

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

Product Summary

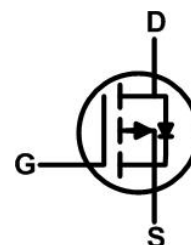
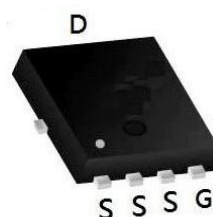


BVDSS	RDSON	ID
-15V	6.3mΩ	-30A

Description

The XR30P01D is the high cell density trench P-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications. The XR30P01D meet the RoHS and Green Product requirement with full function reliability approved.

PDFN3333-8L Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-15	V
V_{GS}	Gate-Source Voltage	± 12	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ -4.5\text{V}^1$	-30	A
$I_D@T_C=70^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ -4.5\text{V}^1$	-18	A
I_{DM}	Pulsed Drain Current ²	-120	A
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation ³	18	W
$P_D@T_C=70^\circ\text{C}$	Total Power Dissipation ³	12	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient ¹	75	$^\circ\text{C/W}$
$R_{\theta JA}$	Thermal Resistance Junction-Ambient ¹ ($t \leq 10\text{s}$)	40	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction-Case ¹	4.2	$^\circ\text{C/W}$

Electrical Characteristics (T_J=25 °C, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =-250uA	-15	---	---	V
ΔBV _{DSS} / ΔT _J	BV _{DSS} Temperature Coefficient	Reference to 25°C , I _D =-1mA	---	-0.012	---	V/°C
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =-4.5V , I _D =-15A	---	6.3	8.5	mΩ
		V _{GS} =-2.5V , I _D =-5A	---	9.3	12.6	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =-250uA	-0.4	-0.7	-1.0	V
ΔV _{GS(th)}	V _{GS(th)} Temperature Coefficient		---	2.94	---	mV/°C
I _{DSS}	Drain-Source Leakage Current	V _{DS} =-12V , V _{GS} =0V , T _J =25°C	---	---	1	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ± 12 V , V _{DS} =0V	---	---	± 100	nA
g _{fs}	Forward Transconductance	V _{DS} =-5V , I _D =-10A	---	43	---	S
Q _g	Total Gate Charge (-4.5V)	V _{DS} =-10V , V _{GS} =-4.5V , I _D =-10A	---	35	---	nC
Q _{gs}	Gate-Source Charge		---	5.0	---	
Q _{gd}	Gate-Drain Charge		---	10	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =-10V , V _{GS} =-4.5V , R _G =3.3Ω, I _D =-10A	---	12.0	---	ns
T _r	Rise Time		---	40.0	---	
T _{d(off)}	Turn-Off Delay Time		---	30	---	
T _f	Fall Time		---	10	---	
C _{iss}	Input Capacitance	V _{DS} =-15V , V _{GS} =0V , f=1MHz	---	2800	---	pF
C _{oss}	Output Capacitance		---	690	---	
C _{rss}	Reverse Transfer Capacitance		---	590	---	

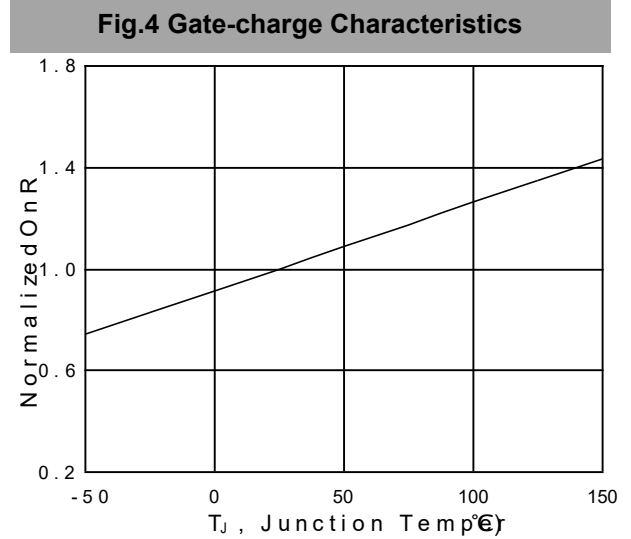
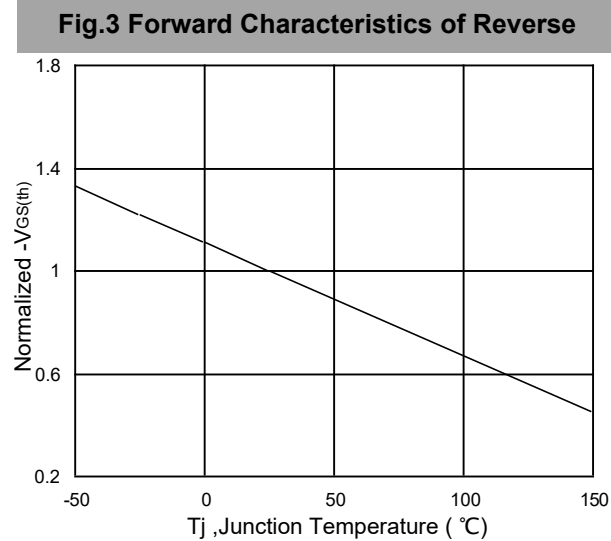
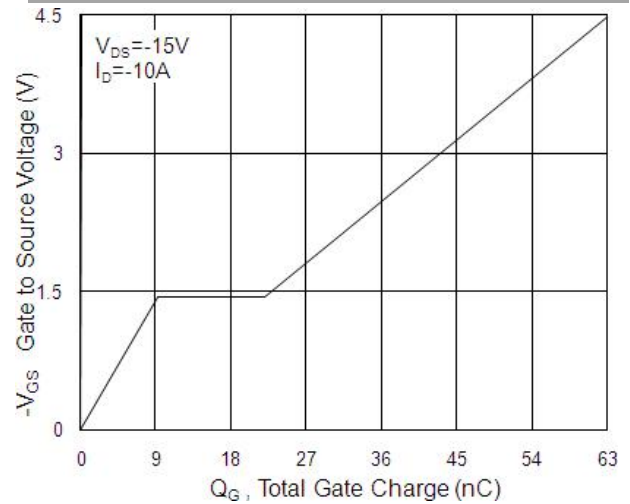
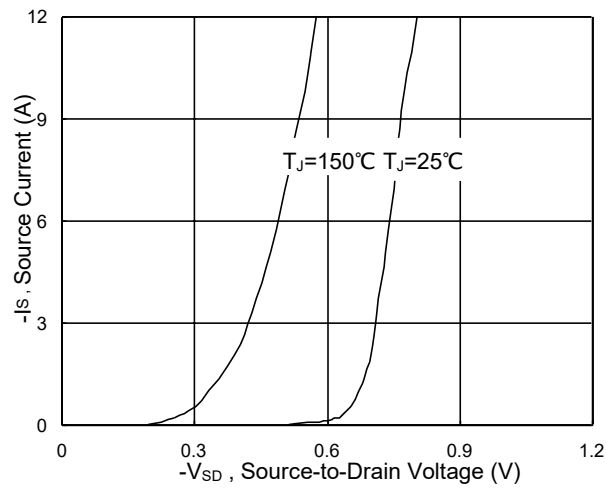
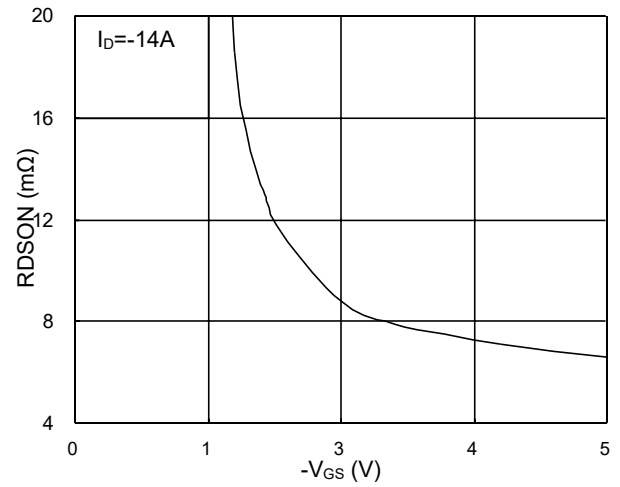
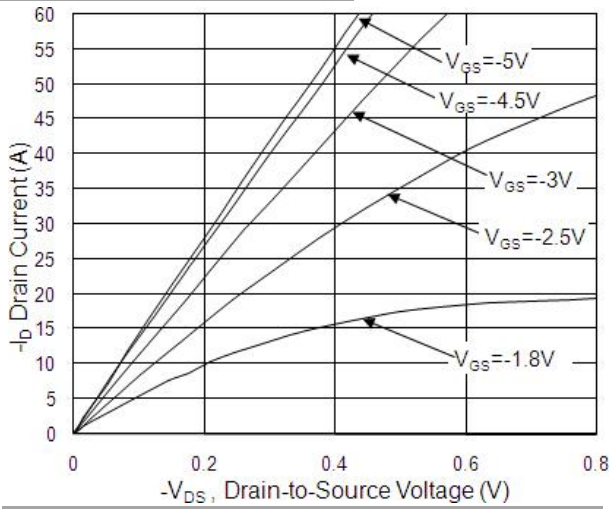
Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current ^{1,4}	V _G =V _D =0V , Force Current	---	---	-30.0	A
I _{SM}	Pulsed Source Current ^{2,4}		---	---	---	A
V _{SD}	Diode Forward Voltage ²	V _{GS} =0V , I _S =-1A , T _J =25°C	---	---	-1.2	V
t _{rr}	Reverse Recovery Time	I _F =-10A , dI/dt=100A/μs , T _J =25°C	---	27	---	nS
Q _{rr}	Reverse Recovery Charge		---	17.8	---	nC

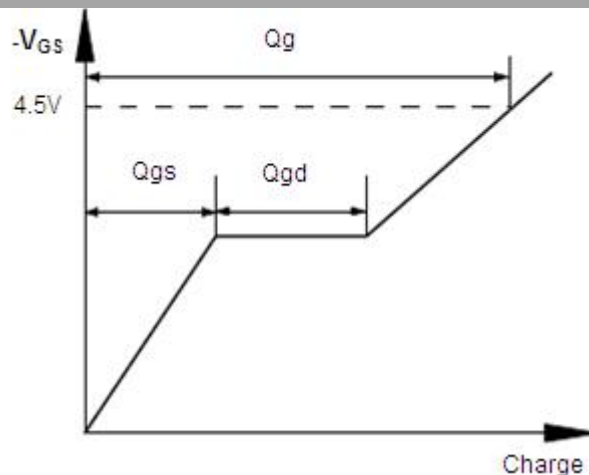
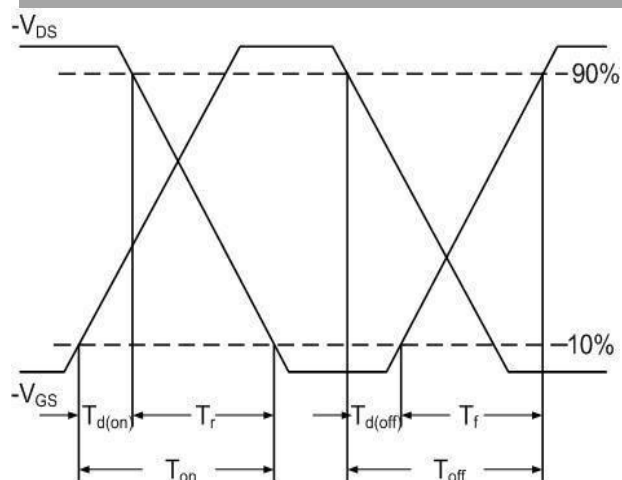
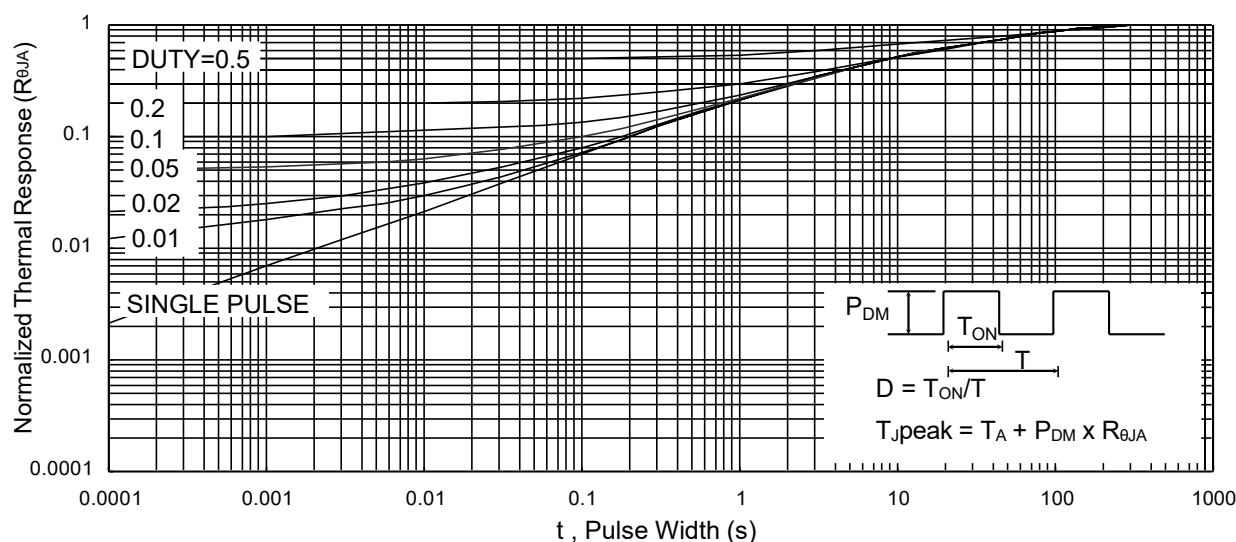
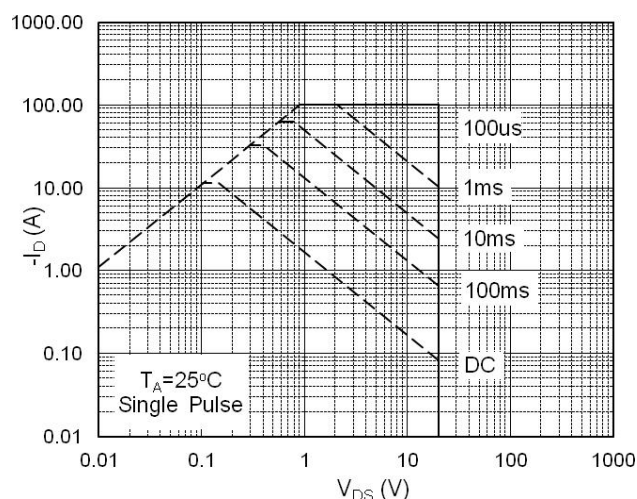
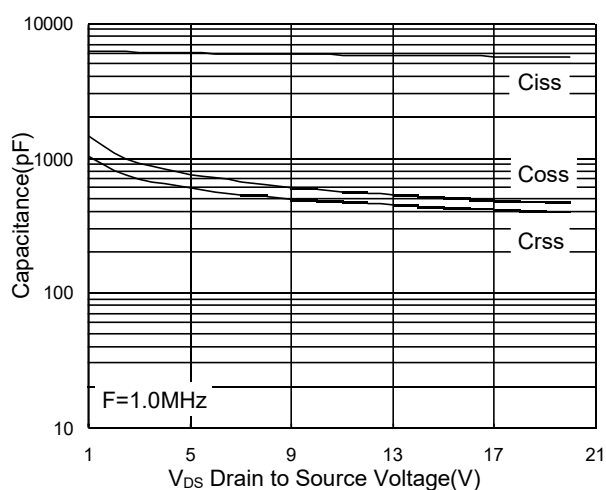
Note :

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 power dissipation is limited by 150°C junction temperature
4. The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

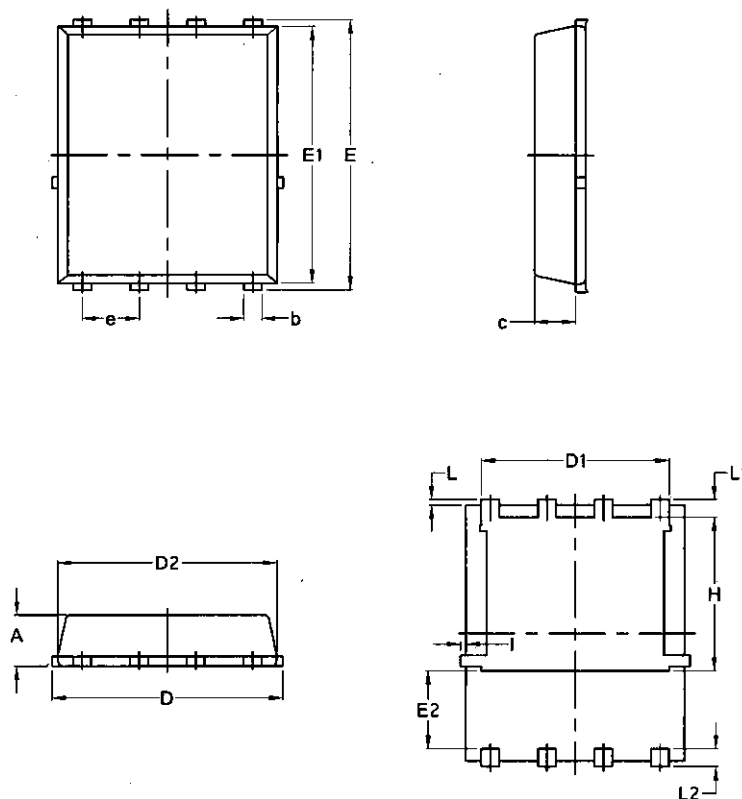
Typical Characteristics



P-Ch 15V Fast Switching MOSFETs



Package Mechanical Data-PDFN3333-8L-Single



COMMON DIMENSIONS

(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	0.70	0.80	0.90
A1	0.00	0.03	0.05
b	0.24	0.30	0.35
c	0.10	0.15	0.20
D	3.25	3.32	3.40
D1	3.05	3.15	3.25
D2	2.40	2.50	2.60
E	3.00	3.10	3.20
E1	1.35	1.45	1.55
e	0.65 BSC.		
H	3.20	3.30	3.40
L	0.30	0.40	0.50
L1	0.10	0.15	0.20
L2	1.13 REF.		