THE DATASHEET OF

NDFP03N150CG

Ordering number : ENA2232

NDFP03N150C

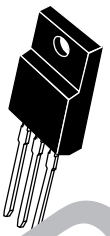
N-Channel Power MOSFET
1500V, 2.5A, 10.5Ω, TO-220F-3FS

ON Semiconductor®

http://onsemi.com

Features

- On-resistance $R_{DS}(on)$=8Ω(typ.)
- Input Capacitance Ciss=650pF(typ.)
- 10V drive



TO-220F-3FS

Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain to Source Voltage	V_{DSS}		1500	V
Gate to Source Voltage	V_{GSS}		±30	V
Drain Current (DC)	I_D		2.5	A
Drain Current (DC) Limited by Package	I_{DL}		2	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	5	A
Allowable Power Dissipation	P_D		2	W
		Tc=25°C	32	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		- 55 to +150	°C
Avalanche Energy (Single Pulse) *1	E		20	mJ
Avalanche Current *2	I		2	A

*1 V_{DD}=50V, L=10mH, I_{AV}=2A (Fig

*2 L≤10mH, 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 Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=10mA, V_{GS}=0V	1500			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=1200V, V_{GS}=0V			1	mA
Gate to Source Leakage Current	I_{GSS}	V_{GS}=±30V, V_{DS}=0V			±100	nA
Cutoff Voltage	$V_{GS}(off)$	V_{DS}=10V, I_D=1mA	2		4	V
Forward Transfer Admittance	| yfs |	V_{DS}=20V, I_D=1A		1.9		S
Static Drain to Source On-State Resistance	$R_{DS}(on)$	I_D=1A, V_{GS}=10V		8	10.5	Ω
Input Capacitance	Ciss	V_{DS}=30V, f=1MHz		650		pF
Output Capacitance	Coss			70		pF
Reverse Transfer Capacitance	Crss			20		pF
Turn-ON Delay Time	$t_d(on)$	See Fig.2		15		ns
Rise Time	t_r			20		ns
Turn-OFF Delay Time	$t_d(off)$			148		ns
Fall Time	t_f			44		ns

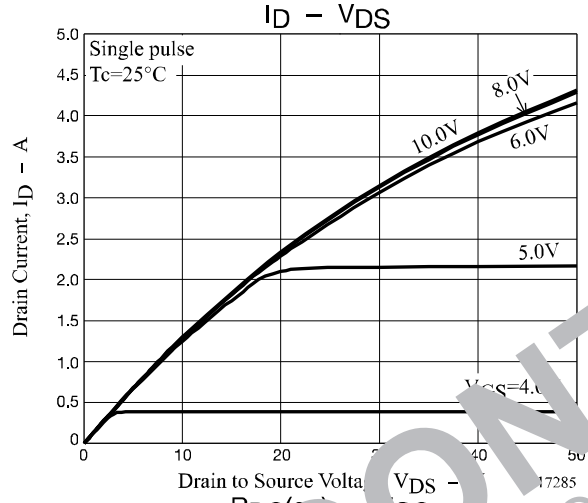
Continued on next Page.

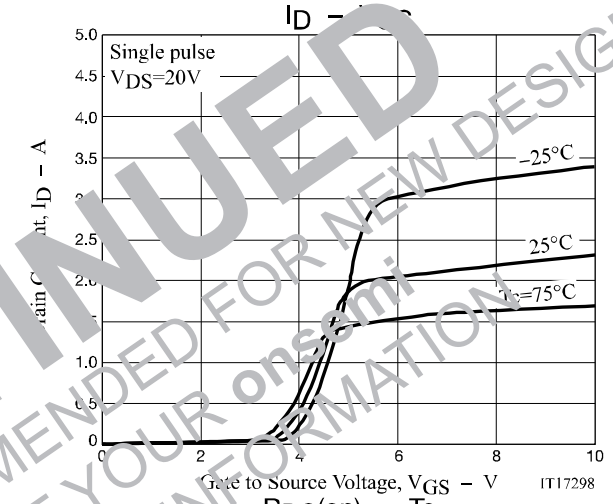
ORDERING INFORMATION

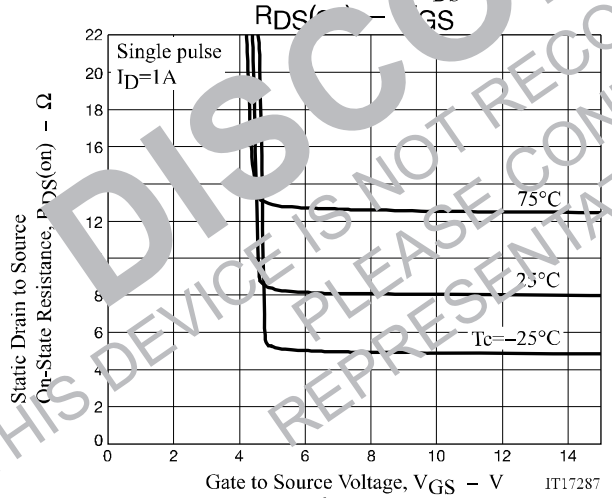
See detailed ordering and shipping information on page 4 of this data sheet.

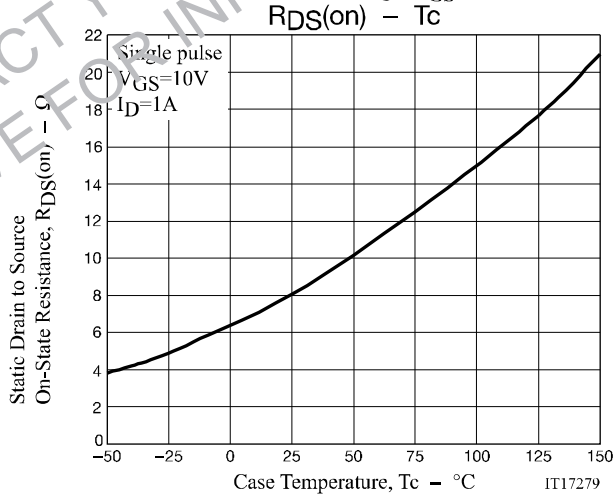
Continued from preceding Page.

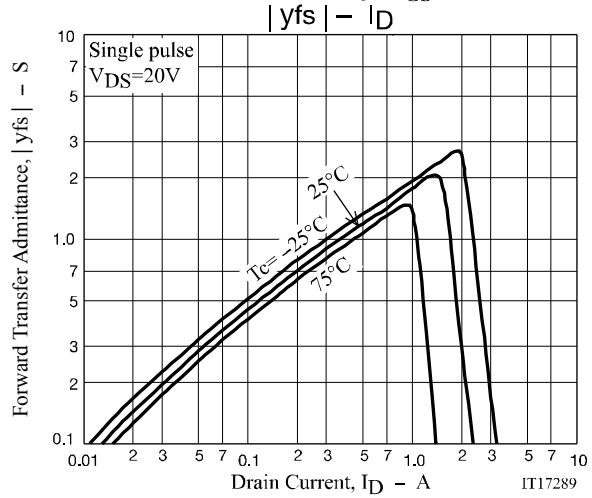
Total Gate Charge	Qg	V_{DS}=200V, V_{GS}=10V, I_D=2A		34		nC
Gate to Source Charge	Qgs			4.7		nC
Gate to Drain “Miller” Charge	Qgd			15		nC
Diode Forward Voltage	V_{SD}	I_S=2A, V_{GS}=0V		0.78	1.5	V
Reverse Recovery Time	trr	See Fig.3		300		ns
Reverse Recovery Charge	Qrr	IS=2A, VGS=0V, di/dt=100A/μs		1900		nC

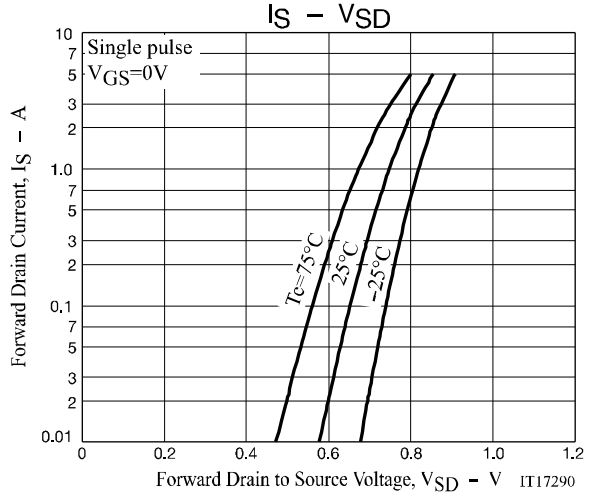




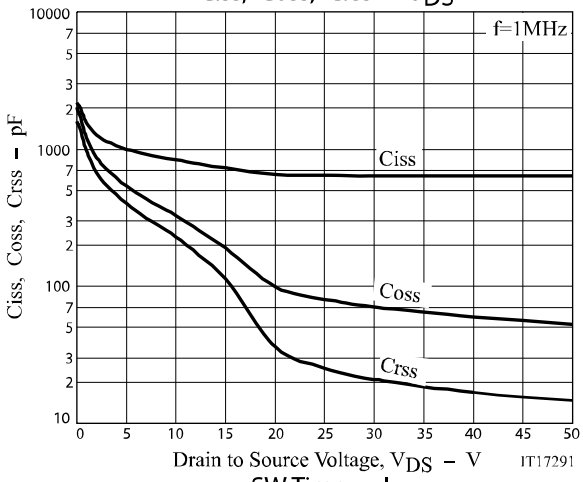




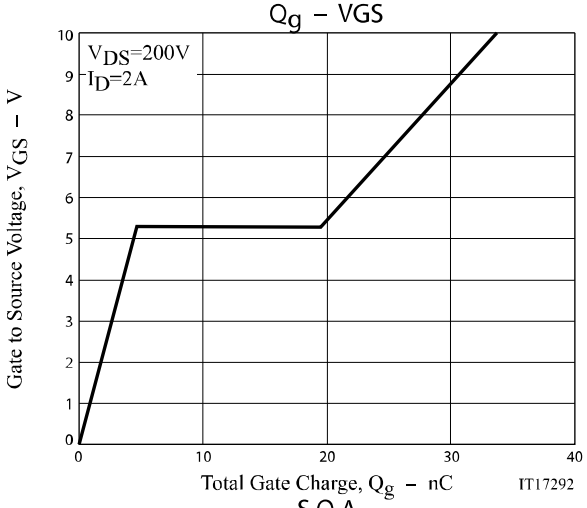




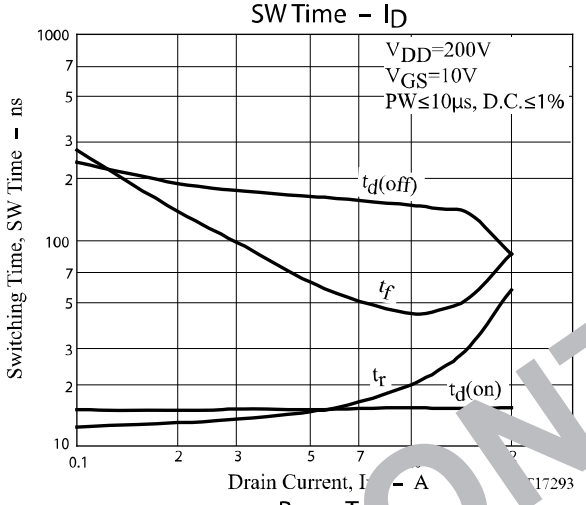
Ciss, Coss, Crss – V_{DS}



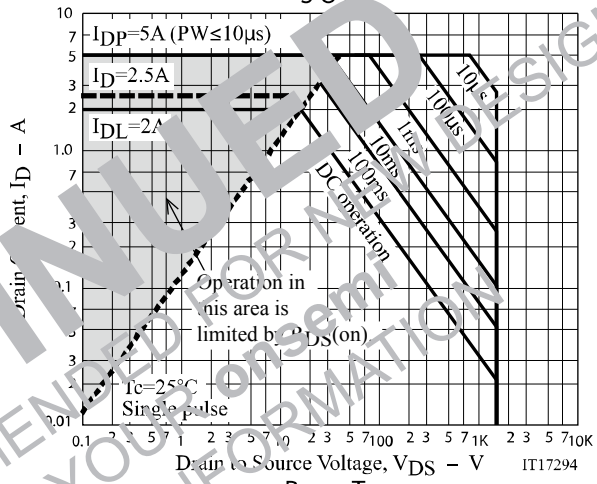
Q_g – VGS



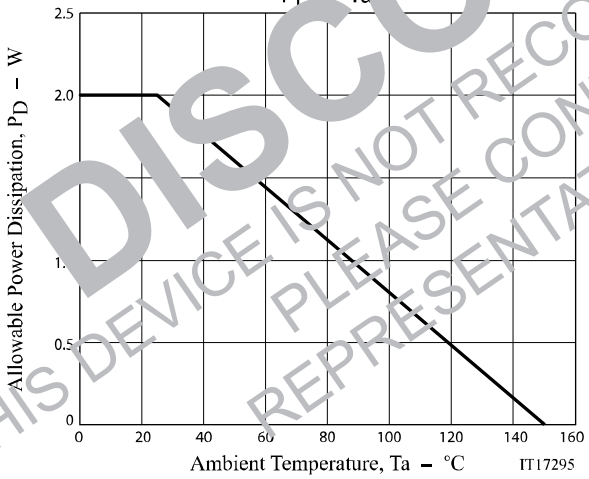
SW Time – I_D



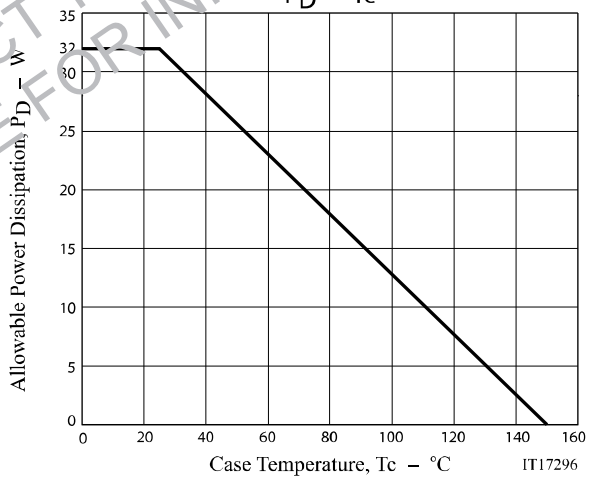
S O A



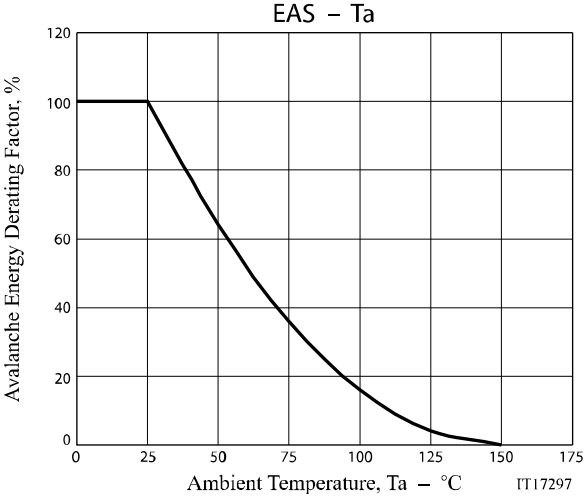
PD – Ta



PD – Tc



EAS – Ta

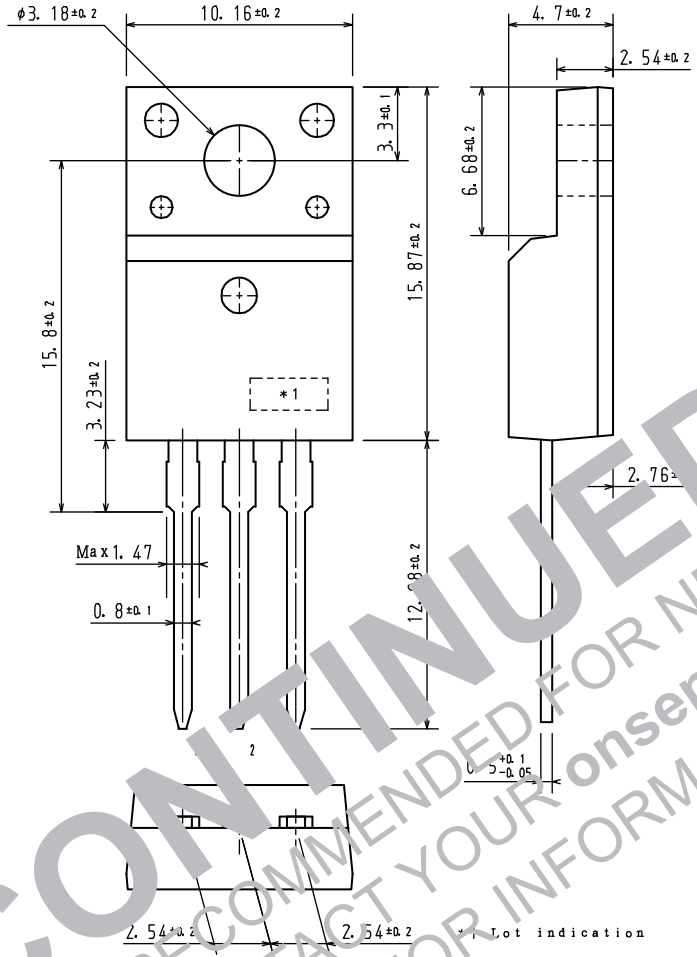


Package Dimensions

NDFP03N150CG

TO-220F-3FS

CASE 221AM
ISSUE O
Unit : mm

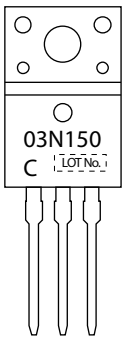


1: Gate
2: Drain
3: Source

Ordering & Package Information

Device	Package	Shipping	note
NDFP03N150CG	TO-220F-3FS SC-67	50 pcs. / tube	Pb-Free

Marking



Electrical Connection

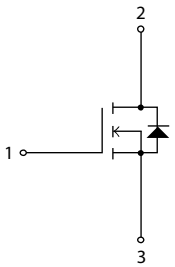


Fig.1 Unclamped Inductive Switching Test Circuit

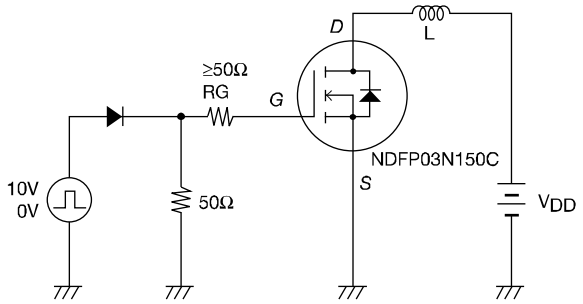


Fig.2 Switching Time Test Circuit

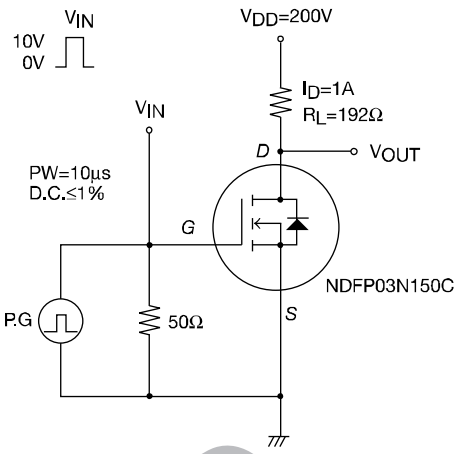
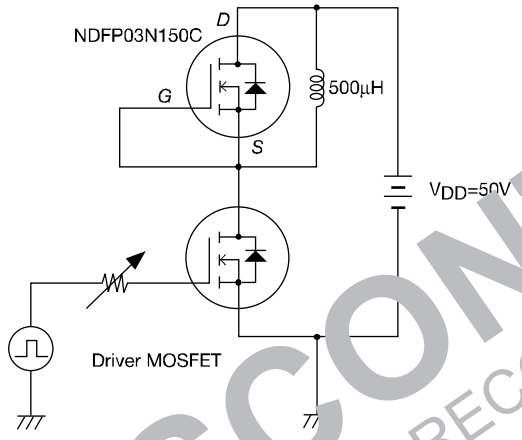


Fig.3 Reverse Recovery Time Test Circuit



Note on usage : Since the NDFP03N150C is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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