# NDDP010N25AZ

# Power MOSFET 250V, 10A, 420mΩ, N-Channel



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#### **Features**

- High Speed Switching
- Low Gate Charge
- ESD Diode-Protected Gate
- 100% Avalanche Tested
- Pb-Free, Halogen Free and RoHS Compliance

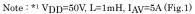
# **Specifications**

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Value	Unit	
Drain to Source Voltage	V <sub>DSS</sub>	250	٧	
Gate to Source Voltage	VGSS	±30	<b>V</b>	
Drain Current (DC)	ID	10	Α	
Drain Current (Pulse) PW≤10μs, duty cycle≤1%	I <sub>DP</sub>	40	Α	
Power Dissipation Tc=25°C	PD	1 52	W	
Junction Temperature	Tj	150	°C	
Storage Temperature	Tstg	– 55 to +150	°C	
Source Current (Body Diode)	IS	10	Α	
Avalanche Energy (Single Pulse) *1	EAS	15.5	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	$R_{\theta JC}$	2.40	°C/W	
Junction to Ambient *2	$R_{\theta JA}$	125		

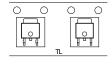


<sup>\*2</sup> Insertion mounted

# 1. Gate 2. Drain 3. Source 4. Drain

Packing Type:TL











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 & Package Information**

Device	Package Shipping		Memo	
NDDP010N25AZT4H	DPAK(TP-FA), SC-63, TO-252	700pcs. / reel	Pb-Free	
NDDP010N25AZ-1H	IPAK(TP), SC-64, TO-251	500pcs. / bag	and Halogen Free	

## NDDP010N25AZ

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

Parameter	Symbol	Conditions	Value			11-24
			min	typ	max	Unit
Drain to Source Breakdown Voltage	V(BR)DSS	I <sub>D</sub> =1mA, V <sub>GS</sub> =0V	250			V
Zero-Gate Voltage Drain Current	IDSS	V <sub>DS</sub> =250V, V <sub>GS</sub> =0V			1	μΑ
Gate to Source Leakage Current	IGSS	V <sub>GS</sub> =±24V, V <sub>DS</sub> =0V			±10	μΑ
Gate Threshold Voltage	V <sub>GS</sub> (th)	V <sub>DS</sub> =10V, I <sub>D</sub> =1mA	2.5		4.5	V
Forward Transconductance	9FS	V <sub>DS</sub> =10V, I <sub>D</sub> =5A		6.5		S
Static Drain to Source On-State Resistance	R <sub>DS</sub> (on)	I <sub>D</sub> =5A, V <sub>GS</sub> =10V		320	420	$m\Omega$
Input Capacitance	Ciss			980		pF
Output Capacitance	Coss	V <sub>DS</sub> =20V, f=1MHz		80		pF
Reverse Transfer Capacitance	Crss			25		pF
Turn-ON Delay Time	t <sub>d</sub> (on)			18		ns
Rise Time	t <sub>r</sub>	0.5:0		26		ns
Turn-OFF Delay Time	t <sub>d</sub> (off)	See Fig.2		44		ns
Fall Time	tf			31		ns
Total Gate Charge	Qg			16		nC
Gate to Source Charge	Qgs	V <sub>DS</sub> =125V, V <sub>GS</sub> =10V, I <sub>D</sub> =10A		4.7		nC
Gate to Drain "Miller" Charge	Qgd	]		4.6		nC
Forward Diode Voltage	V <sub>SD</sub>	I <sub>S</sub> =10A, V <sub>GS</sub> =0V		0.96	1.2	V
Reverse Recovery Time	t <sub>rr</sub>	See Fig.3		130		ns
Reverse Recovery Charge	Q <sub>rr</sub>	I <sub>S</sub> =10A, V <sub>GS</sub> =0V, di/dt=100A/μs		540		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

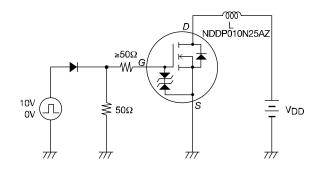


Fig.2 Switching Time Test Circuit

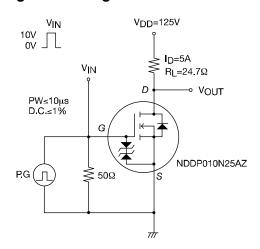
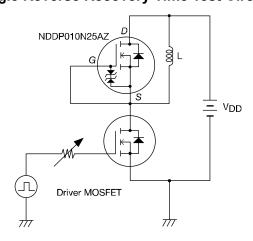
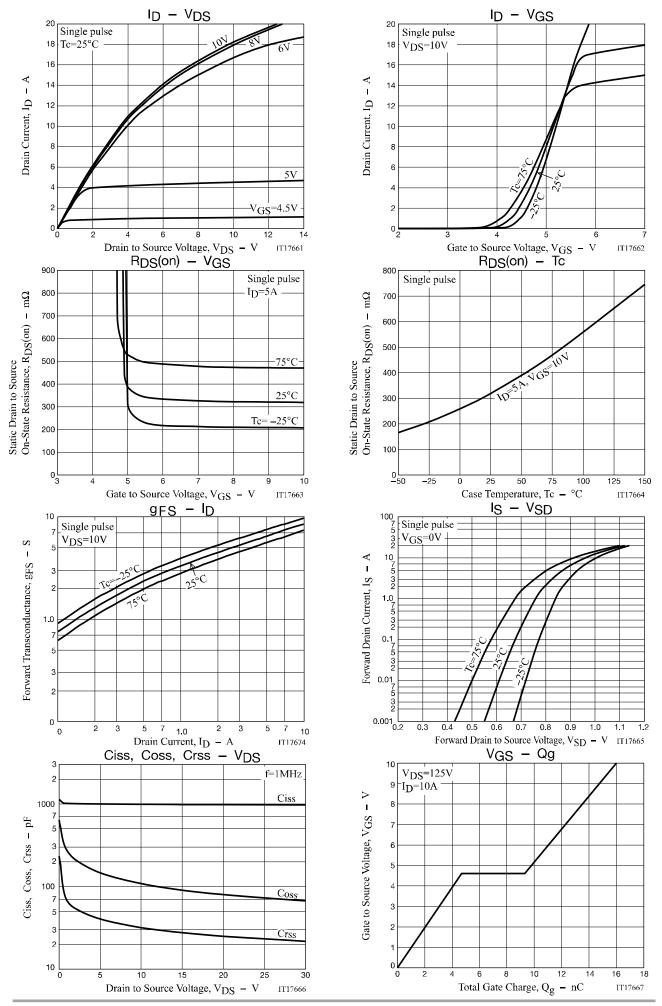
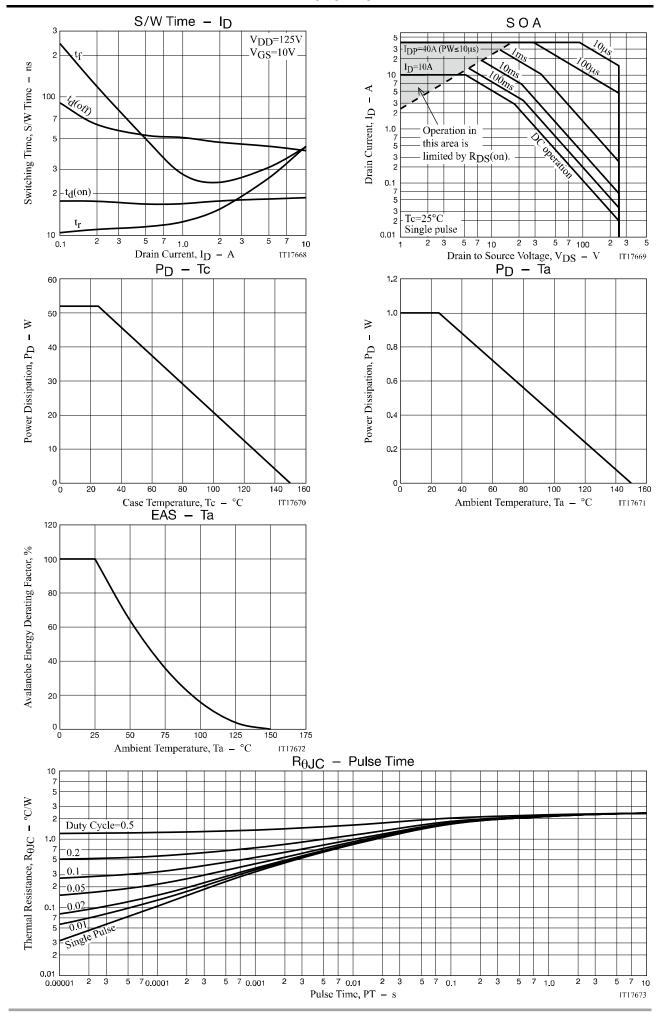


Fig.3 Reverse Recovery Time Test Circuit







# **Package Dimensions**

NDDP010N25AZT4H

### DPAK / TP-FA

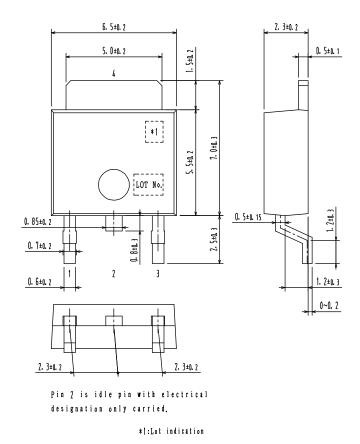
unit: mm



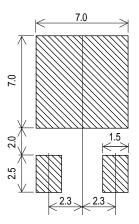
2:Drain

3:Source

4:Drain



# Recommended Soldering Footprint



## **Package Dimensions**

NDDP010N25AZ-1H

#### **IPAK / TP**

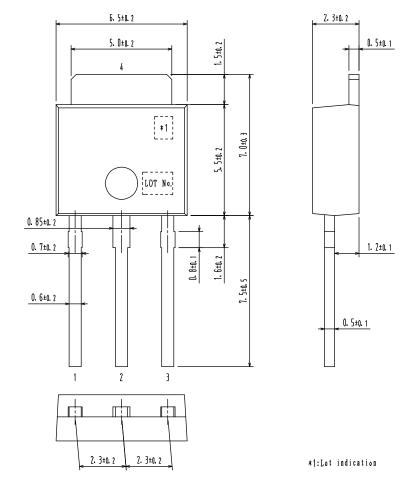
unit: mm

1:Gate

2:Drain

3:Source

4:Drain



Note on usage : Since the NDDP010N25AZ is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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