30V N -Channel Enhancement Mode MOSFET

WGN08V30

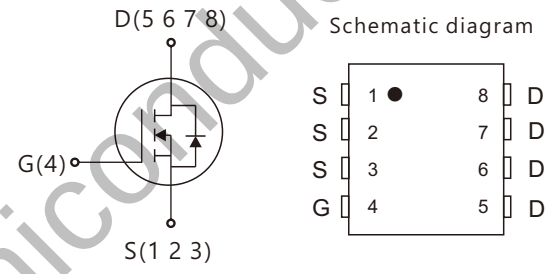
PDFN5X6

RoHS COMPLIANT



Features:

- ☐ Low Intrinsic Capacitances.
- ☐ Excellent Switching Characteristics.
- ☐ Extended Safe Operating Area.
- ☐ Unrivalled Gate Charge :Qg=12.8 nC (Typ.).
- ☐ VDSS=30 V,I_D=50A
- ☐ R_{DS}(on) : 5.8 mΩ (Typ) @V_G=10V
- ☐ 100% Avalanche Tested



Absolute Maximum Ratings (T_C=25℃unless otherwise noted)

Symbol	Parameter	Rating	Units
VDS	Drain-Source Voltage	30	V
VGS	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current, V_{GS} @ 10V[1]	50	A
I_D@T_C=100℃	Continuous Drain Current, V_{GS} @ 10V[1]	30	A
IDM	Pulsed Drain Current[2]	92	A
EAS	Single Pulse Avalanche Energy[3]	57.8	mJ
IAS	Avalanche Current	34	A
P_D@T_C=25℃	Total Power Dissipation[4]	29	W
TSTG	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃
RθJA	Thermal Resistance Junction-ambient [1]	62	℃/W
RθJC	Thermal Resistance Junction-Case[1]	4.32	℃/W

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Electrical Characteristics (TC=25℃unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BVDSS	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	30	33	---	V
RDS(ON)	Static Drain-Source On-Resistance[2]	V_{GS}=10V , I_D=15A	---	5.8	8.0	mΩ
		V_{GS}=4.5V , I_D=15A	---	8.0	13	
VGS(th)	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	1.0	1.6	2.5	V
△VGS(th)	$V_{GS(th)}$ Temperature Coefficient		---	-5.8	---	mV/℃
IDSS	Drain-Source Leakage Current	V_{DS}=24V , V_{GS}=0V , T_J=25℃	---	---	1	uA
		V_{DS}=24V , V_{GS}=0V , T_J=55℃	---	---	5	
IGSS	Gate-Source Leakage Current	V_{GS}=±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=5V , I_D=15A	---	9.8	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	1.7	---	Ω
Q_g	Total Gate Charge (4.5V)	V_{DS}=20V , V_{GS}=4.5V , I_D=12A	---	12.8	---	nC
Qgs	Gate-Source Charge		---	3.3	---	
Qgd	Gate-Drain Charge		---	6.5	---	
Td(on)	Turn-On Delay Time	V_{DD}=12V , V_{GS}=10V , R_G=3.3Ω I_D=5A	---	4.5	---	ns
T_r	Rise Time		---	10.8	---	
Td(off)	Turn-Off Delay Time		---	25.5	---	
T_f	Fall Time		---	9.6	---	
Ciss	Input Capacitance	V_{DS}=15V , V_{GS}=0V , f=1MHz	---	1317	---	pF
Coss	Output Capacitance		---	163	---	
Crss	Reverse Transfer Capacitance		---	131	---	
IS	Continuous Source Current[1,6]	V_G=V_D=0V , Force Current	---	---	46	A
ISM	Pulsed Source Current[2,6]		---	---	92	A
VSD	Diode Forward Voltage[2]	V_{GS}=0V , I_S=1A , T_J=25℃	---	---	1	V

Note :

1、The data tested by surface mounted on a 1 inch2 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 VDD=25V,VGS=10V,L=0.1mH,IAS=34A

4、The power dissipation is limited by 150℃ junction temperature

5、The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation.

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Typical Characteristics

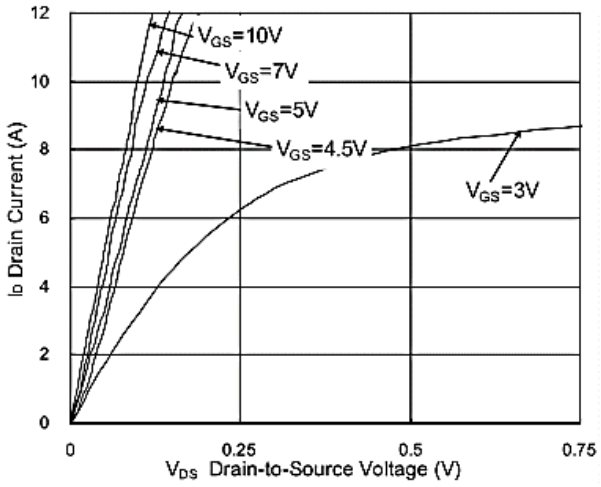


Fig.1 Typical Output Characteristics

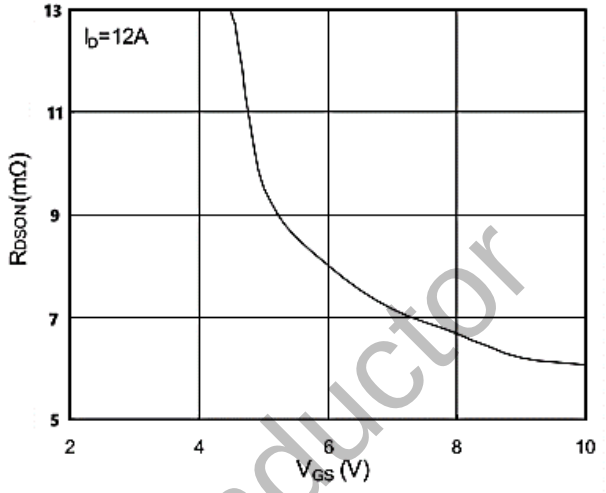


Fig.2 On-Resistance vs. G-S Voltage

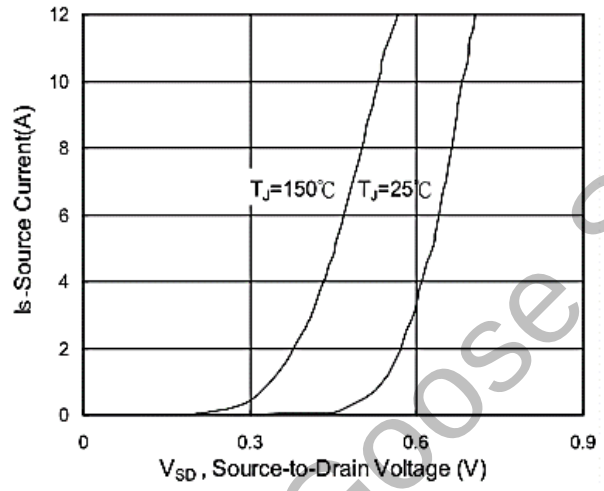


Fig.3 Forward Characteristics of Reverse

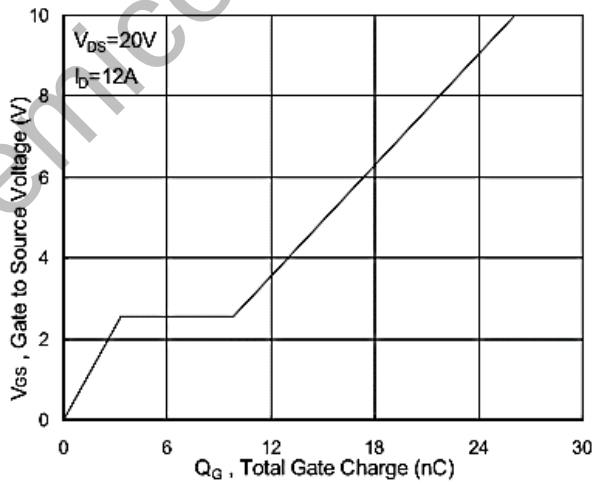


Fig.4 Gate-Charge Characteristics

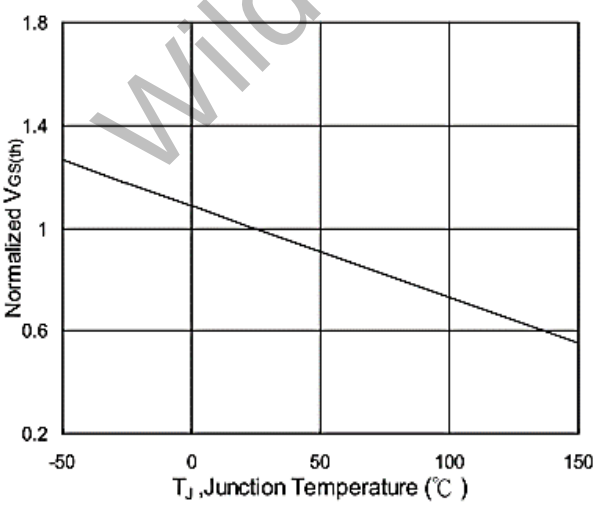


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

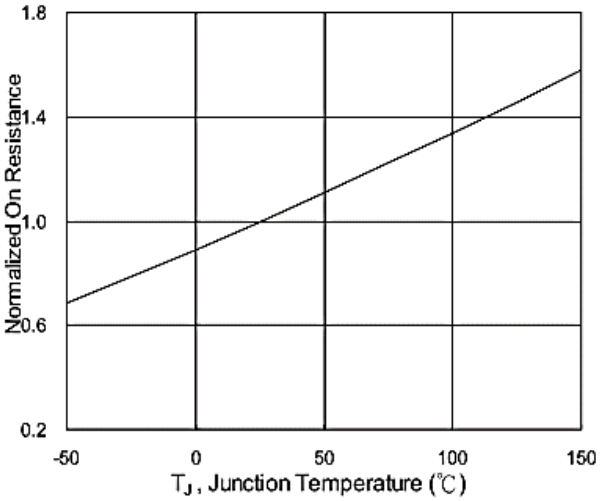


Fig.6 Normalized R_{DSON} vs. T_J

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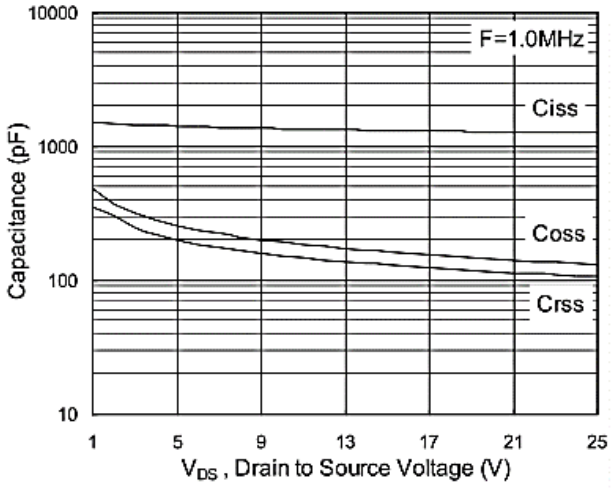


Fig.7 Capacitance

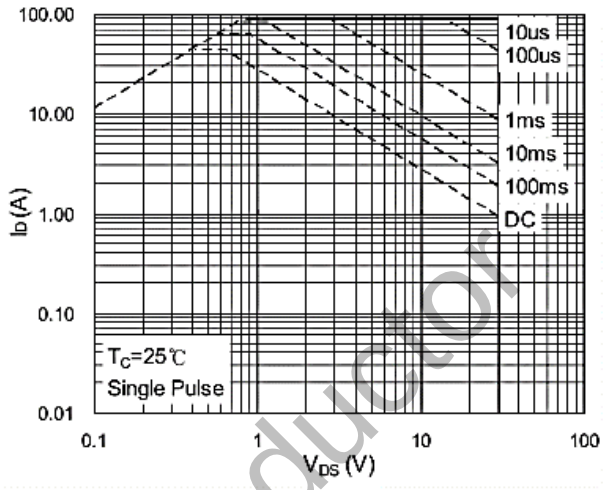


Fig.8 Safe Operating Area

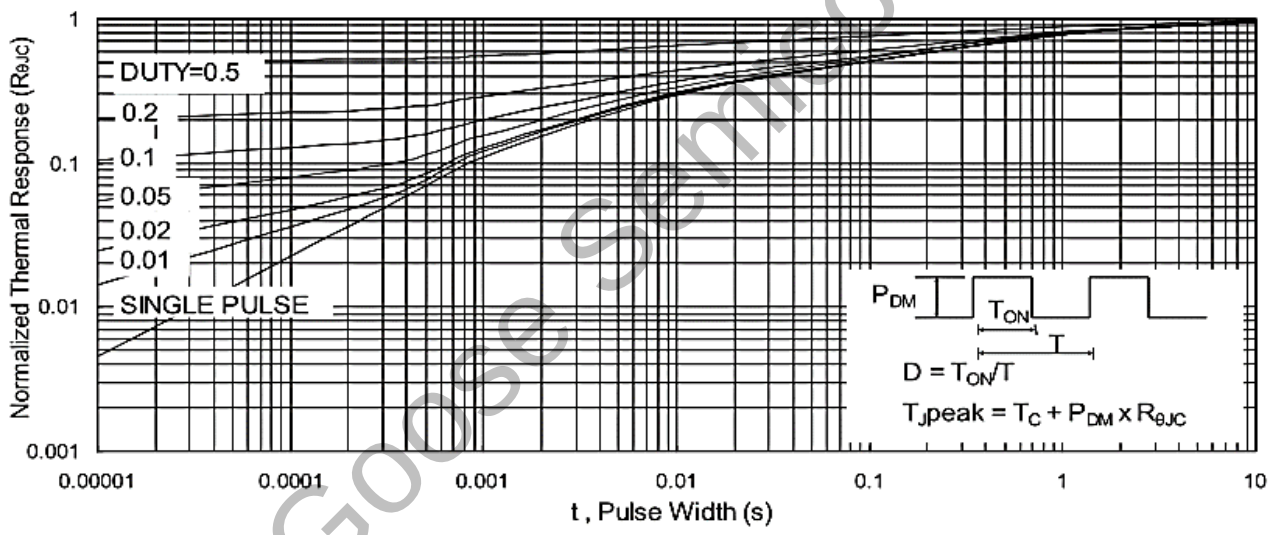


Fig.9 Normalized Maximum Transient Thermal Impedance

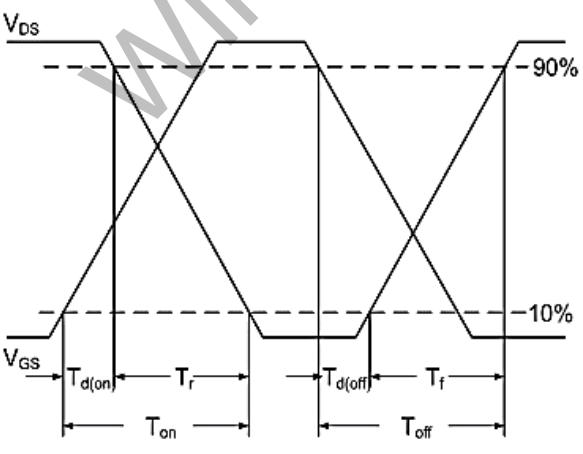


Fig.10 Switching Time Waveform

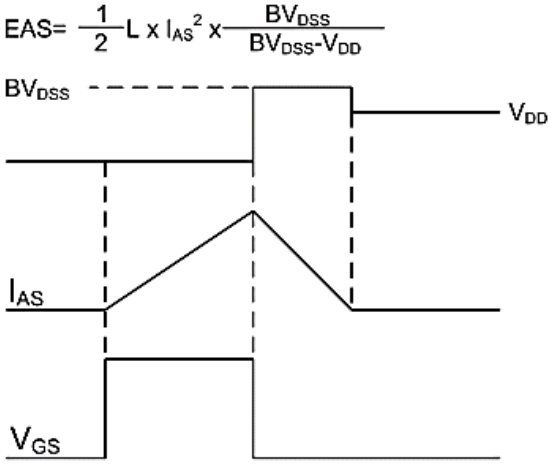


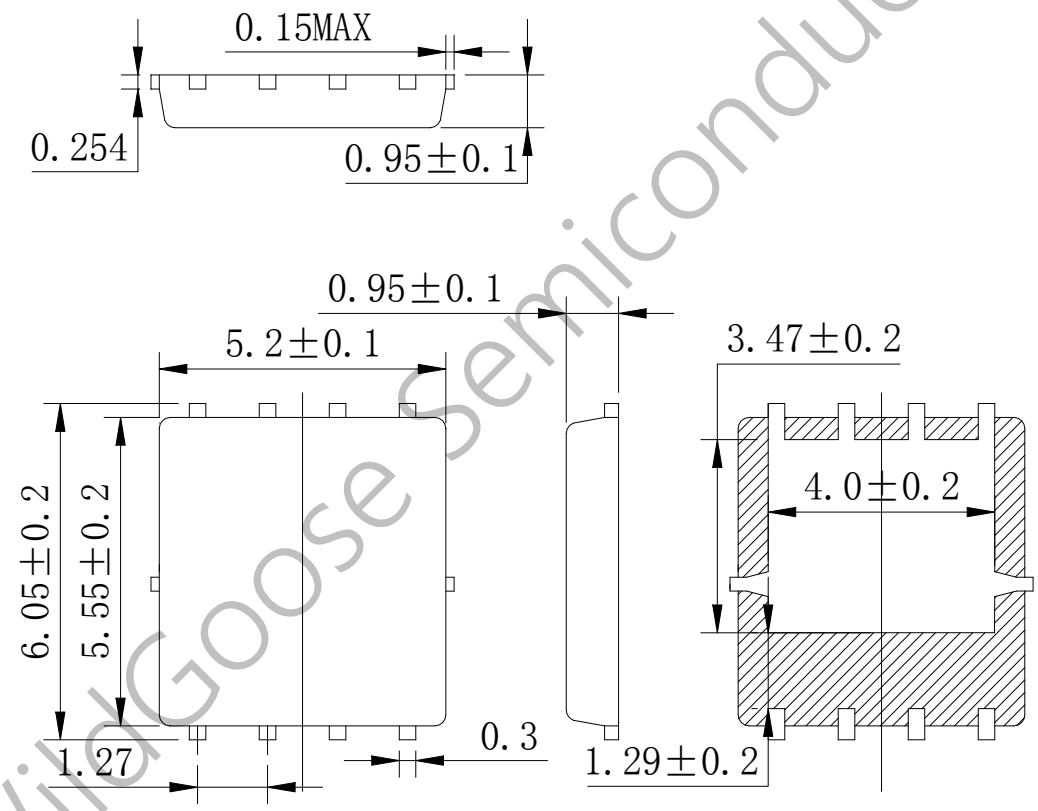
Fig.11 Unclamped Inductive Switching Waveform

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Package Dimension

PDFN5X6-8L（模一）

Unit:mm

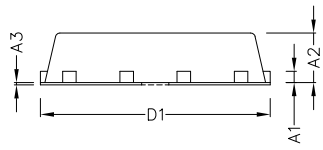


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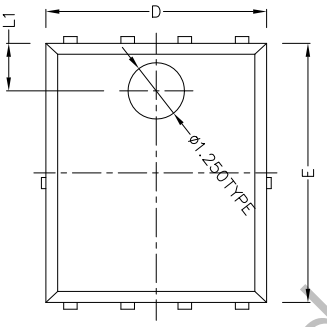
Package Dimension

PDFN5X6-8L（模二）

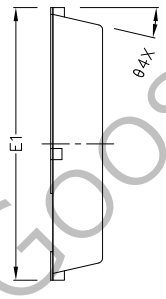
Unit:mm



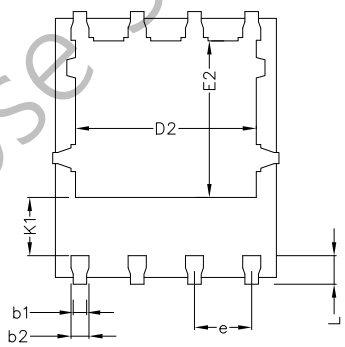
SIDE VIEW



TOP VIEW



SIDE VIEW



BOTTOM VIEW
OPTION 1

COMMON DIMENSIONS
(UNITS OF MEASURE IS mm)

	MIN	NORMAL	MAX
A1		0.254 BSC	
A2	1.000	1.100	1.200
A3	0.005	–	0.020
b1	0.250	0.300	0.350
b2	0.350	0.400	0.450
D	4.600	4.900	5.000
D1	5.000	5.100	5.200
D2	3.910	4.010	4.110
D3	1.605	1.705	1.805
E	5.650	5.750	5.850
E1	5.950	6.050	6.150
E2	3.375	3.475	3.575
e		1.270 TYPE	
L	0.530	0.630	0.730
L1		1.00REF	
θ		13° TYPE	
K		0.600 REF	
K1		1.235 REF	

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