# NDPL100N10B



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# Power MOSFET 100V, 7.2mΩ, 100A, N-Channel

#### **Features**

- Low On-Resistance
- Low Gate Charge
- High Speed Switching
- 100% Avalanche Tested
- Pb-Free and RoHS Compliance

# **Specifications**

**Absolute Maximum Ratings** at Ta = 25°C

Parameter	Symbol	Value	Unit
Drain to Source Voltage	V <sub>DSS</sub>	100	٧
Gate to Source Voltage	V <sub>GSS</sub>	±20	<b>V</b>
Drain Current (DC)	ΙD	100	Α
Drain Current (Pulse) PW≤10μs, duty cycle≤1%	IDP	400	Α
Power Dissipation	Do	2.1	۱۸/
Tc=25°C	PD	110	W
Junction Temperature	Tj	175	°C
Storage Temperature	Tstg	–55 to +175	°C
Source Current (Body Diode)	IS	100	Α
Avalanche Energy (Single Pulse) *1	EAS	147	mJ
Lead Temperature for Soldering Purposes, 3mm from Case for 10 Seconds	TL	260	°C

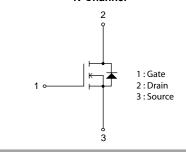
**Thermal Resistance Ratings** 

Parameter	Symbol	Value	Unit	
Junction to Case Steady State	$R_{\theta JC}$	1.36	°C/W	
Junction to Ambient *2	$R_{\theta JA}$	71.4	C/VV	

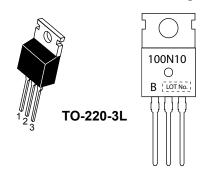
Note : \*1 VDD=48V, L=100 $\mu$ H, IAV=40A (Fig.1)

VDSS	RDS(on) Max	<sup>I</sup> D Max	
100V	7.2 mΩ@15V	4004	
	8.7 mΩ@10V	100A	

# Electrical Connection N-Channel



#### Marking



Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

#### **ORDERING INFORMATION**

See detailed ordering and shipping information on page 5 of this data sheet.

<sup>\*2</sup> Insertion mounted

### NDPL100N10B

#### **Electrical Characteristics** at Ta = 25°C

Doromotor	O. made al	Symbol Conditions	Value			11.2
Parameter	Symbol		min	typ	max	Unit
Drain to Source Breakdown Voltage	V(BR)DSS	I <sub>D</sub> =10mA, V <sub>GS</sub> =0V				٧
Zero-Gate Voltage Drain Current	IDSS	V <sub>DS</sub> =100V, V <sub>GS</sub> =0V			10	μΑ
Gate to Source Leakage Current	IGSS	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V			±100	nA
Gate Threshold Voltage	V <sub>GS</sub> (th)	V <sub>DS</sub> =10V, I <sub>D</sub> =1mA	2		4	V
Forward Transconductance	9FS	V <sub>DS</sub> =10V, I <sub>D</sub> =50A		75		S
	R <sub>DS</sub> (on)1	I <sub>D</sub> =50A, V <sub>GS</sub> =15V		6.0	7.2	mΩ
Static Drain to Source On-State Resistance	R <sub>DS</sub> (on)2	I <sub>D</sub> =50A, V <sub>GS</sub> =10V		6.7	8.7	mΩ
Input Capacitance	Ciss			2,950		pF
Output Capacitance	Coss	V <sub>DS</sub> =50V, f=1MHz		1,250		pF
Reverse Transfer Capacitance	Crss			20		pF
Turn-ON Delay Time	t <sub>d</sub> (on)			40		ns
Rise Time	t <sub>r</sub>	050		385		ns
Turn-OFF Delay Time	t <sub>d</sub> (off)	See Fig.2		68		ns
Fall Time	tf			52		ns
Total Gate Charge	Qg			35		nC
Gate to Source Charge	Qgs	V <sub>DS</sub> =48V, V <sub>GS</sub> =10V, I <sub>D</sub> =100A		13		nC
Gate to Drain "Miller" Charge	Qgd			10		nC
Forward Diode Voltage	V <sub>SD</sub>	I <sub>S</sub> =100A, V <sub>GS</sub> =0V		1.1	1.5	٧
Reverse Recovery Time	t <sub>rr</sub>	See Fig.3		130		ns
Reverse Recovery Charge	Q <sub>rr</sub>	I <sub>S</sub> =100A, V <sub>GS</sub> =0V, V <sub>DD</sub> =50V, di/dt=100A/μs		400		nC

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

Fig.1 Unclamped Inductive Switching Test Circuit

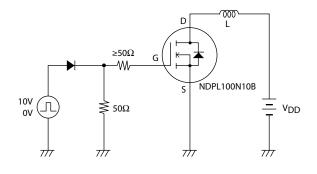


Fig.2 Switching Time Test Circuit

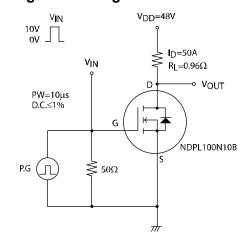
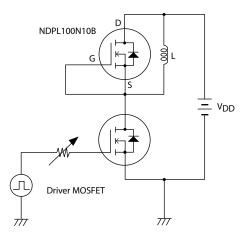
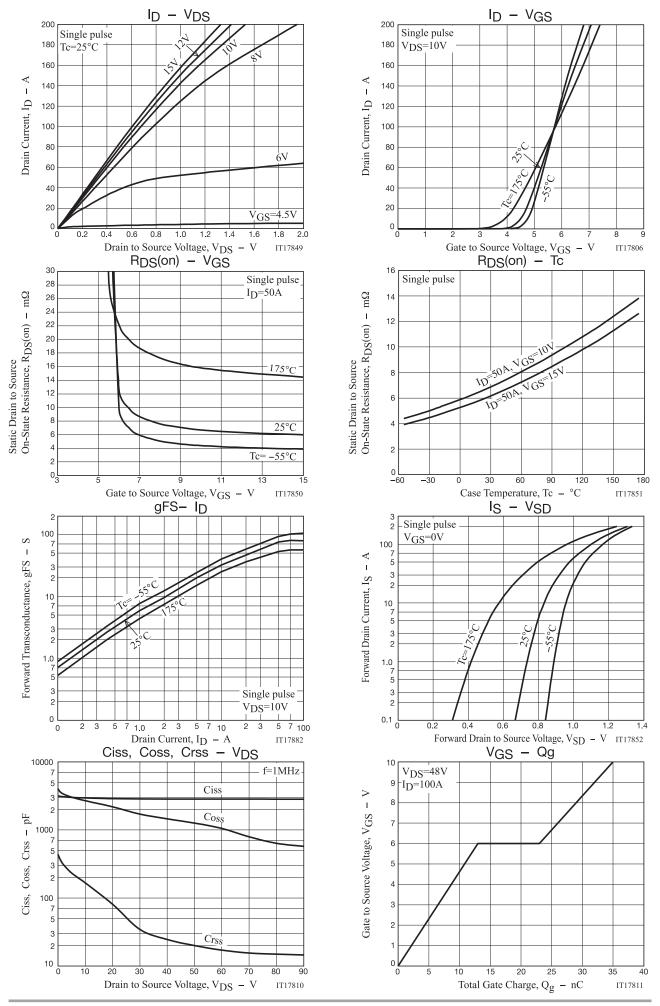
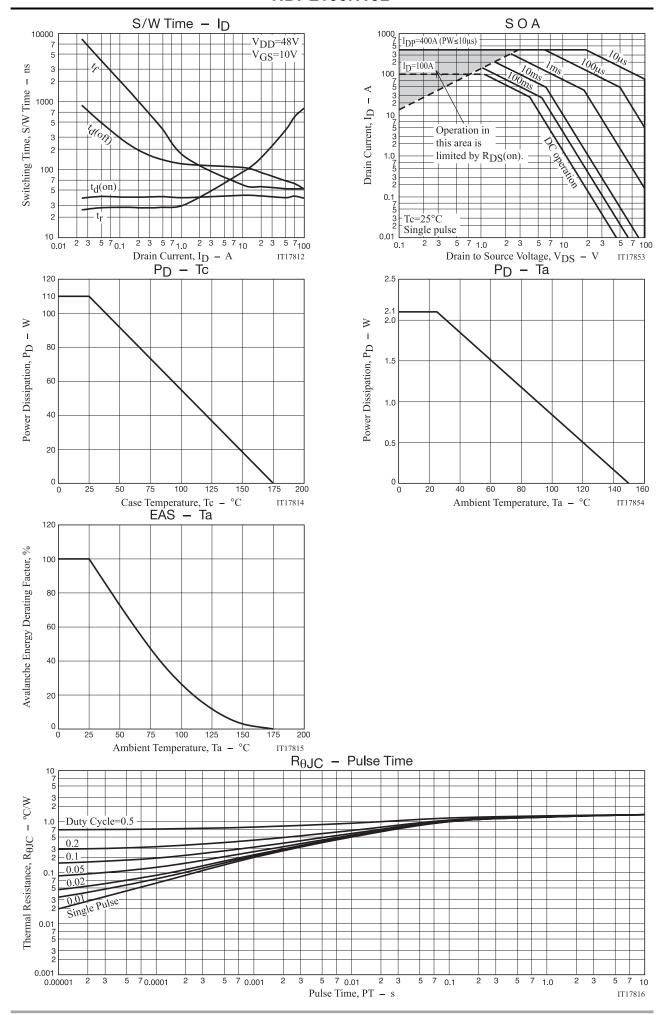


Fig.3 Reverse Recovery Time Test Circuit





## NDPL100N10B



# **Package Dimensions**

NDPL100N10BG

### TO-220, 3-Lead / TO-220-3L

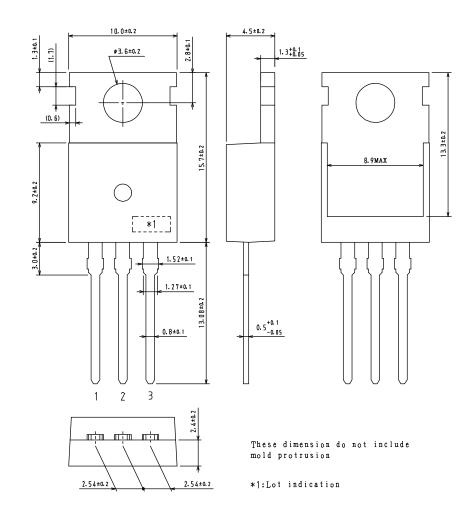
CASE 221AU ISSUE O

unit: mm

1:Gate

2:Drain

3:Source



#### ORDERING INFORMATION

Device	Package	Shipping	note
NDPL100N10BG	TO-220, 3-Lead TO-220-3L	50 pcs. / Tube	Pb-Free

Note on usage: Since the NDPL100N10B is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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