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

Product Summary

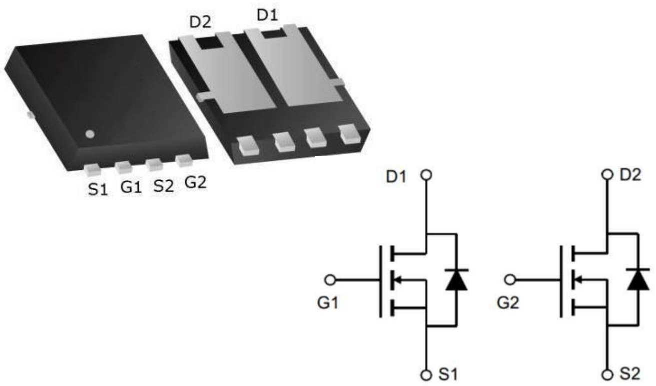
BVDSS	RDSON	ID
30V	10mΩ	30A

Description

The XXW302D is the high cell density trenched N-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

The XXW302D meet the RoHS and Green Product requirement 100% EAS guaranteed with full function reliability approved.

PDFN3333-8L Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_A=25˚C	Continuous Drain Current, V_{GS} @ 10V[1]	30	A
I_D@T_A=70˚C	Continuous Drain Current, V_{GS} @ 10V[1]	18	A
I_{DM}	Pulsed Drain Current[2]	50	A
EAS	Single Pulse Avalanche Energy[3]	24.2	mJ
I_{AS}	Avalanche Current	22	A
P_D@T_A=25˚C	Total Power Dissipation[4]	1.5	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
$R_{\theta JA}$	Thermal Resistance Junction-Ambient [1]	---	85	˚C/W

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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=30V, V_{GS}=0V,	-	-	1.0	μA
I_{GSS}	Gate to Body Leakage Current	V_{DS}=0V, V_{GS}=±20V	-	-	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	1.0	1.5	2.5	V
$R_{DS(on)}$	Static Drain-Source on-Resistance note3	V_{GS}=10V, I_D=10A	-	10	14	mΩ
		V_{GS}=4.5V, I_D=5A	-	18	25	
C_{iss}	Input Capacitance	V_{DS}=15V, V_{GS}=0V, f=1.0MHz	-	614	-	pF
C_{oss}	Output Capacitance		-	118	-	pF
C_{rss}	Reverse Transfer Capacitance		-	98	-	pF
Q_g	Total Gate Charge	V_{DS}=15V, I_D=11A, V_{GS}=10V	-	16	-	nC
Q_{gs}	Gate-Source Charge		-	2.7	-	nC
Q_{gd}	Gate-Drain(“Miller”) Charge		-	4.5	-	nC
$t_{d(on)}$	Turn-on Delay Time	V_{DS}=15V,R_L=1.35Ω, R_{GEN}=3Ω, V_{GS}=10V	-	6	-	ns
t_r	Turn-on Rise Time		-	10	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	30	-	ns
t_f	Turn-off Fall Time		-	6.5	-	ns
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	30	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	60	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS}=0V, I_S=15A	-	-	1.2	V
trr	Body Diode Reverse Recovery Time	I_F=11A,dI/dt=500A/μs	-	7	-	ns
Qrr	Body Diode Reverse Recovery Charge		-	10	-	nC

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current^{1,5}	V_G=V_D=0V , Force Current	---	---	30	A
V_{SD}	Diode Forward Voltage^2	V_{GS}=0V , I_S=1A , T_J=25℃	---	---	1	V
t_{rr}	Reverse Recovery Time	I_F=8A , di/dt=100A/μs , T_J=25℃	---	8	---	nS
Q_{rr}	Reverse Recovery Charge		---	2.9	---	nC

Note :

Typical Performance Characteristics

Figure1: Output Characteristics

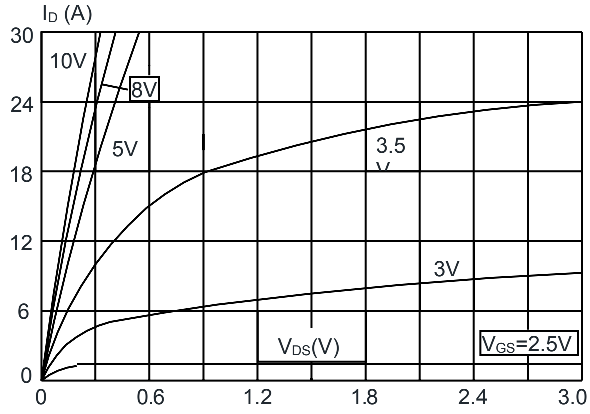


Figure 2: Typical Transfer Characteristics

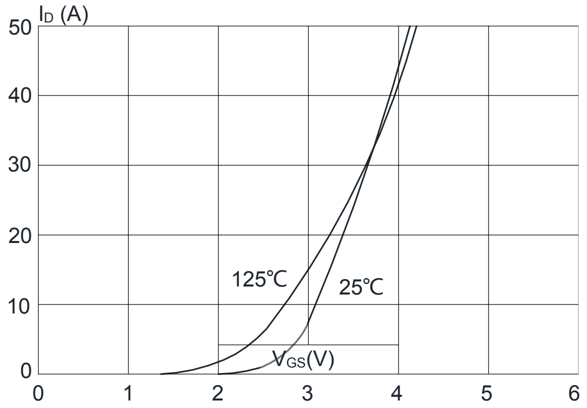


Figure 3: On-resistance vs. Drain Current

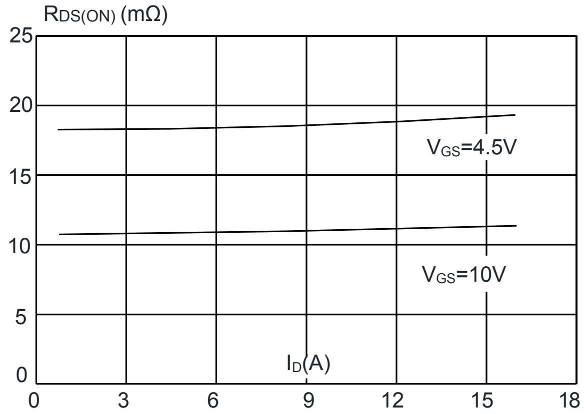


Figure 4: Body Diode Characteristics

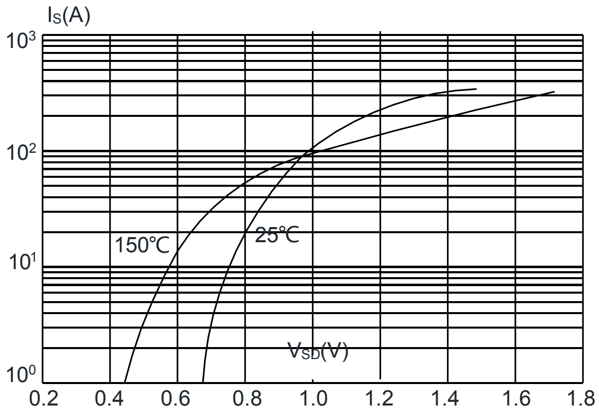


Figure 5: Gate Charge Characteristics

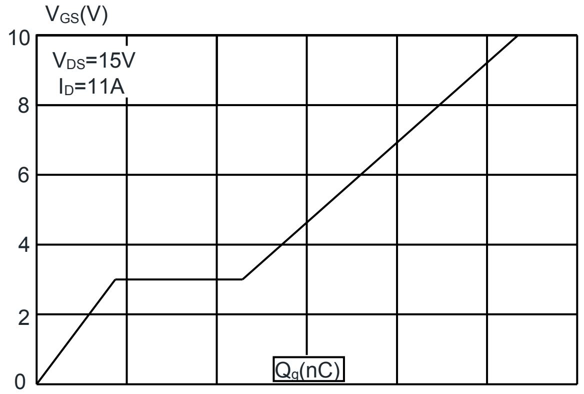


Figure 6: Capacitance Characteristics

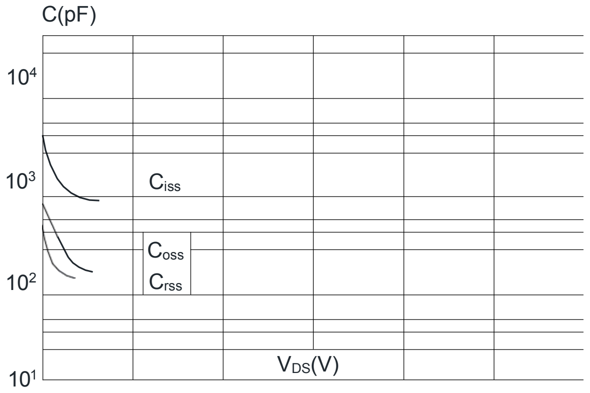


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

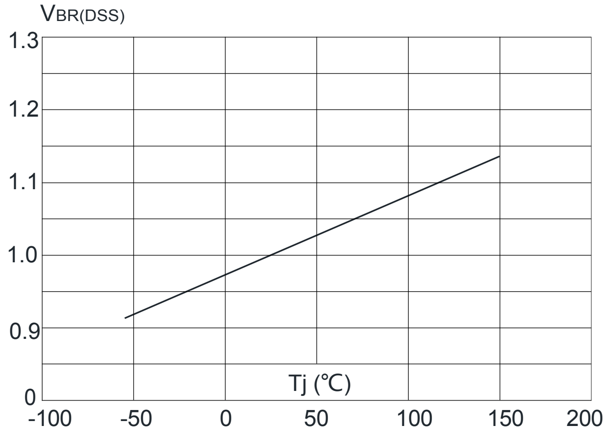


Figure 8: Normalized on Resistance vs. Junction Temperature

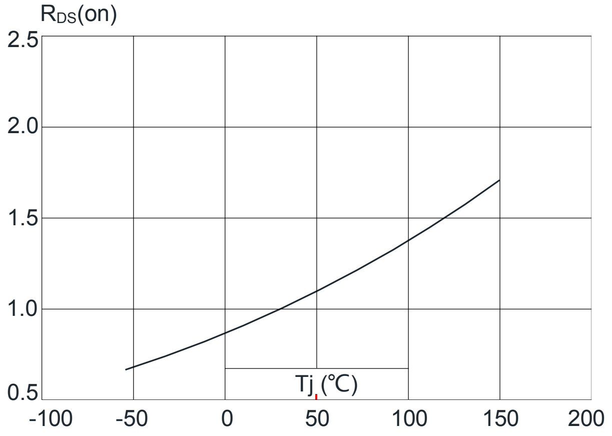


Figure 9: Maximum Safe Operating Area

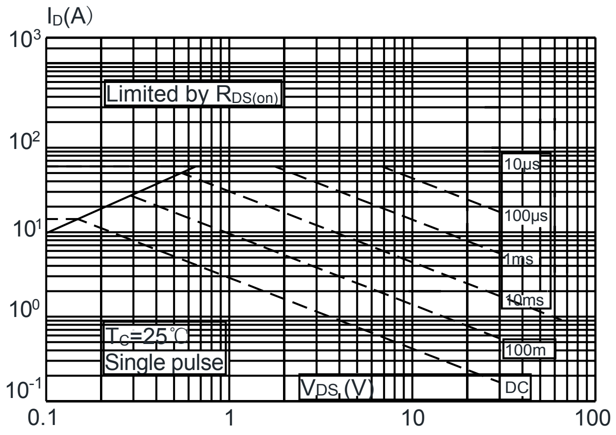


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

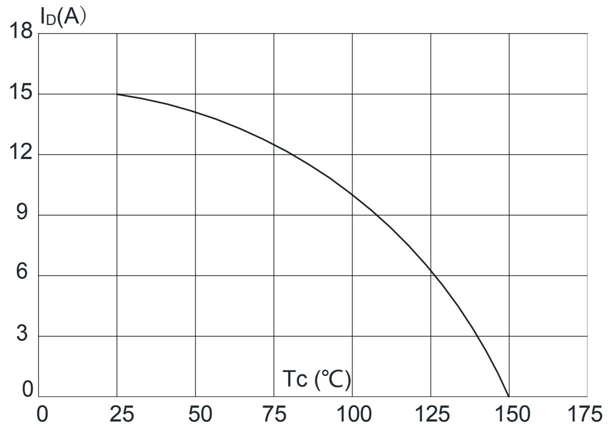
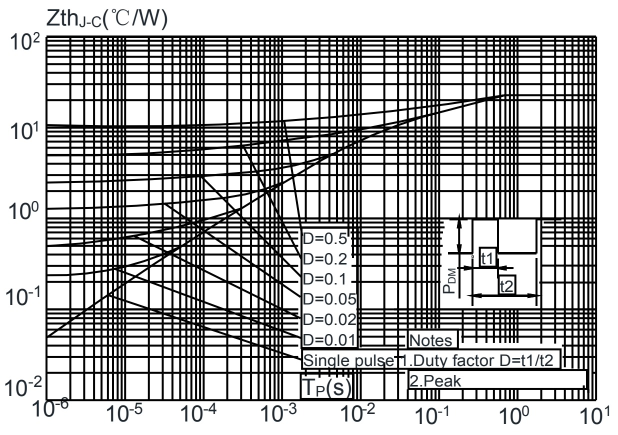
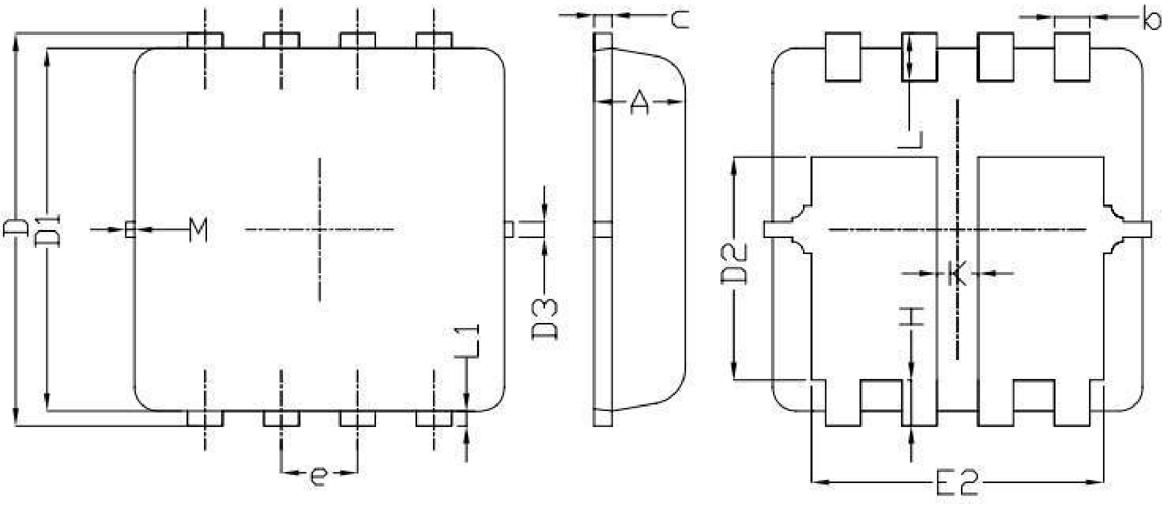
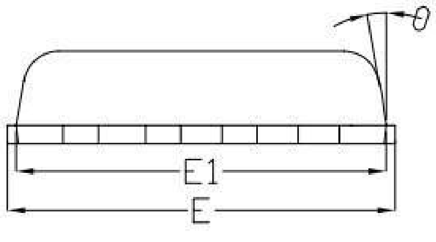


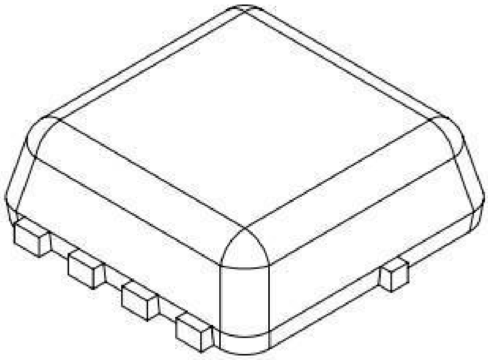
Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



Dual PDFN3333-8L Package Outline Data







Symbol	Dimensions (unit: mm)		
	Min	Typ	Max
A	0.70	0.75	0.80
b	0.25	0.30	0.35
c	0.10	0.15	0.25
D	3.25	3.35	3.45
D1	3.00	3.10	3.20
D2	1.78	1.88	1.98
D3	--	0.13	--
E	3.20	3.30	3.40
E1	3.00	3.15	3.20
E2	2.39	2.49	2.59
e	0.65 BSC		
H	0.30	0.39	0.50
L	0.30	0.40	0.50
L1	--	0.13	--
K	0.30	--	--
θ	--	10°	12°
M	*	*	0.15
* Not Specified			

Notes:

1. Refer to JEDEC MO-240 variation CA.
2. Dimensions "D1" and "E1" do NOT include mold flash protrusions or gate burrs.
3. Dimensions "D1" and "E1" include interterminal flash or protrusion.