

Features

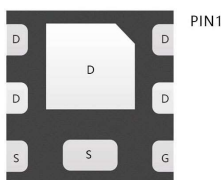
- Trench Power LV MOSFET technology
- High density cell design for Low $R_{DS(ON)}$
- High Speed switching

Product Summary

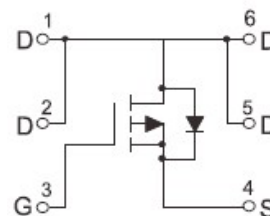
V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
-30V	20mΩ@-10V	-12A
	33mΩ@-4.5V	

Application

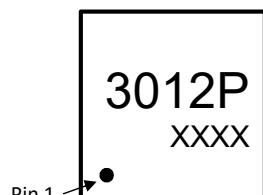
- Battery protection
- Power management
- Load switch



DFN2X2-6L view



Schematic diagram



Marking and pin assignment

3012P: Device code
 XXXX: Code
 Solid dot: Pin1 indicator



Pb-Free



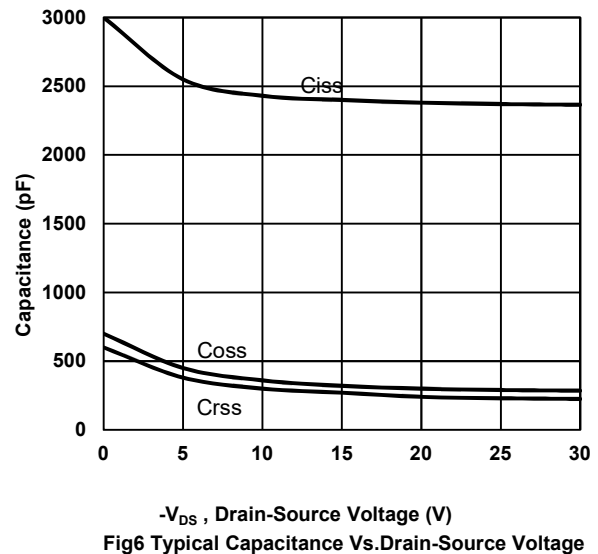
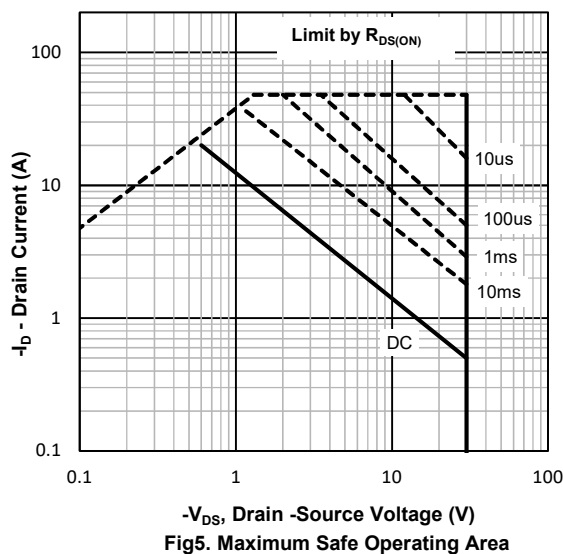
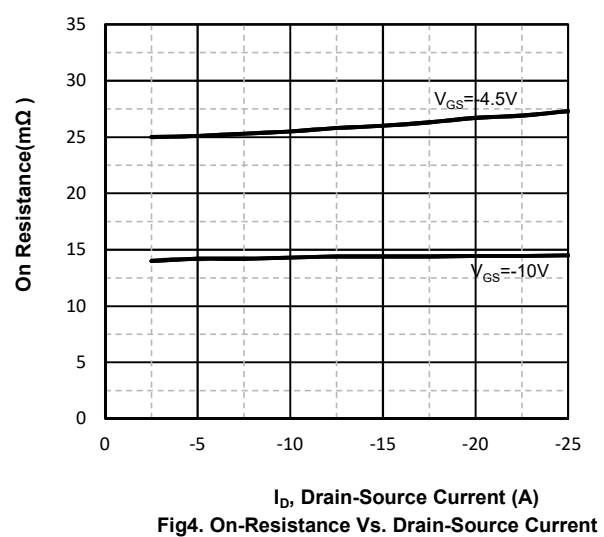
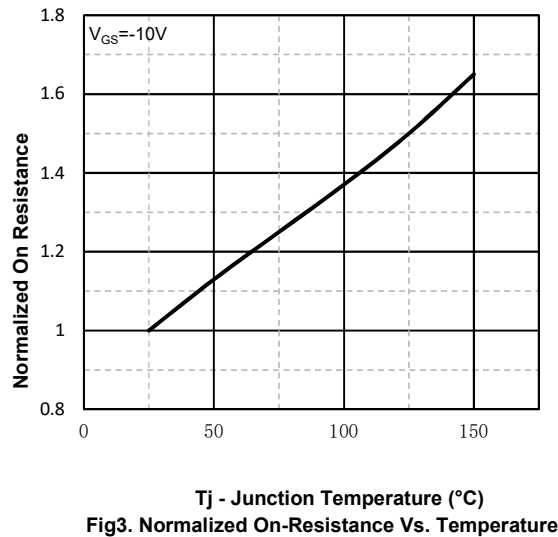
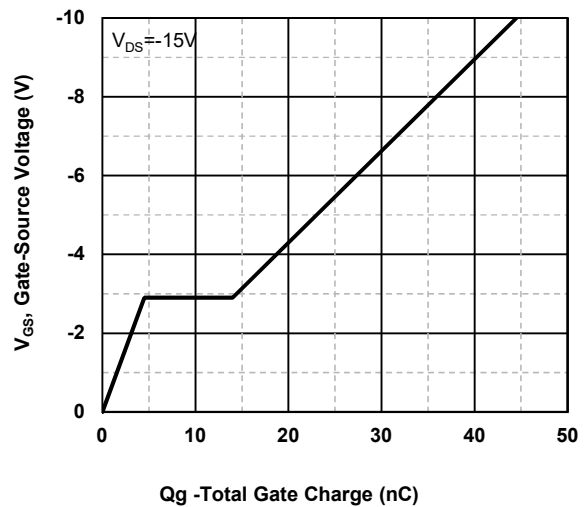
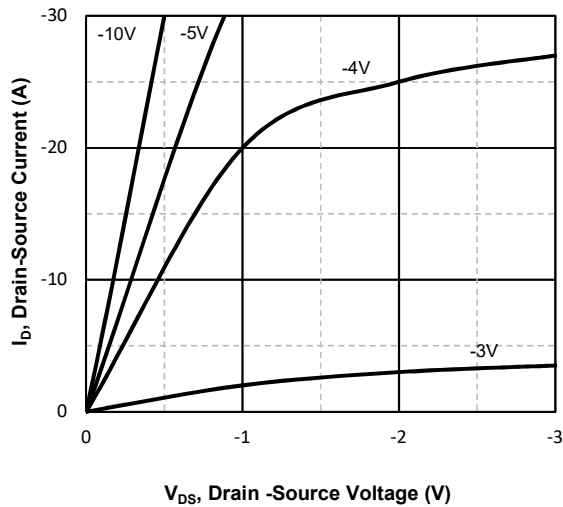
Halogen-Free

Absolute Maximum Ratings (TA=25°C unless otherwise noted)				
Symbol	Parameter		Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)				
V _{DS}	Drain-Source Breakdown Voltage		-30	V
V _{GS}	Gate-Source Voltage		±20	V
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-50 to 155	°C
I _S	Diode Continuous Forward Current	Tc=25°C	-12	A
Mounted on Large Heat Sink				
I _{DM}	Pulse Drain Current Tested	Tc=25°C	-48	A
I _D	Continuous Drain Current	Tc=25°C	-12	A
P _D	Maximum Power Dissipation	Tc=25°C	1.7	W
R _{θJA}	Thermal Resistance Junction-Ambient		315	°C/W

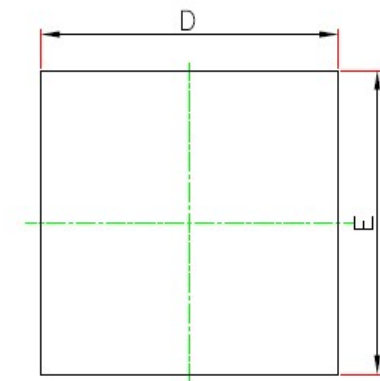
Ordering Information (Example)						
Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MLSM3012P	DFN2X2-6L	3012P	3,000	45,000	180,000	7"reel

Electrical Characteristics (TJ=25°C unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
BV _{(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-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	--	--	±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)}	Drain-Source On-State Resistance	V _{GS} =-10V, I _D =-12A	--	14	20	mΩ
		V _{GS} =-4.5V, I _D =-7A	--	25	33	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, f=1MHz	--	2400	--	pF
C _{OSS}	Output Capacitance		--	315	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	260	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DD} =-15V, I _D =-9A, V _{GS} =-10V	--	44.5	--	nC
Q _{gs}	Gate Source Charge		--	4.5	--	nC
Q _{gd}	Gate Drain Charge		--	10	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DD} =-15V, I _D =-9A, V _{GS} =-10V, R _G =2.5Ω	--	9	--	nS
t _r	Turn-on Rise Time		--	8	--	nS
t _{d(off)}	Turn-Off Delay Time		--	28	--	nS
t _f	Turn-Off Fall Time		--	10	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	Tj=25°C, Is=-12A	--	--	-1.2	V

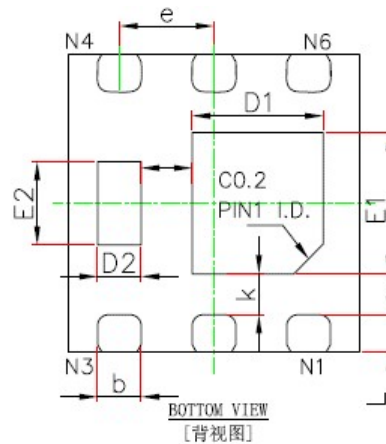
Typical Operating Characteristics



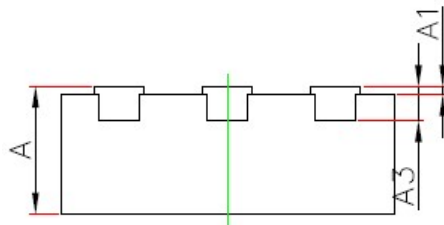
DFN2X2-6L Package information



TOP VIEW
[顶视图]



BOTTOM VIEW
[背视图]



SIDE VIEW
[侧视图]

Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	0.600	0.700	0.023	0.027
A1	0.000	0.050	0.000	0.001
A3	0.203REF		0.007REF	
b	0.315	0.415	0.012	0.016
D	1.924	2.076	0.075	0.081
E	1.924	2.076	0.075	0.081
e	0.650TYP		0.225TYP	
L	0.224	0.376	0.008	0.014
k	0.200	-	0.007	-
E1	1.000	1.200	0.039	0.047
D1	0.900	1.100	0.035	0.043
E2	0.700	0.900	0.027	0.035
D2	0.150	0.350	0.005	0.013