

Features

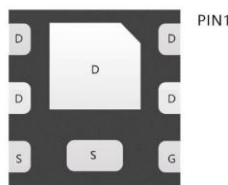
- Trench Power LV MOSFET technology
- High Density Cell Design for Low $R_{DS(ON)}$
- High Speed switching

Product Summary

V_{DS}	$R_{DS(ON)}$ TYP	I_D
40V	48mΩ@10V	5A
	70mΩ@4.5V	

Application

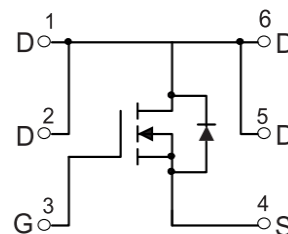
- CoBattery protection
- Load switch
- Power management



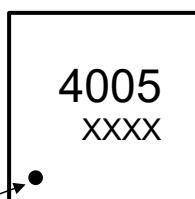
PIN1



DFN2X2-6L view



Schematic diagram



4005 : Device code
 XXXX: Code
 Solid dot: Pin1 indicator

Pin 1

Marking and pin assignment



Halogen-Free

Absolute Maximum Ratings (TA=25°C unless otherwise noted)

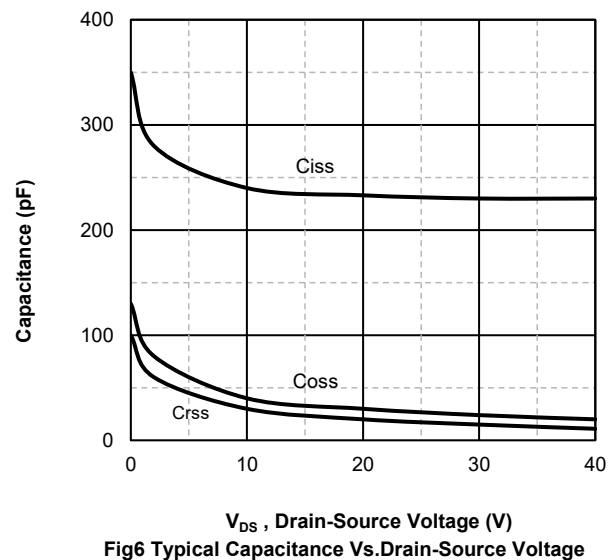
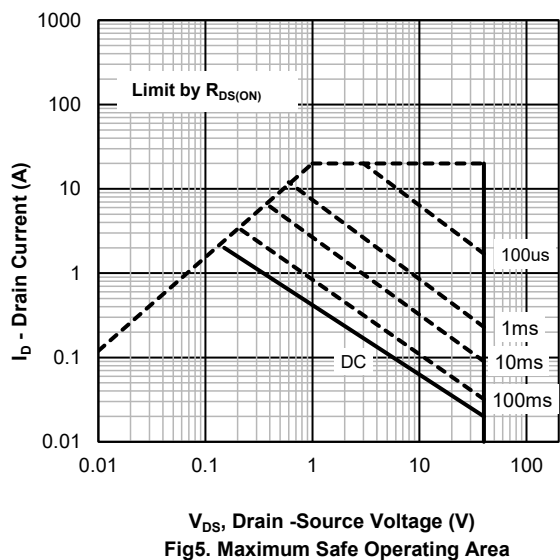
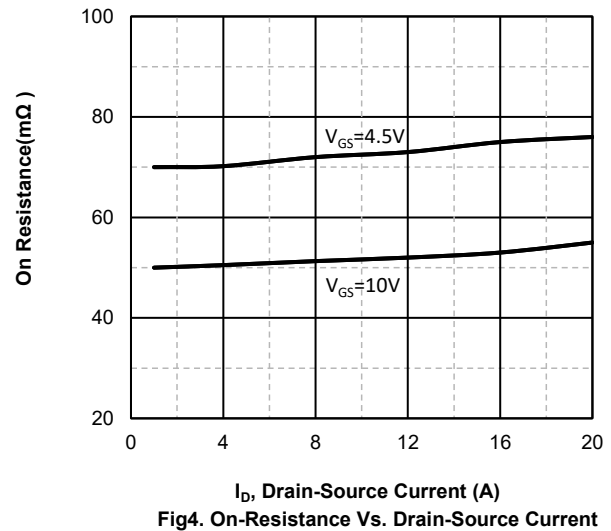
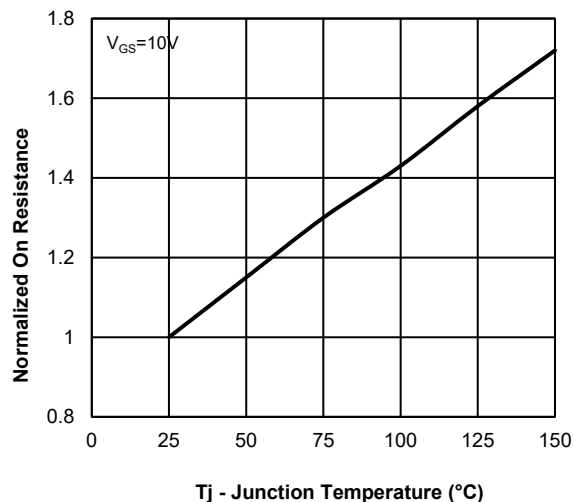
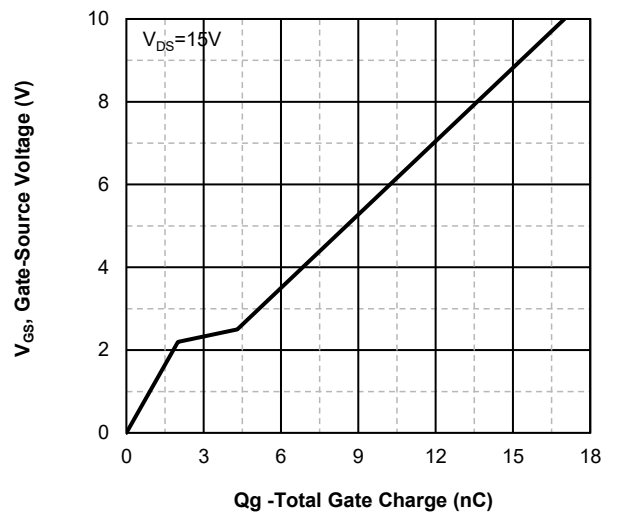
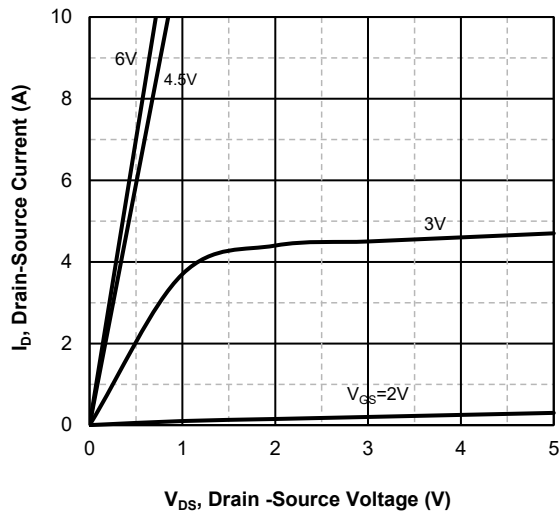
Symbol	Parameter		Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)				
V _{DS}	Drain-Source Breakdown Voltage		40	V
V _{GS}	Gate-Source Voltage		±20	V
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-50 to 155	°C
I _S	Diode Continuous Forward Current	Tc=25°C	5	A
Mounted on Large Heat Sink				
I _{DM}	Pulse Drain Current Tested	Tc=25°C	20	A
I _D	Continuous Drain Current	Tc=25°C	5	A
P _D	Maximum Power Dissipation	Tc=25°C	1.96	W
R _{θJA}	Thermal Resistance Junction-Ambient		83.5	°C/W

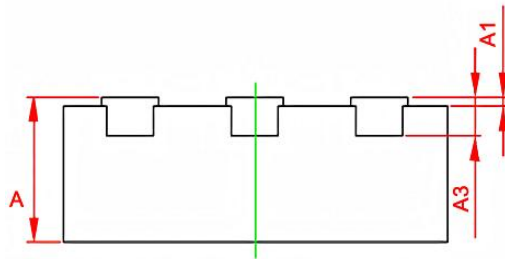
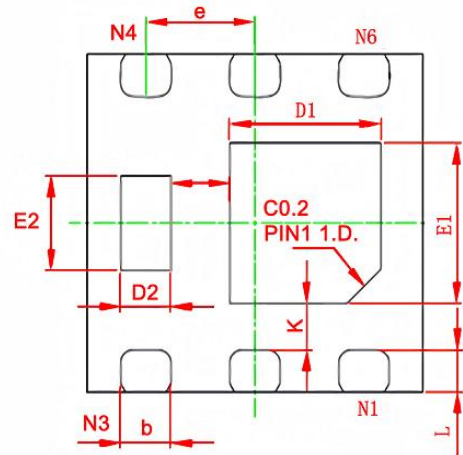
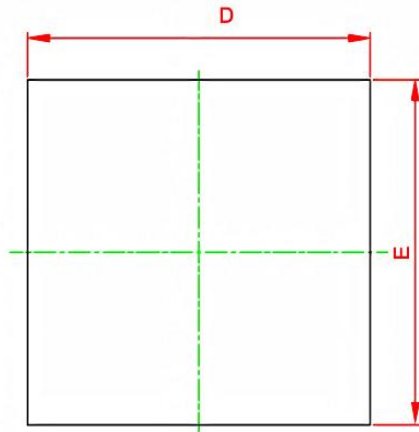
Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MLSM4005	DFN2X2-6L	4005	3,000	45,000	180,000	7"reel

Electrical Characteristics (T _J =25℃ unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T _J = 25℃ (unless otherwise stated)						
B _{V(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	40	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =40V, 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	0.8	--	2.0	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =5A	--	48	70	mΩ
		V _{GS} =4.5V, I _D =4A	--	70	95	mΩ
Dynamic Electrical Characteristics @ T _J = 25℃ (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =20V, V _{GS} =0V, f=1MHz	--	233	--	pF
C _{OSS}	Output Capacitance		--	26	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	16	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =10V, I _D =5A, V _{GS} =24V	--	5.5	--	nC
Q _{gs}	Gate Source Charge		--	1.2	--	nC
Q _{gd}	Gate Drain Charge		--	0.9	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =24V, I _D =5A, V _{GS} =10V, R _G =3Ω	--	4.2	--	nS
t _r	Turn-on Rise Time		--	18.3	--	nS
t _{d(off)}	Turn-Off Delay Time		--	7.9	--	nS
t _f	Turn-Off Fall Time		--	18.8	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	T _J =25℃, I _S =5A	--	--	1.2	V

Typical Operating Characteristics



DFN2X2-6L Package information


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