★ 100% EAS Guaranteed
★ Green Device Available
★ Super Low Gate Charge
★ Excellent CdV/dt effect decline
★ Advanced high cell density Trench technology

Product Summary

| BVDSS	RDSON	ID
-30V	16mΩ	-32A

PDFN3333-8L Pin Configuration

Description

The XXW3419D is the highest performance trench P-ch MOSFETs with extreme high cell density, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications .

The XXW3419D meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.
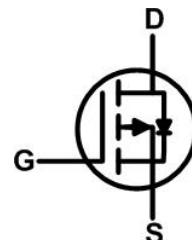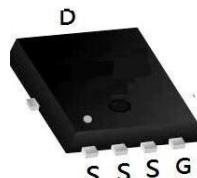
Absolute Maximum Ratings

Symbol	Parameter	Rating		Units
		10s	Steady State	
V_{DS}	Drain-Source Voltage	-30		V
V_{GS}	Gate-Source Voltage	±20		V
$I_D@T_C=25°C$	Continuous Drain Current, V_{GS} @ -10V[1]	-32		A
$I_D@T_C=100°C$	Continuous Drain Current, V_{GS} @ -10V[1]	-20		A
I_{DM}	Pulsed Drain Current[2]	-65		A
EAS	Single Pulse Avalanche Energy[3]	72.2		mJ
I_{AS}	Avalanche Current	-38		A
$P_D@T_C=25°C$	Total Power Dissipation[4]	29		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]	---	75	°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	-30	---	---	V
△BV$_{DSS}$/△T$_J$	BV$_{DSS}$ Temperature Coefficient	Reference to 25℃ , I$_D$=-1mA	---	-0.022	---	V/℃
R$_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V$_{GS}$=-10V , I$_D$=-15A	---	16	20	mΩ
		V$_{GS}$=-4.5V , I$_D$=-10A	---	22	32	
V$_{GS(th)}$	Gate Threshold Voltage	V$_{GS}$=V$_{DS}$, I$_D$ =-250uA	-1.0	---	-2.5	V
△V$_{GS(th)}$	V$_{GS(th)}$ Temperature Coefficient		---	4.6	---	mV/℃
I$_{DSS}$	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	
I$_{GSS}$	Gate-Source Leakage Current	V$_{GS}$=±25V , V$_{DS}$=0V	---	---	±100	nA
R$_g$	Gate Resistance	V$_{DS}$=0V , V$_{GS}$=0V , f=1MHz	---	13	---	Ω
Q$_g$	Total Gate Charge (-4.5V)	V$_{DS}$=-15V , V$_{GS}$=-4.5V , I$_D$=-15A	---	52	---	nC
Q$_{gs}$	Gate-Source Charge		---	9.8	---	
Q$_{gd}$	Gate-Drain Charge		---	8.3	---	
T$_{d(on)}$	Turn-On Delay Time	V$_{DD}$=-15V , V$_{GS}$=-10V , R$_G$=3.3Ω, I$_D$=-15A	---	13	---	ns
T$_r$	Rise Time		---	15	---	
T$_{d(off)}$	Turn-Off Delay Time		---	198	---	
T$_f$	Fall Time		---	98	---	
C$_{iss}$	Input Capacitance	V$_{DS}$=-15V , V$_{GS}$=0V , f=1MHz	---	1150	---	pF
C$_{oss}$	Output Capacitance		---	150	---	
C$_{rss}$	Reverse Transfer Capacitance		---	134	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I$_S$	Continuous Source Current[1,5]	V$_G$=V$_D$=0V , Force Current	---	---	-32	A
I$_{SM}$	Pulsed Source Current[2,5]		---	---	-65	A
V$_{SD}$	Diode Forward Voltage[2]	V$_{GS}$=0V , I$_S$=-1A , T$_J$=25℃	---	---	-1.2	V

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$_{DD}$=-25V,V$_{GS}$=-10V,L=0.1mH,I$_{AS}$=-38A
4.The power dissipation is limited by 150℃ 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
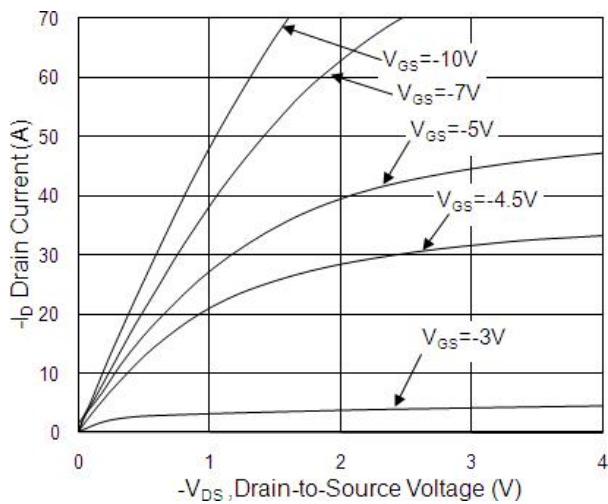
Fig.1 Typical Output Characteristics
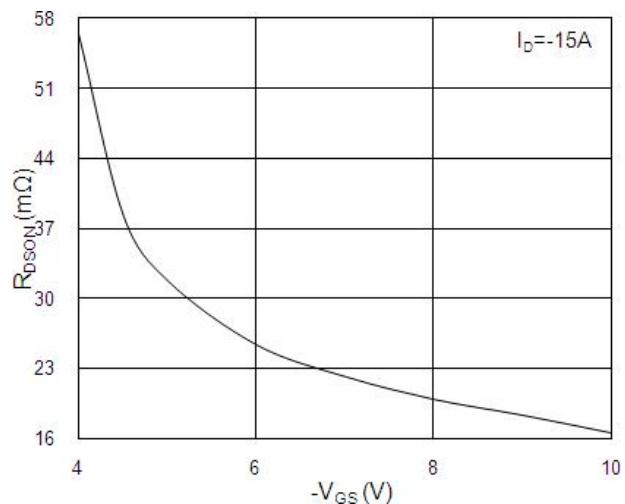
Fig.2 On-Resistance v.s Gate-Source
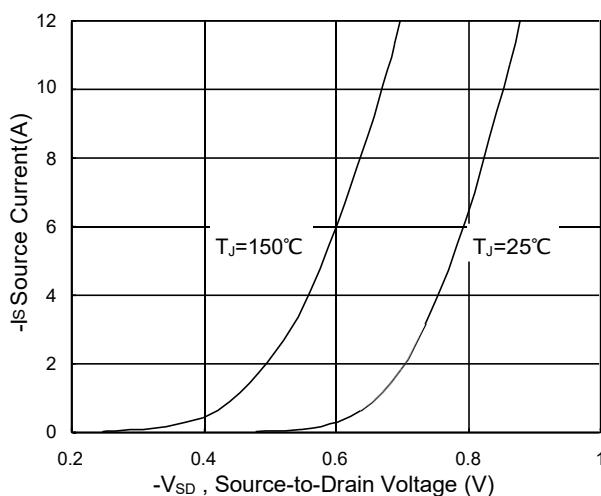
Fig.3 Forward Characteristics of Reverse
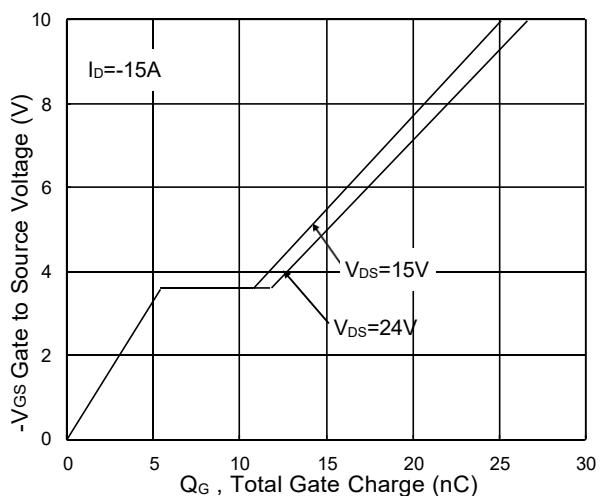
Fig.4 Gate-Charge Characteristics
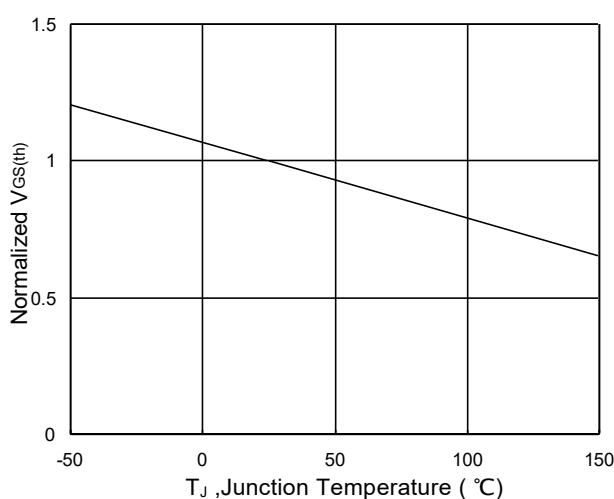
Fig.5 Normalized V$_{GS(th)}$ vs. T$_J$
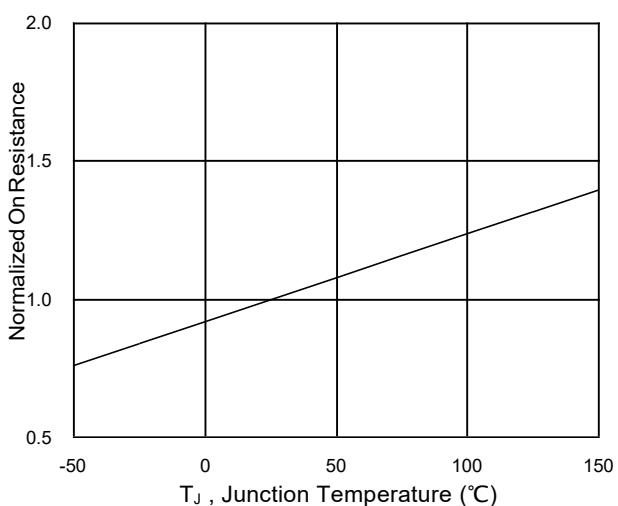
Fig.6 Normalized R$_{DSON}$ vs. T$_J$
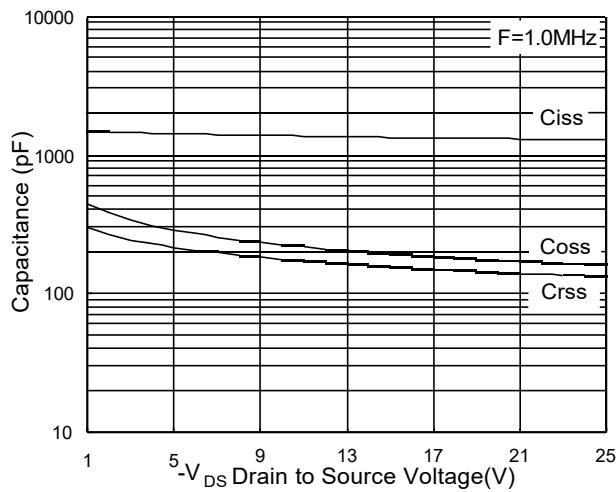
Fig.7 Capacitance
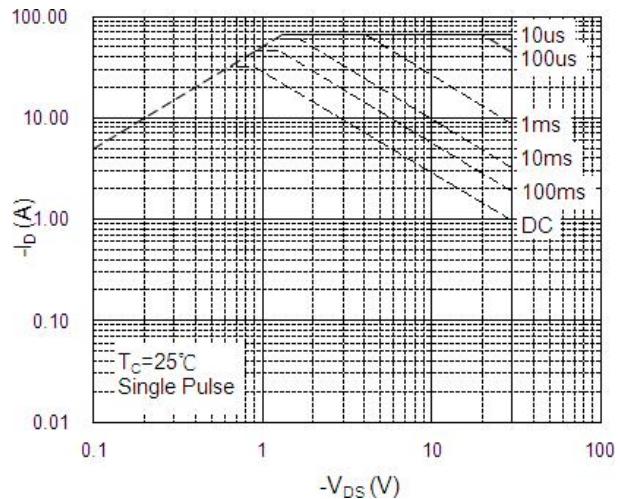
Fig.8 Safe Operating Area
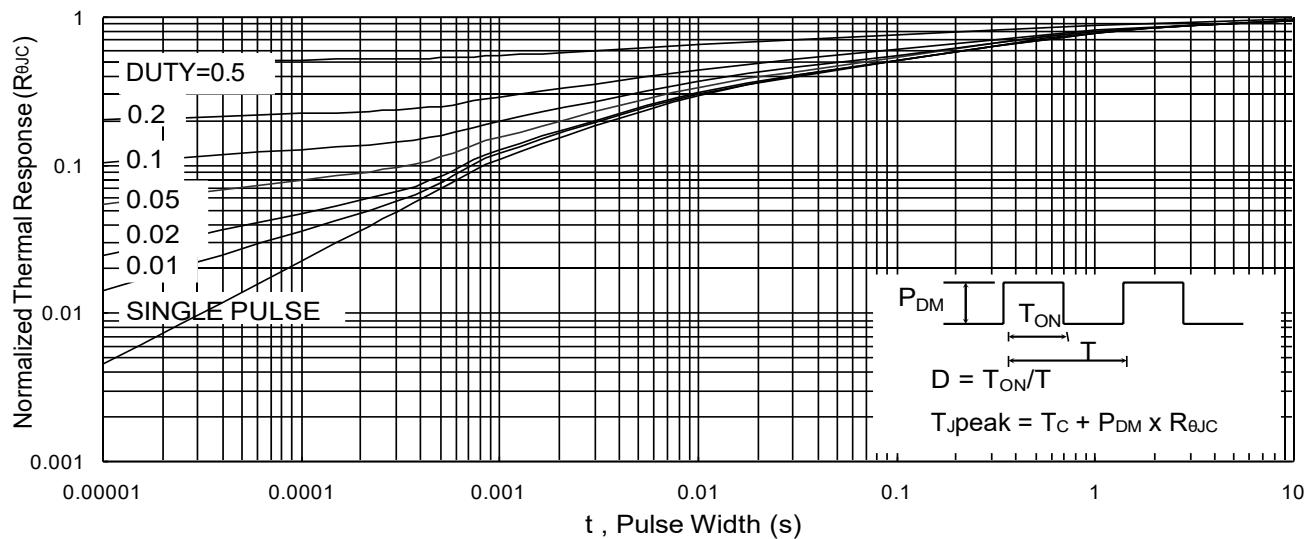
Fig.9 Normalized Maximum Transient Thermal Impedance

$$EAS= \frac{1}{2} L \times (-I_{AS}^2) \times \frac{-BV_{DSS}}{-BV_{DSS}-(-V_{DD})}$$
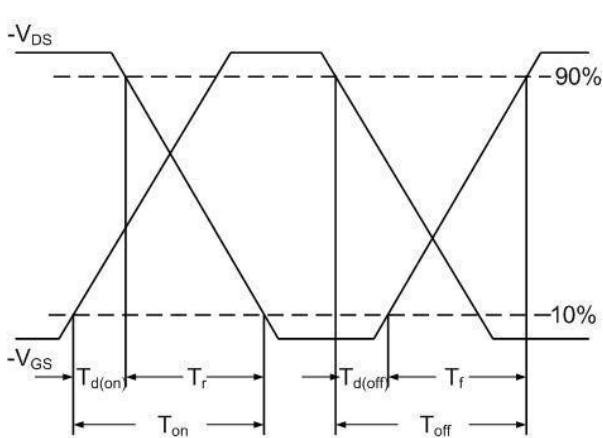
Fig.10 Switching Time Waveform
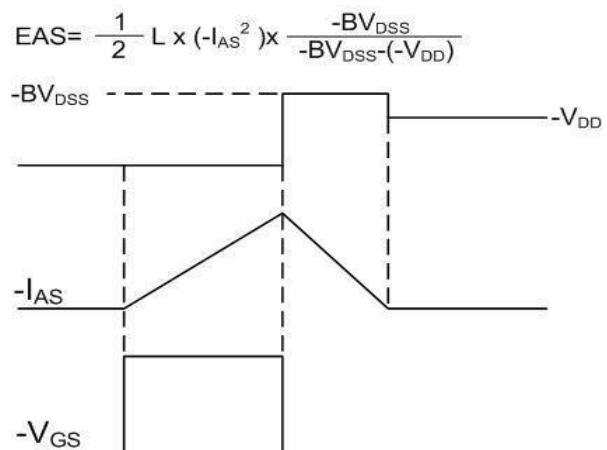
Fig.11 Unclamped Inductive Switching Waveform

Package Mechanical Data-PDFN3333-8L-Single

Top View

Side View

Bottom View

Front View
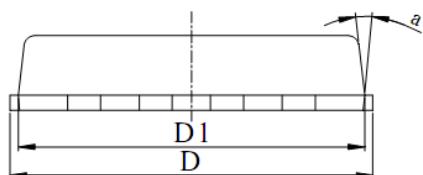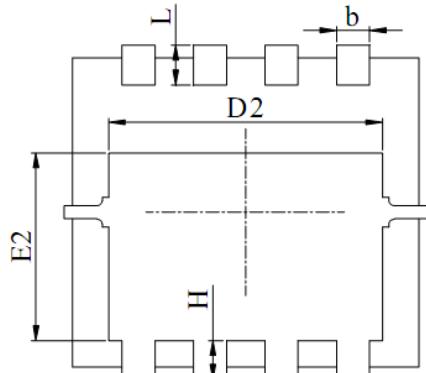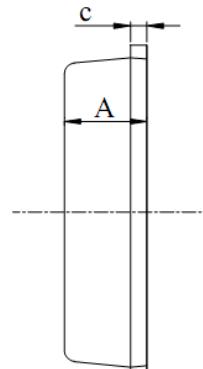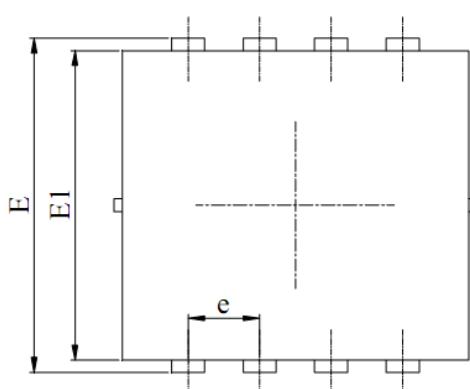
NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M,1994.
2. ALL DIMNESIONS IN MILLIMETER (ANNGLE IN DEGREE).
3. DIMENSIONS D1 AND E1 DO NOT INCLUDE MOLD FLASH PROTRUSIONS OR GATE BURRS.

DIM.	MILLIMETER		
	MIN.	NOM.	MAX.
A	0.70	0.75	0.80
b	0.25	0.30	0.35
c	0.10	0.20	0.25
D	3.00	3.15	3.25
D1	2.95	3.05	3.15
D2	2.39	2.49	2.59
E	3.20	3.30	3.40
E1	2.95	3.05	3.15
E2	1.70	1.80	1.90
e	0.65 BSC		
H	0.30	0.40	0.50
L	0.25	0.40	0.50
a	---	---	15°

DIMENSIONS:MILLIMETERS