EVVOSEMI®

THINK CHANGE DO

ESD TVS MOS LDO Diode Sensor DC-DC

Product Specification

Domestic	Part Number	IPD068N10N3G
Overseas	Part Number	IPD068N10N3G
Equivalent	Part Number	IPD068N10N3G

N-Ch 100V Fast Switching MOSFETs

Features

- Advanced Trench MOS Technology
- 100% EAS Guaranteed
- Fast Switching Speed
- Green Device Available

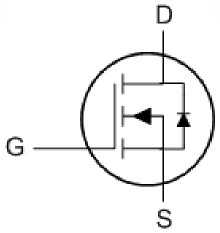
Product Summary

BVDSS	RDSON	ID
100V	8.5mΩ	73A

Applications

- High Frequency Switching and Synchronous Rectification.
- DC/DC Converter.

TO252 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25˚C	Continuous Drain Current[1]	73	A
I_D@T_C=70˚C	Continuous Drain Current[1]	46	A
I_{DM}	Pulsed Drain Current[2]	290	A
EAS	Single Pulse Avalanche Energy[3]	61	mJ
I_{AS}	Avalanche Current	35	A
P_D@T_C=25˚C	Total Power Dissipation[4]	108	W
T_{STG}	Storage Temperature Range	-55 to 150	˚C
T_J	Operating Junction Temperature Range	-55 to 150	˚C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{θJA}$	Thermal Resistance Junction-Ambient [1](t≦10s)	---	25	˚C/W
	Thermal Resistance Junction-Ambient [1]	---	55	˚C/W
$R_{θJC}$	Thermal Resistance Junction-Case[1]	---	1.15	˚C/W

Electrical Characteristics (T_J=25 ℃, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	100	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=10V , I_D=13.5A	---	6.6	8.5	mΩ
	Static Drain-Source On-Resistance[2]	V_{GS}=4.5V , I_D=11.5A	---	8.7	11	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	1.2	---	2.3	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=80V , V_{GS}=0V , T_J=25˚C	---	---	1	uA
		V_{DS}=80V , V_{GS}=0V , T_J=55˚C	---	---	5	
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=5V , I_D=20A	---	85	---	S
Qg	Total Gate Charge (10V)	V_{DS}=50V , V_{GS}=10V , I_D=13.5A	---	45	---	nC
Qg	Total Gate Charge (4.5V)		---	19.3	---	
Qgs	Gate-Source Charge		---	9.5	---	
Qgd	Gate-Drain Charge		---	4.8	---	
Td(on)	Turn-On Delay Time	V_{DD}=50V , V_{GS}=10V , R_G=3Ω, I_D=13.5A	---	10	---	ns
Tr	Rise Time		---	6.5	---	
Td(off)	Turn-Off Delay Time		---	45	---	
Tf	Fall Time		---	7.5	---	
Ciss	Input Capacitance	V_{DS}=50V , V_{GS}=0V , f=1MHz	---	3320	---	pF
Coss	Output Capacitance		---	605	---	
Crss	Reverse Transfer Capacitance		---	20	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current[1,5]	V_G=V_D=0V , Force Current	---	---	48	A
V_{SD}	Diode Forward Voltage[2]	V_{GS}=0V , I_S=1A , T_J=25˚C	---	---	1.1	V
t_{rr}	Reverse Recovery Time	I_F=13.5A , di/dt=100A/µs , T_J=25˚C	---	33	---	nS
Q_{rr}	Reverse Recovery Charge		---	150	---	nC

Note :
1.The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2.The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
3.The EAS data shows Max. rating . The test condition is V_{DD}=50V,V_{GS}=10V,L=0.3mH,I_{AS}=35A
4.The power dissipation is limited by 150˚C junction temperature
5.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

Typical Characteristics

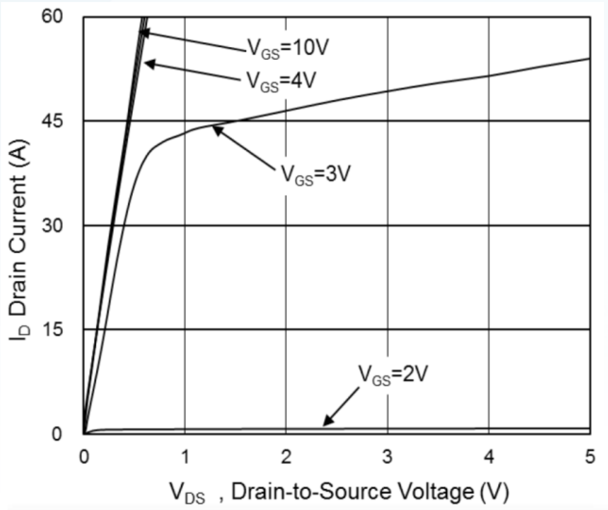


Fig.1 Typical Output Characteristics

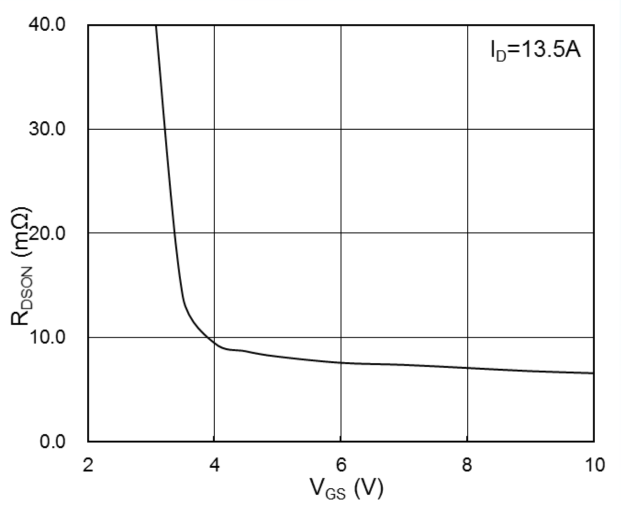


Fig.2 On-Resistance vs G-S Voltage

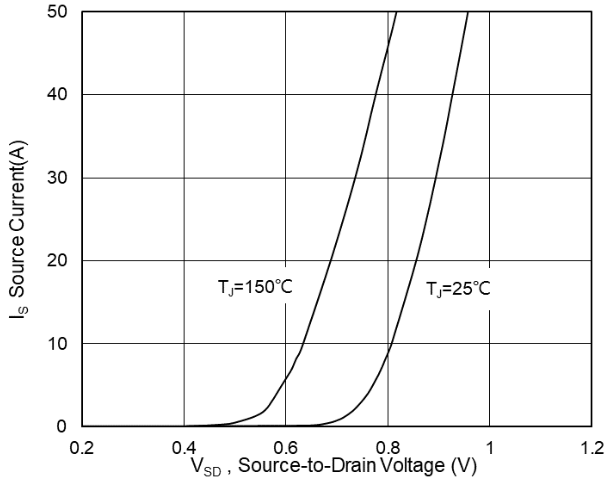


Fig.3 Source Drain Forward Characteristics

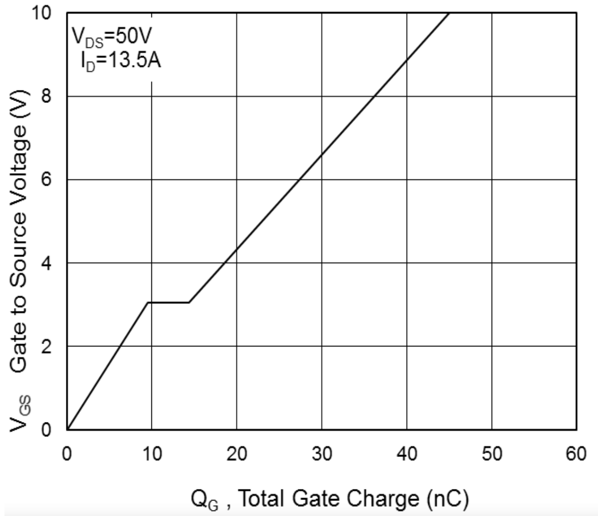


Fig.4 Gate-Charge Characteristics

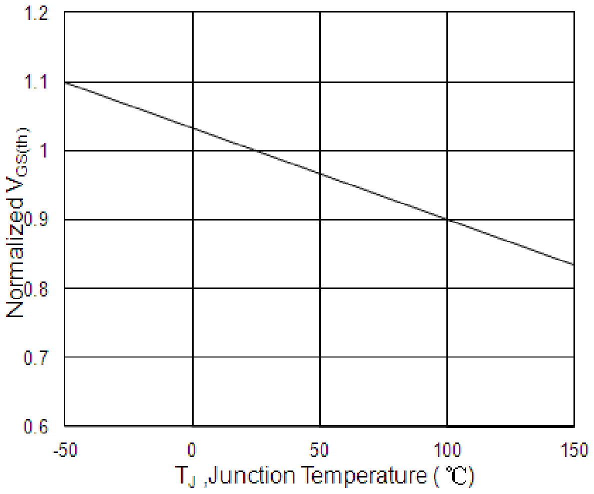


Fig.5 Normalized $V_{GS(th)}$ vs T_J

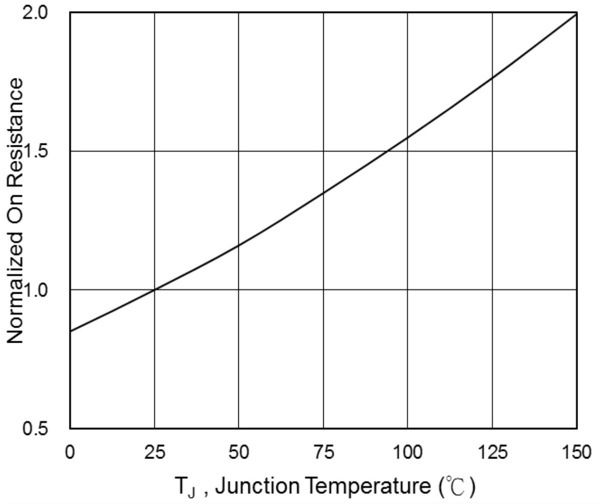


Fig.6 Normalized R_{DSON} vs T_J

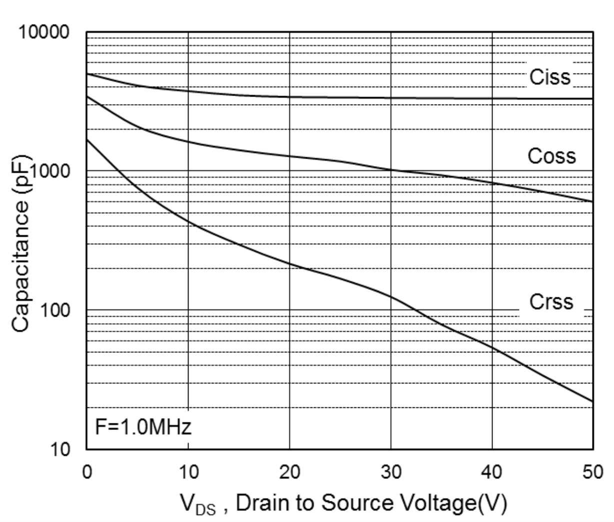


Fig.7 Capacitance

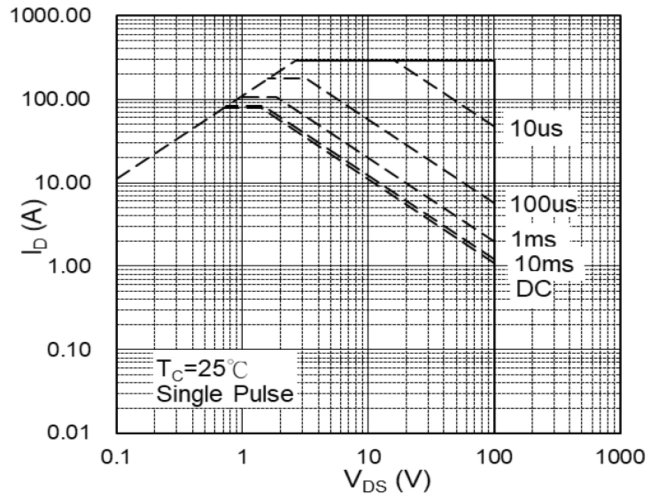


Fig.8 Safe Operating Area

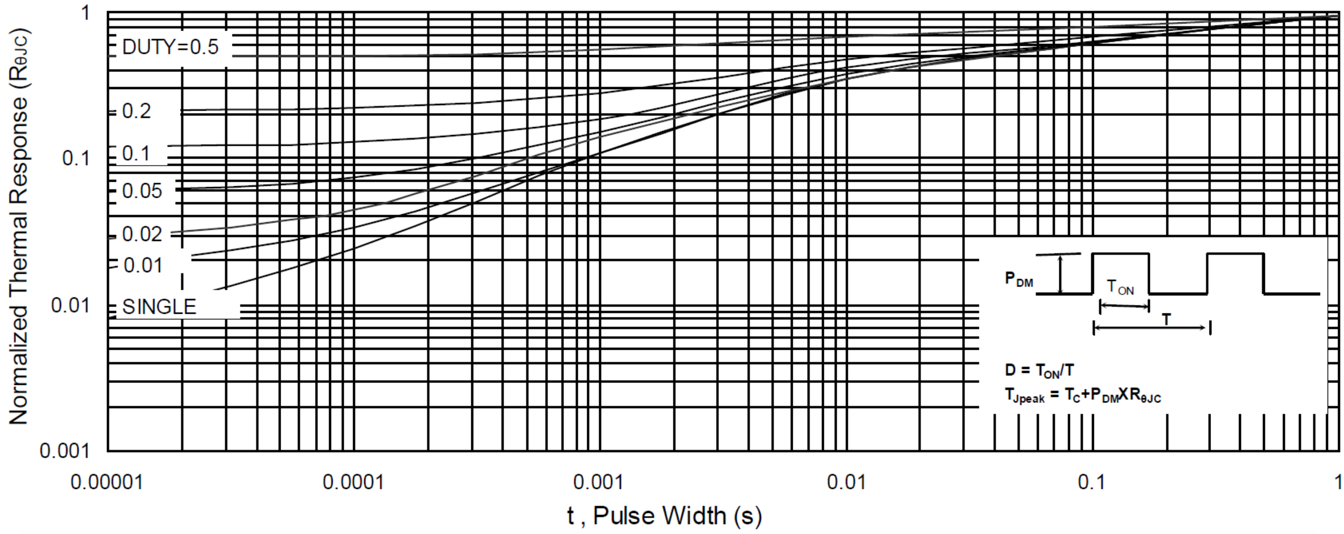


Fig.9 Normalized Maximum Transient Thermal Impedance

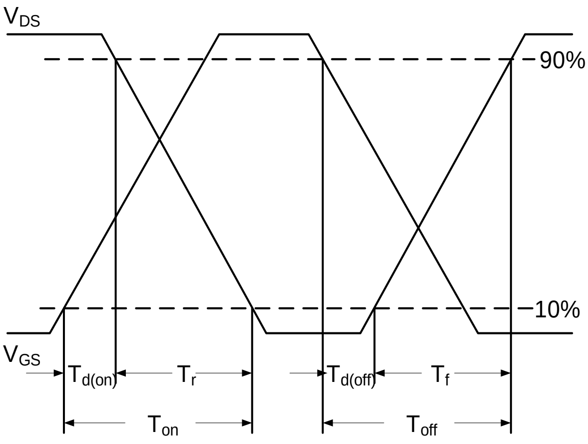


Fig.10 Switching Time Waveform

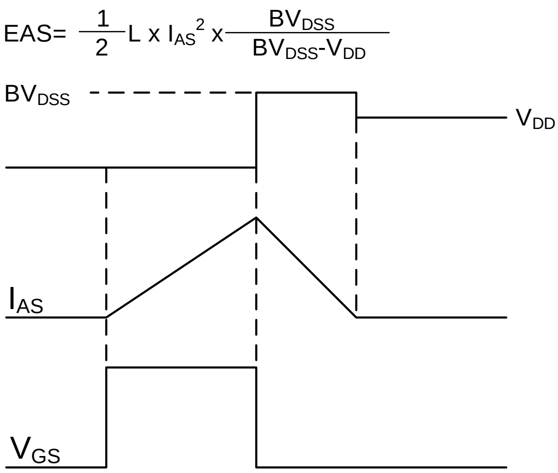


Fig.11 Unclamped Inductive Waveform

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