MLSM
MICROELECTRONICS

MLSM2008A

20V/8A N-Channel MOSFET

Features

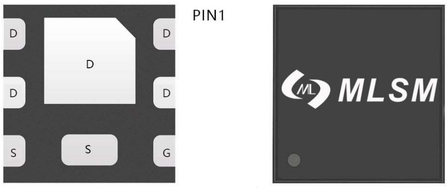
- Trench Power LV MOSFET technology
- High Power and current handing capability

Product Summary

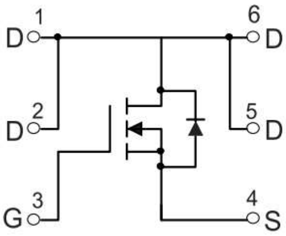
V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
20V	14.5mΩ@4.5V	8A
	19mΩ@2.5V	

Application

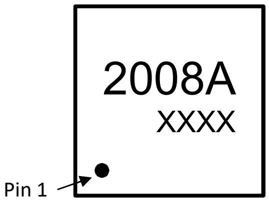
- PWM application
- Load switch



DFN2X2-6L view



Schematic diagram



2008A : Device code
XXXX: Code
Solid dot: Pin1 indicator

Marking and pin assignment

Pb-Free RoHS Halogen-Free

Absolute Maximum Ratings (TA=25℃unless otherwise noted)

Symbol	Parameter		Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)				
V_{DS}	Drain-Source Breakdown Voltage		20	V
V_{GS}	Gate-Source Voltage		±12	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	8	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested	Tc=25°C	30	A
I_D	Continuous Drain Current	Tc=25°C	8	A
P_D	Maximum Power Dissipation	Tc=25°C	1.25	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient		100	°C/ W

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MLSM2008A	DFN2X2-6L	2008A	3,000	45,000	180,000	7"reel

Electrical Characteristics (TJ=25℃ 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	20	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=20V，V_{GS}=0V	--	--	1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±12V，V_{DS}=0V	--	--	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}，I_D=250μA	0.5	0.7	1.2	V
$R_{DS(on)}$	Drain-Source On-State Resistance	V_{GS}=4.5V，I_D=8A	--	11.6	14.5	mΩ
		V_{GS}=2.5V，I_D=4A	--	16.3	19	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C_{ISS}	Input Capacitance	V_{DS}=10V，V_{GS}=0V， f=1MHz	--	885	--	pF
C_{OSS}	Output Capacitance		--	135	--	pF
C_{RSS}	Reverse Transfer Capacitance		--	120	--	pF
Switching Characteristics						
Q_g	Total Gate Charge	V_{DS}=10V，I_D=8A， V_{GS}=4.5V	--	11	--	nC
Q_{gs}	Gate Source Charge		--	1.75	--	nC
Q_{gd}	Gate Drain Charge		--	3	--	nC
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=10V，R_L=1.5Ω， V_{GS}=4.5V，R_G=3Ω	--	7	--	nS
t_r	Turn-on Rise Time		--	45	--	nS
$t_{d(off)}$	Turn-Off Delay Time		--	30	--	nS
t_f	Turn-Off Fall Time		--	50	--	nS
Source- Drain Diode Characteristics						
V_{SD}	Forward on voltage	Tj=25℃，Is=8A	--	--	1.2	V

Typical Operating Characteristics

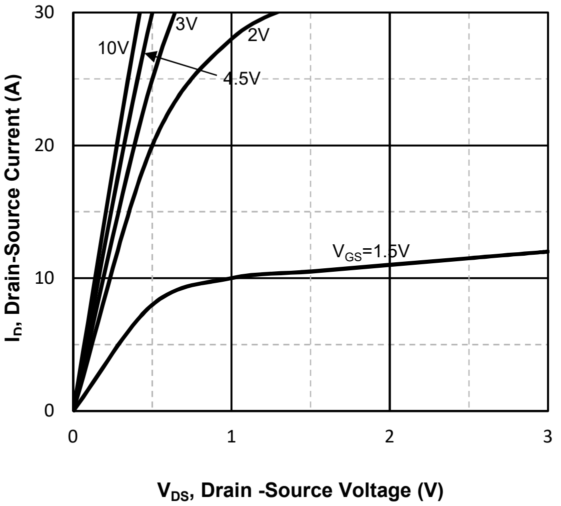


Fig1. Typical Output Characteristics

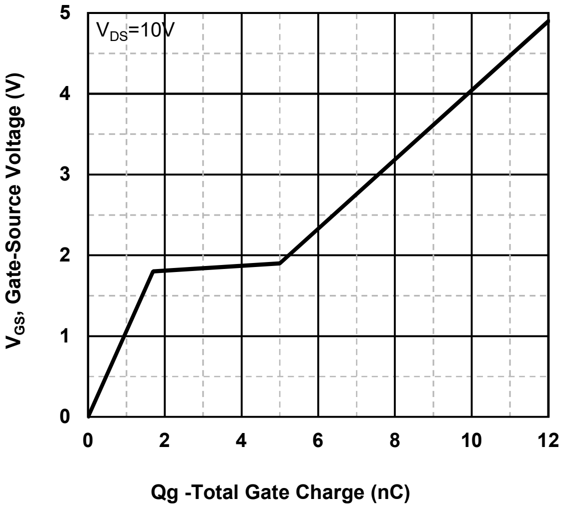


Fig2. Typical Gate Charge Vs.Gate-Source Voltage

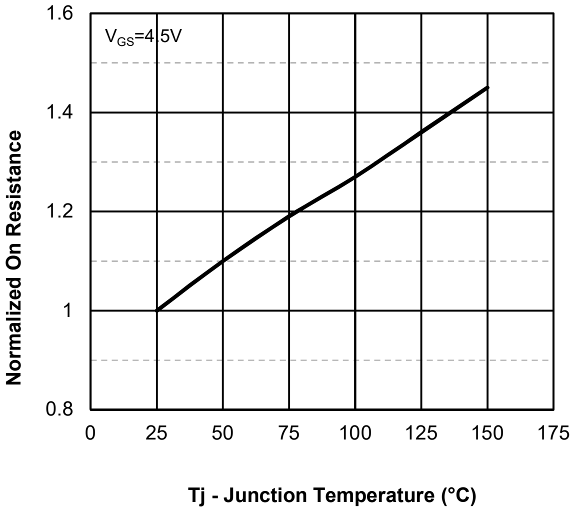


Fig3. Normalized On-Resistance Vs. Temperature

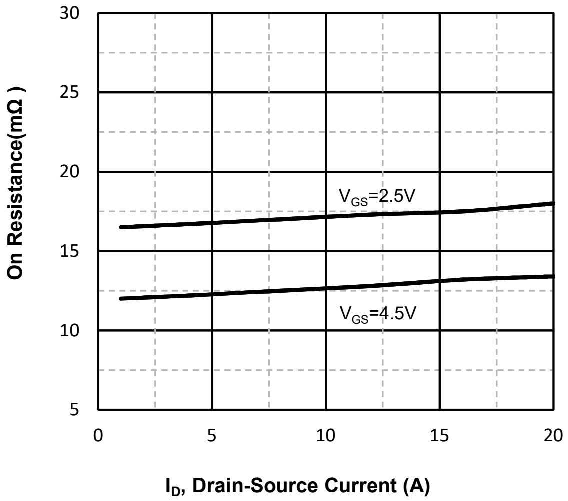


Fig4. On-Resistance Vs. Drain-Source Current

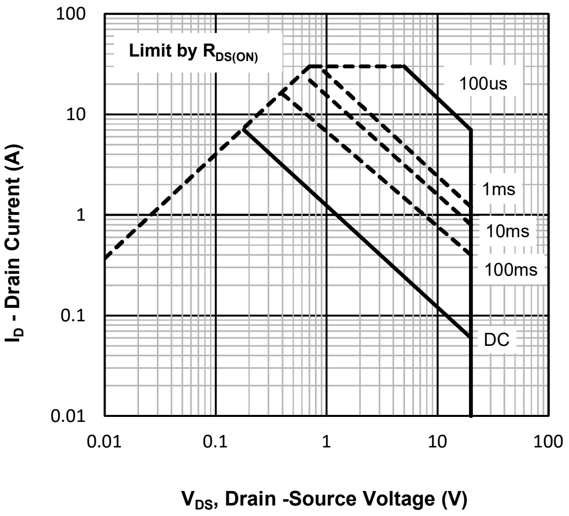


Fig5. Maximum Safe Operating Area

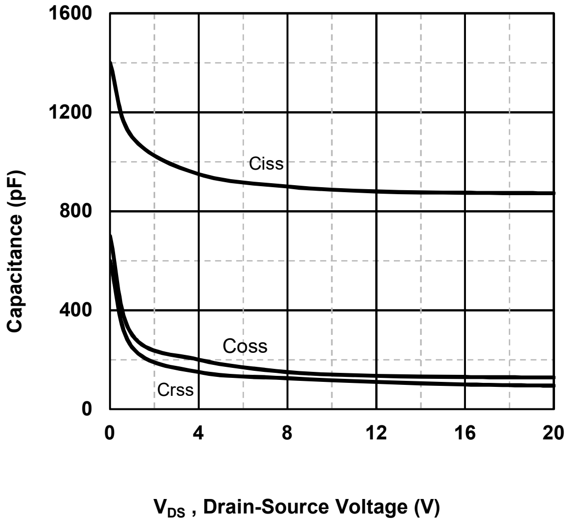
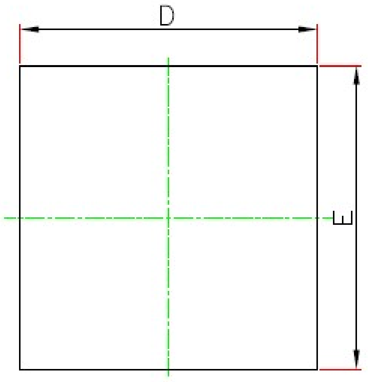
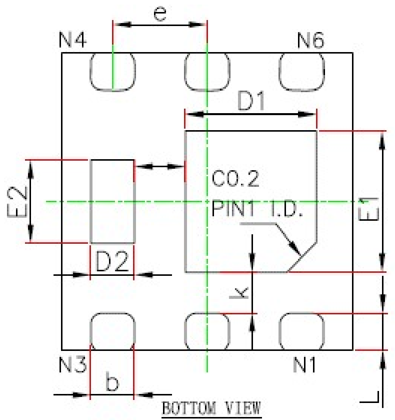


Fig6. Typical Capacitance Vs.Drain-Source Voltage

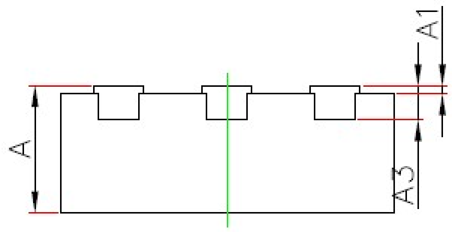
DFN2X2-6L Package information



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