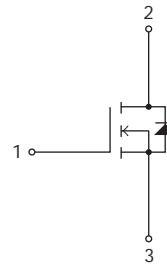
## Ordering & Package Information

Device	Package	Shipping	memo
NDUL03N150CG	TO-3PF-3L SC-94	30 pcs./tube	Pb-Free

## Marking



## Electrical Connection



# NDUL03N150C

Fig.1 Unclamped Inductive Switching Test Circuit

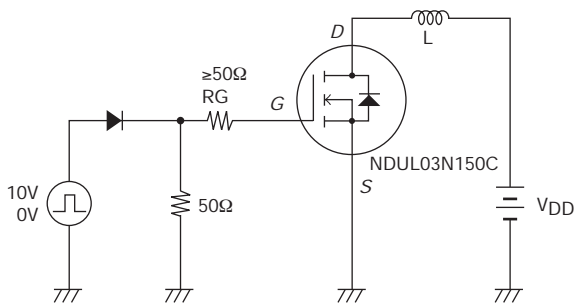


Fig.2 Switching Time Test Circuit

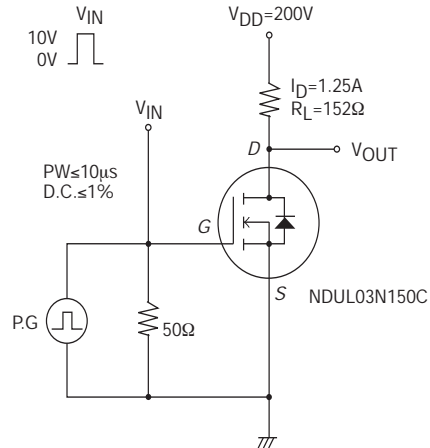
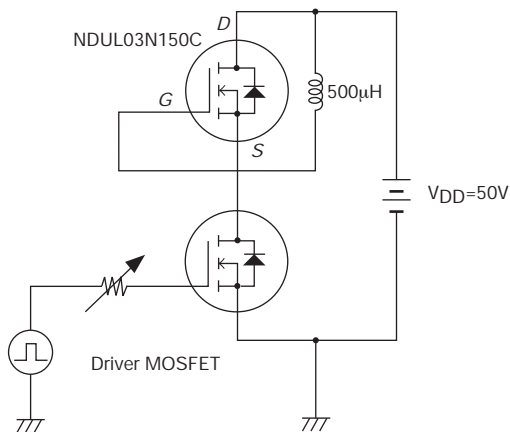


Fig.3 Reverse Recovery Time Test Circuit



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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