Ordering number : ENA2236

NDFPD1N150C

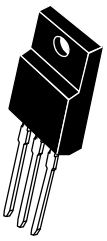
N-Channel Power MOSFET
1500V, 0.1A, 150Ω, TO-220F-3FS

ON Semiconductor®

http://onsemi.com

Features

- On-resistance R_{DS}(on)=100Ω(typ.)
- Input Capacitance Ciss=80pF(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		0.1	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	0.2	A
Allowable Power Dissipation	P_D		2.0	W
		Tc=25°C	20	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		- 55 to +150	°C

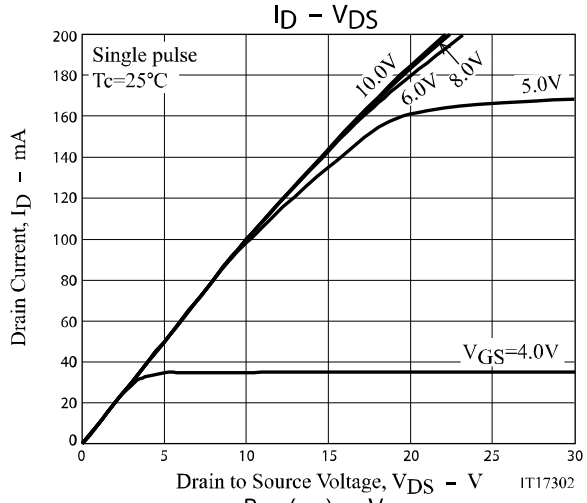
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

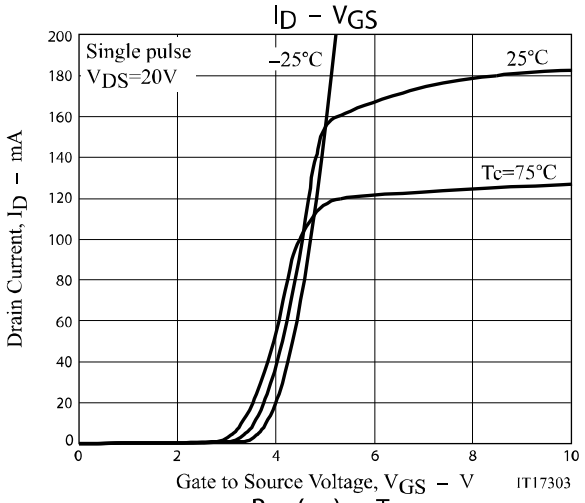
Electrical Characteristics at Ta = 25°C

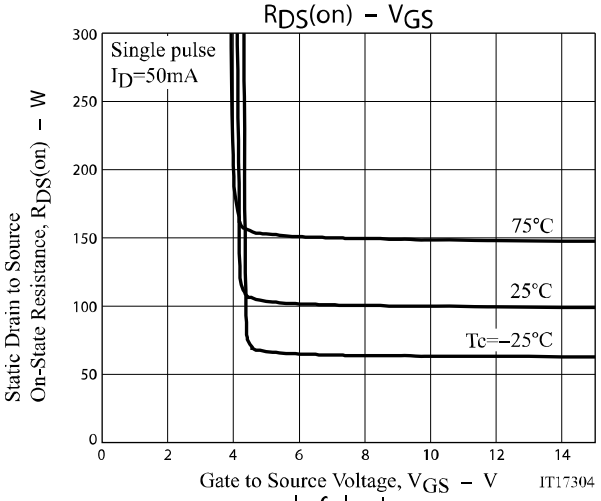
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=10mA, V_{GS}=0V	1500			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=1200V, V_{GS}=0V			1	mA
Gate to Source Leakage Current	I_{GSS}	V_{GS}=±30V, V_{DS}=0V			±100	nA
Cutoff Voltage	V_{GS}(off)	V_{DS}=10V, I_D=1mA	2		4	V
Forward Transfer Admittance	| yfs |	V_{DS}=20V, I_D=50mA		0.1		S
Static Drain to Source On-State Resistance	R_{DS}(on)	I_D=50mA, V_{GS}=10V		100	150	Ω
Input Capacitance	Ciss	V_{DS}=30V, f=1MHz		80		pF
Output Capacitance	Coss			9		pF
Reverse Transfer Capacitance	Crss			2.5		pF
Turn-ON Delay Time	t_d(on)	See Fig.1		8		ns
Rise Time	t_r			13		ns
Turn-OFF Delay Time	t_d(off)			43		ns
Fall Time	t_f			280		ns
Total Gate Charge	Qg	V_{DS}=200V, V_{GS}=10V, I_D=0.1A		4.2		nC
Gate to Source Charge	Qgs			0.7		nC
Gate to Drain “Miller” Charge	Qgd			2		nC
Diode Forward Voltage	V_{SD}	I_S=0.1A, V_{GS}=0V		0.8	1.5	V

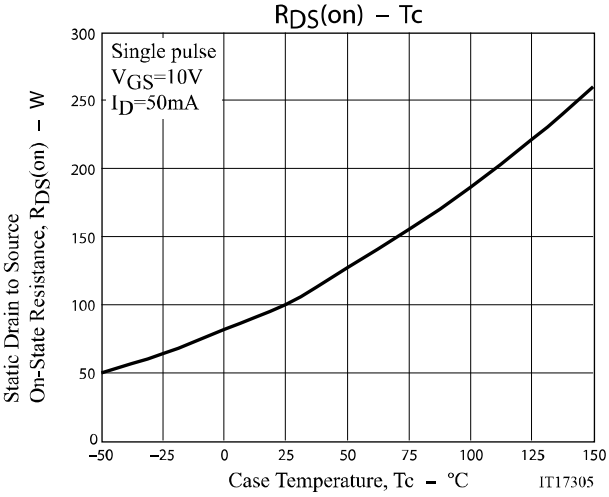
ORDERING INFORMATION

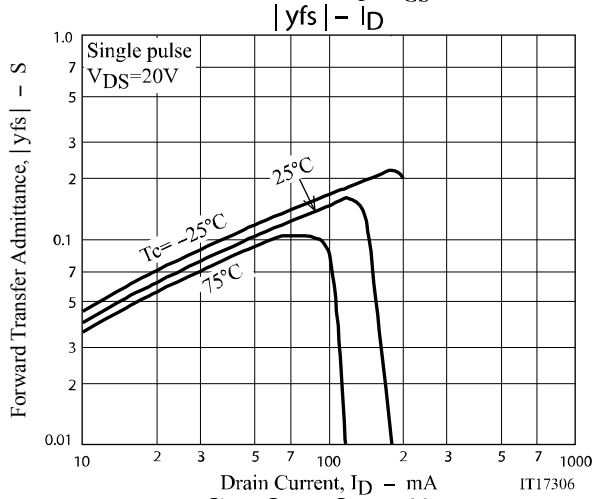
See detailed ordering and shipping information on page 4 of this data sheet.

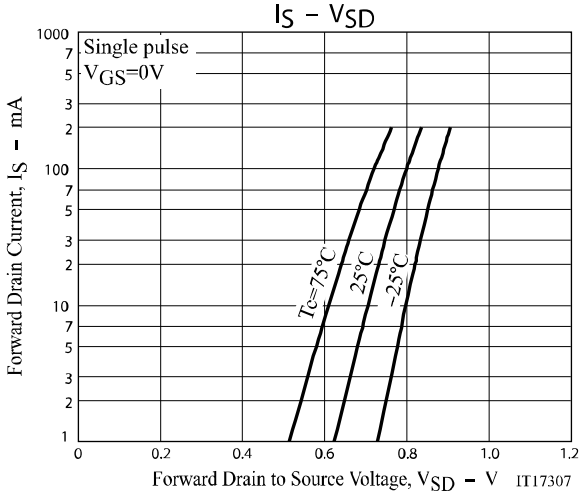

ID – VDS
Single pulse
Tc=25°C
10.0V
8.0V
6.0V
5.0V
VGS=4.0V
Drain Current, ID – mA
Drain to Source Voltage, VDS – V
IT17302

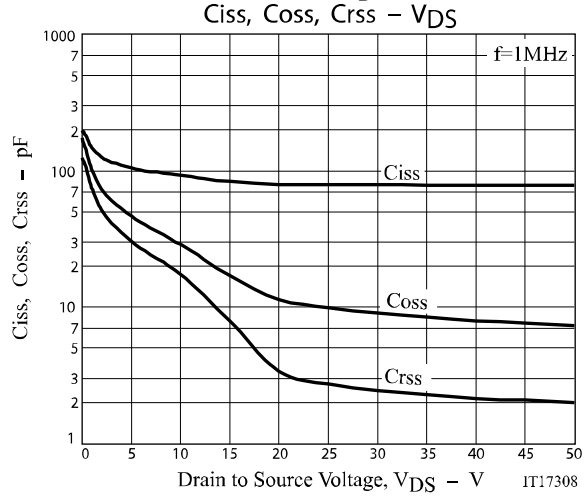

ID – VGS
Single pulse
VDS=20V
–25°C
25°C
Tc=75°C
Drain Current, ID – mA
Gate to Source Voltage, VGS – V
IT17303

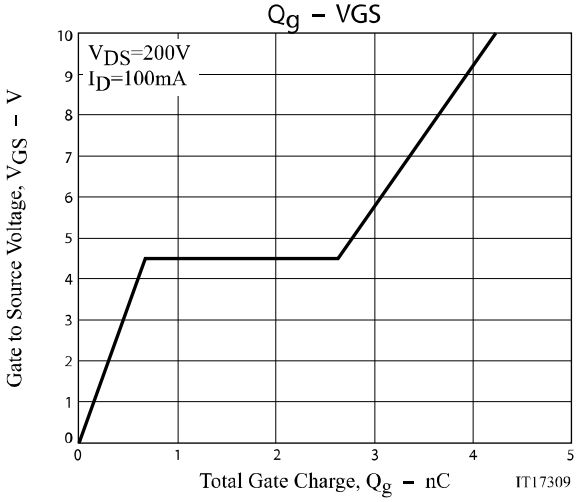

RDS(on) – VGS
Single pulse
ID=50mA
75°C
25°C
Tc=–25°C
Static Drain to Source On-State Resistance, RDS(on) – W
Gate to Source Voltage, VGS – V
IT17304


RDS(on) – Tc
Single pulse
VGS=10V
ID=50mA
Static Drain to Source On-State Resistance, RDS(on) – W
Case Temperature, Tc – °C
IT17305

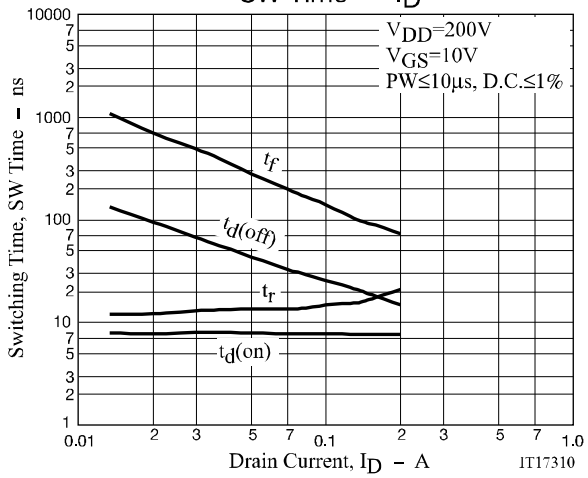

| yfs | – ID
Single pulse
VDS=20V
25°C
Tc=–25°C
75°C
Forward Transfer Admittance, | yfs | – S
Drain Current, ID – mA
IT17306


IS – VSD
Single pulse
VGS=0V
Tc=75°C
25°C
–25°C
Forward Drain Current, IS – mA
Forward Drain to Source Voltage, VSD – V
IT17307

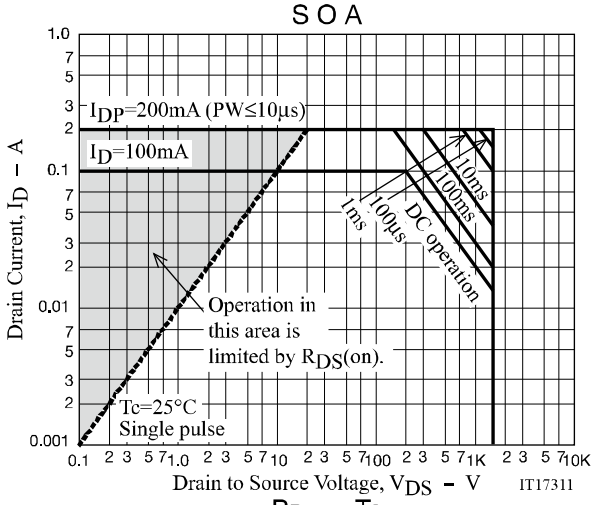

Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain to Source Voltage, VDS – V
IT17308


Qg – VGS
VDS=200V
ID=100mA
Gate to Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT17309

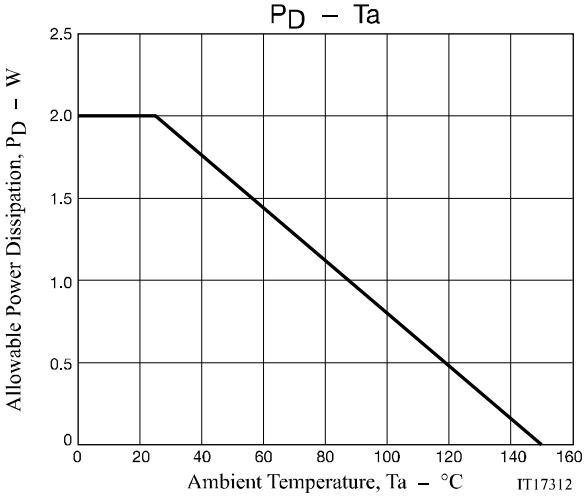
SW Time – I_D



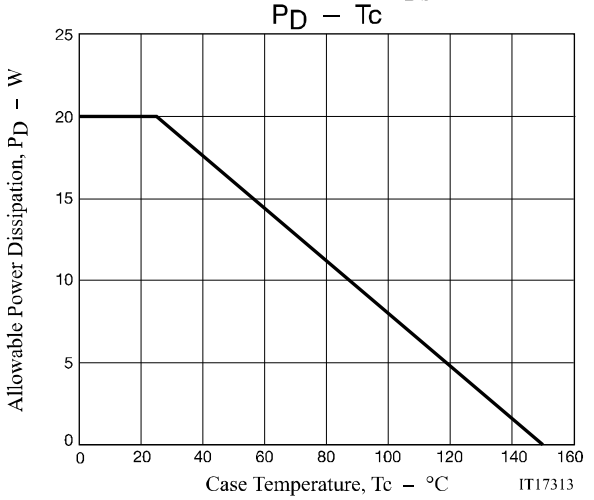
S O A



P_D – Ta



P_D – Tc



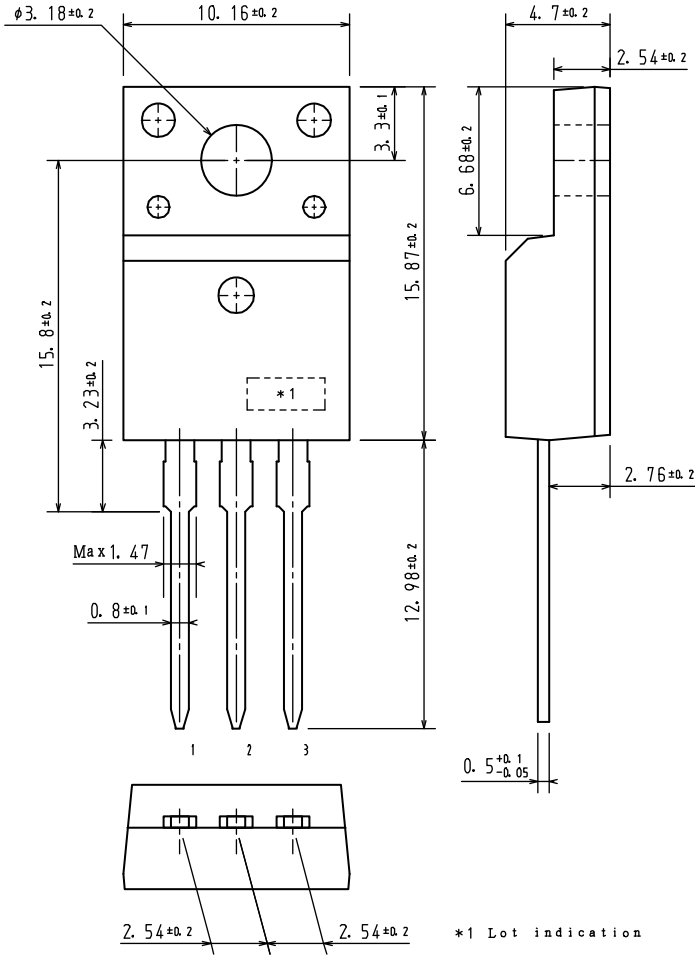
Package Dimensions

NDFPD1N150CG

TO-220F-3FS

CASE 221AM
ISSUE O
Unit : mm

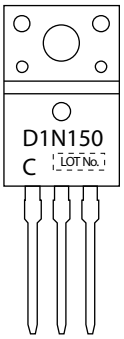
1: Gate
2: Drain
3: Source



Ordering & Package Information

Device	Package	Shipping	note
NDFPD1N150CG	TO-220F-3FS SC-67,	50 pcs. / tube	Pb-Free

Marking



Electrical Connection

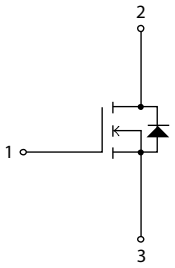
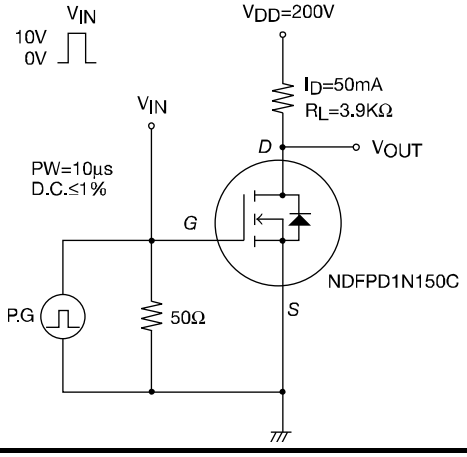


Fig.1 Switching Time Test Circuit



Note on usage : Since the NDFPD1N150C is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.