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

Product Summary

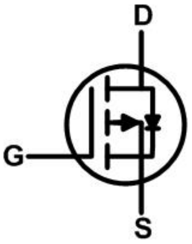
BVDSS	RDSON	ID
-30V	24mΩ	-6.0A

Description

The XXW30P06L is the high cell density trenched P-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

The XXW30P06L meet the RoHS and Green Product requirement

SOT23-3L Pin Configuration



Absolute Maximum Ratings (T$_A$=25℃ unless otherwise specified)

Symbol	Parameter		Max.	Units
V_{DSS}	Drain-Source Voltage		-30	V
V_{GSS}	Gate-Source Voltage		±20	V
I_D	Continuous Drain Current	T_A = 25℃	-6	A
		T_A = 100℃	-4.6	A
I_{DM}	Pulsed Drain Current note1		-18	A
P_D	Power Dissipation	T_A = 25℃	1.5	W
$R_{θJA}$	Thermal Resistance, Junction to Ambient		61.7	℃/W
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +150	℃

Electrical Characteristics (T_J=25℃ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	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	μA
I_{GSS}	Gate to Body Leakage Current	V_{DS}=0V, V_{GS}= ±20V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	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= -7A	-	24	35	mΩ
		V_{GS}= -4.5V, I_D= -4A	-	29	54	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}= -15V, V_{GS}=0V, f=1.0MHz	-	982	-	pF
C_{oss}	Output Capacitance		-	135	-	pF
C_{rss}	Reverse Transfer Capacitance		-	109	-	pF
Q_g	Total Gate Charge	V_{DS}= -15V, I_D= -4A, V_{GS}= -10V	-	10	-	nC
Q_{gs}	Gate-Source Charge		-	2	-	nC
Q_{gd}	Gate-Drain("Miller") Charge		-	2.7	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DD}= -15V, I_D= -7A, V_{GS}= -10V, R_{GEN}=2.5Ω	-	11	-	ns
t_r	Turn-on Rise Time		-	19	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	45	-	ns
t_f	Turn-off Fall Time		-	26	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	-6	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-28	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS}=0V, I_S= -7A	-	-0.8	-1.2	V

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

Typical Performance Characteristics

Figure1: Output Characteristics

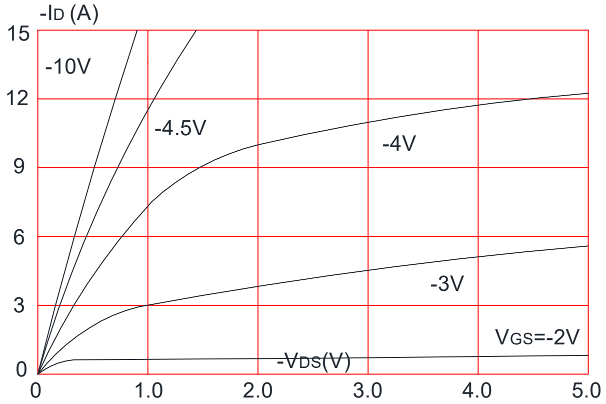


Figure 2: Typical Transfer Characteristics

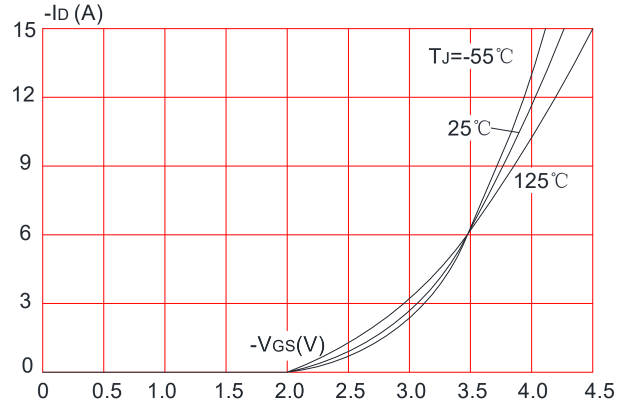


Figure 3: On-resistance vs. Drain Current

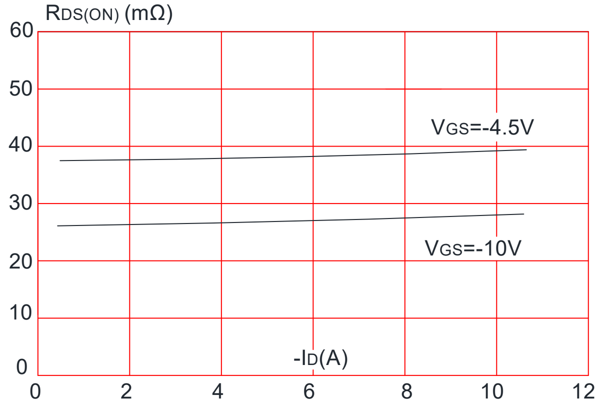


Figure 4: Body Diode Characteristics

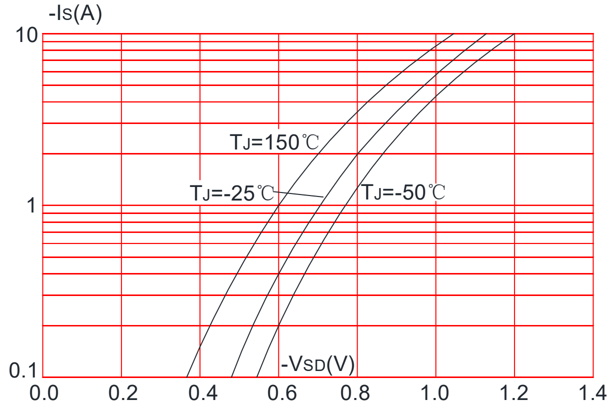


Figure 5: Gate Charge Characteristics

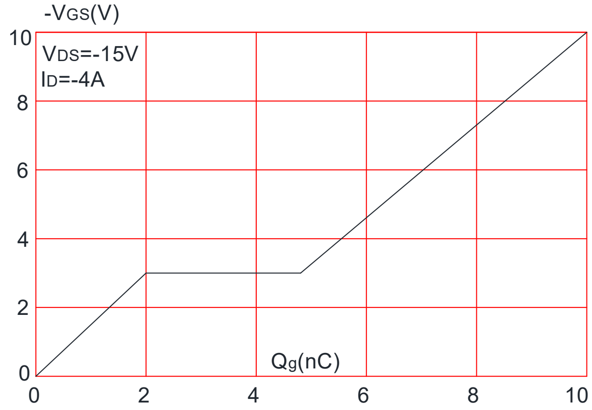


Figure 6: Capacitance Characteristics

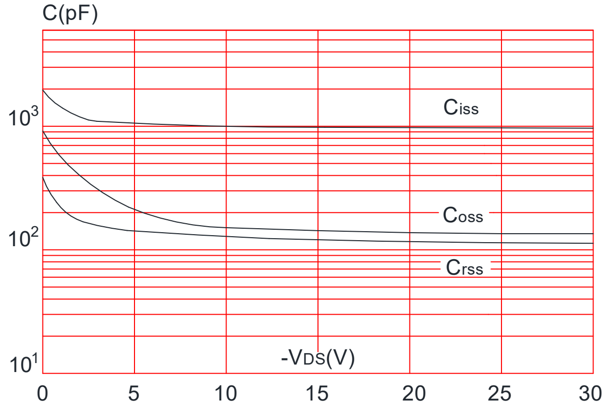


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

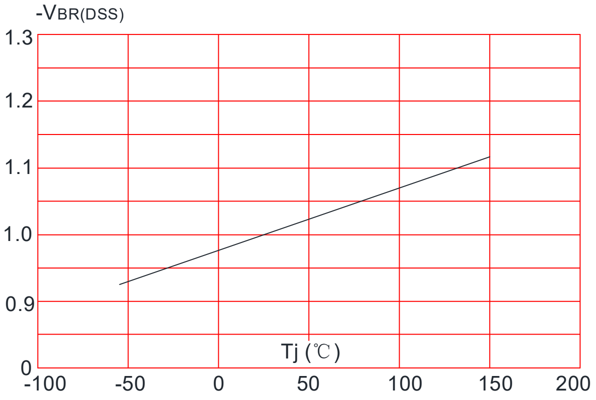


Figure 8: Normalized on Resistance vs. Junction Temperature

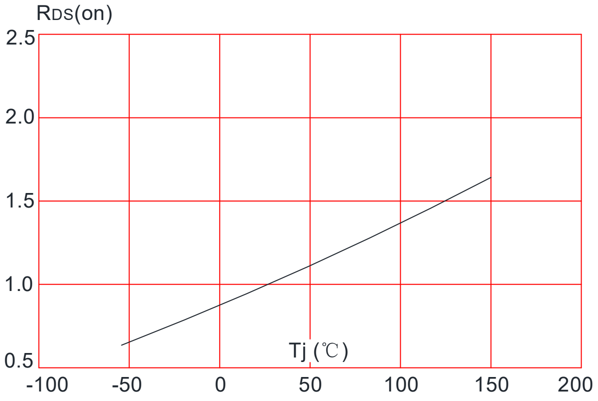


Figure 9: Maximum Safe Operating Area

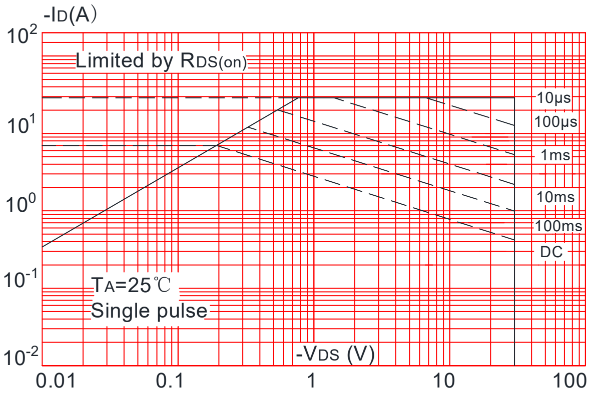
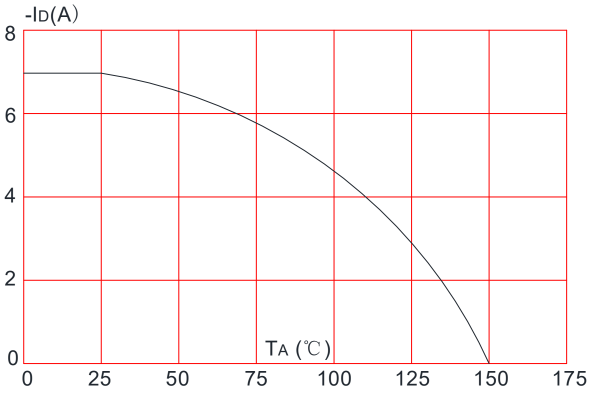
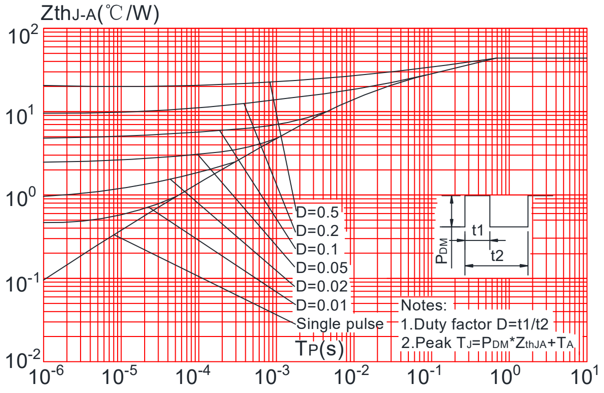


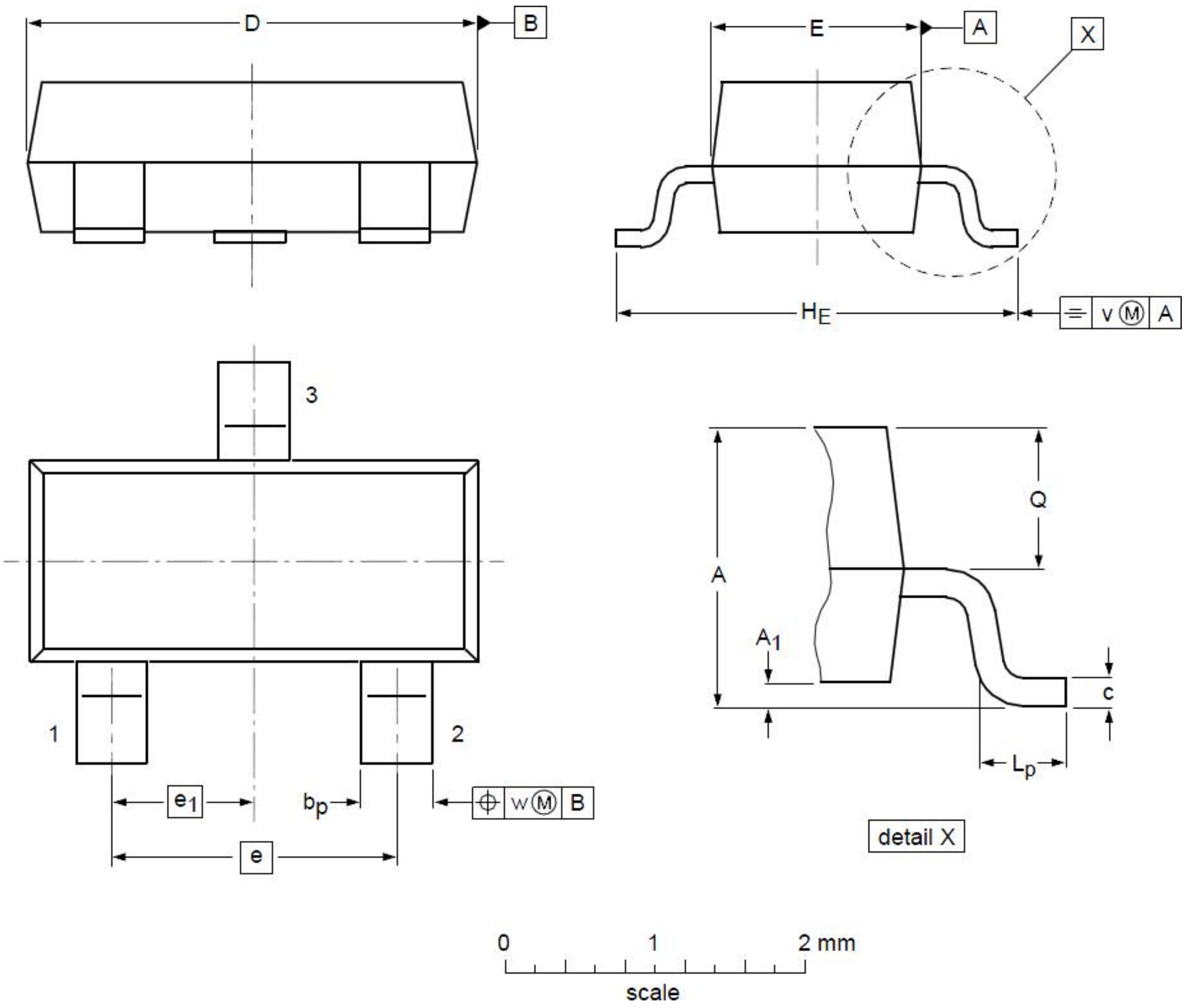
Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature



Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



Package Mechanical Data-SOT-23-3L



DIMENSIONS (unit : mm)

Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	0.90	1.01	1.15	**A_1**	0.01	0.05	0.10
b_p	0.30	0.42	0.50	**c**	0.08	0.13	0.15
D	2.80	2.92	3.00	**E**	1.20	1.33	1.40
e	--	1.90	--	**e_1**	--	0.95	--
H_E	2.25	2.40	2.55	**L_p**	0.30	0.42	0.50
Q	0.45	0.49	0.55	**v**	--	0.20	--
w	--	0.10	--				