

Features

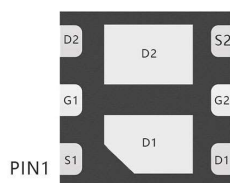
- Trench Power LV MOSFET technology
- High Power and current handing capability

Product Summary

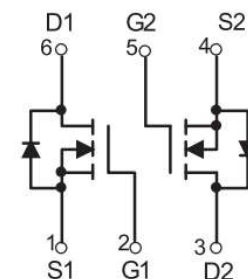
V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
20V	21.5mΩ@10V	4.5A
	24.5mΩ@4.5V	

Application

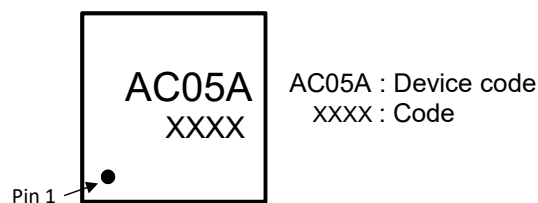
- PWM application
- Load switch



DFN2X2-6L view



Schematic diagram



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	20	V
V_{GS}	Gate-Source Voltage	±12	V
T_J	Maximum Junction Temperature	150	°C
T_{STG}	Storage Temperature Range	-50 to 150	°C
I_S	Diode Continuous Forward Current	$T_c=25^\circ\text{C}$ 4.5	A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_c=25^\circ\text{C}$ 22	A
I_D	Continuous Drain Current	$T_c=25^\circ\text{C}$ 4.5	A
P_D	Maximum Power Dissipation	$T_c=25^\circ\text{C}$ 1.4	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	125	°C/W

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MLSMAC05A	DFN2X2-6L	AC05A	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	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	0.6	0.7	1.5	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =4.5A	--	17	21.5	mΩ
		V _{GS} =4.5V, I _D =2A	--	19	24.5	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =10V, V _{GS} =0V, f=1MHz	--	378	--	pF
C _{OSS}	Output Capacitance		--	74	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	58	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =10V, I _D =4.5A, V _{GS} =4.5V	--	6	--	nC
Q _{gs}	Gate Source Charge		--	1	--	nC
Q _{gd}	Gate Drain Charge		--	2	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DD} =10V, R _L =1.5Ω, V _{GS} =4.5V, R _G =10Ω	--	3	--	nS
t _r	Turn-on Rise Time		--	7.5	--	nS
t _{d(off)}	Turn-Off Delay Time		--	20	--	nS
t _f	Turn-Off Fall Time		--	6	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	Tj=25°C, Is=4.5A	--	--	1.2	V

Typical Operating Characteristics

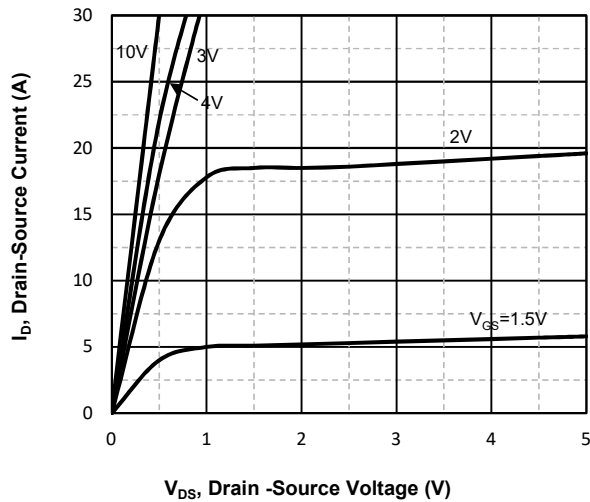


Fig1. Typical Output Characteristics

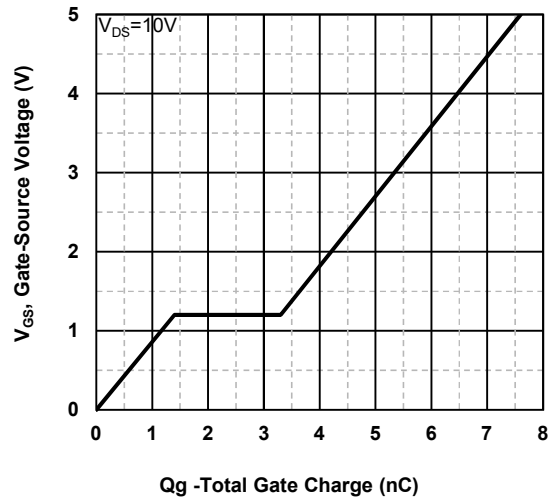


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

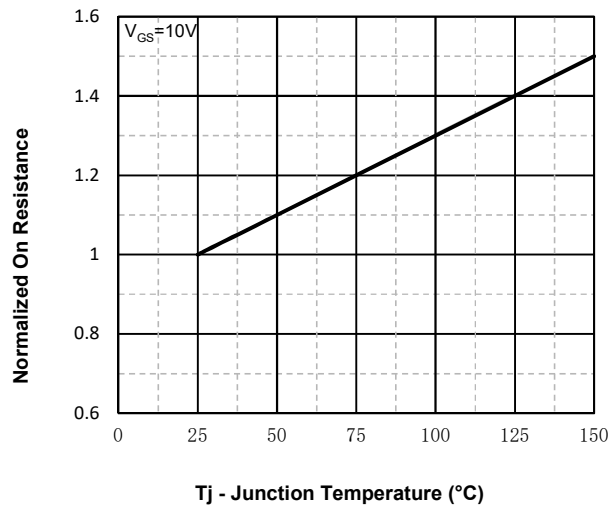


Fig3. Normalized On-Resistance Vs. Temperature

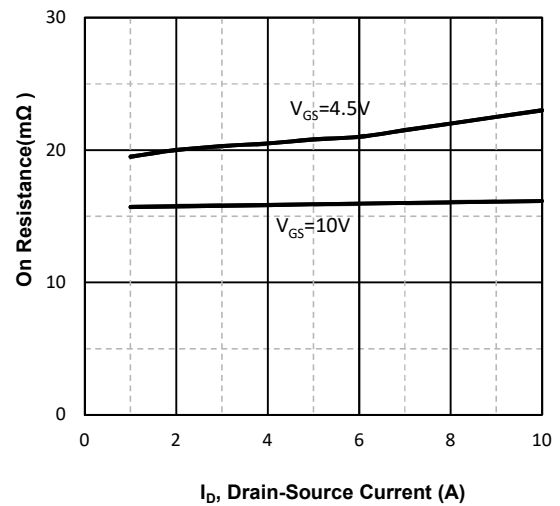


Fig4. On-Resistance Vs. Drain-Source Current

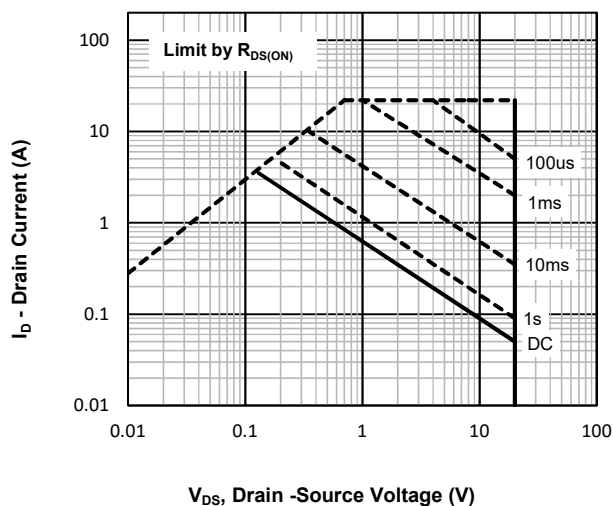


Fig5. Maximum Safe Operating Area

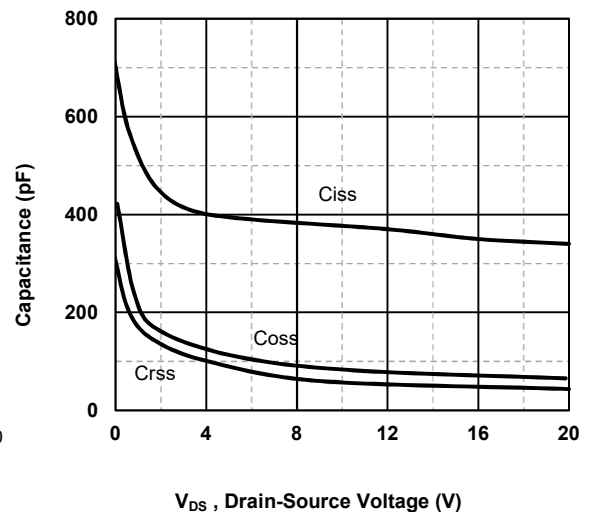
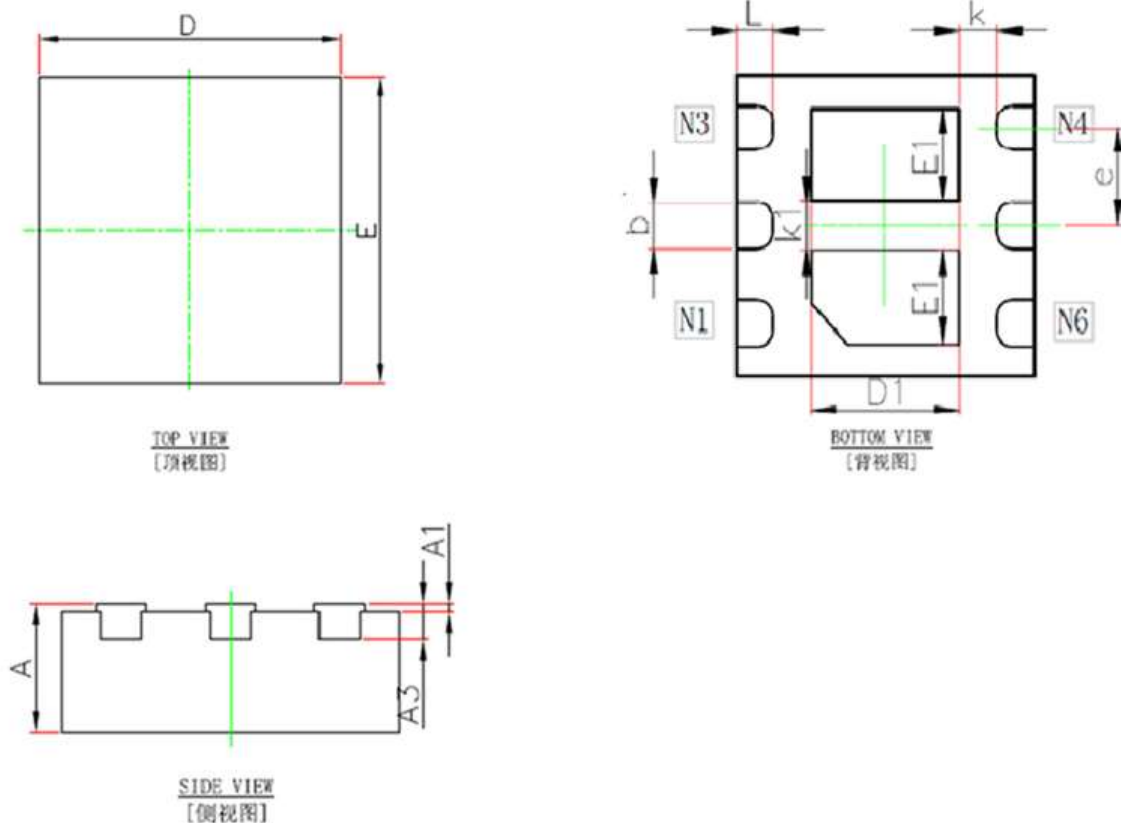


Fig6 Typical Capacitance Vs. Drain-Source Voltage

DFN2X2-6L Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	0.600	0.700	0.024	0.027
A1	0.000	0.050	0.000	0.001
A3	0.203REF		0.007REF	
b	0.230	0.330	0.009	0.012
D	1.924	2.076	0.075	0.081
E	1.924	2.076	0.075	0.081
e	0.650TYP		0.025TYP	
L	0.224	0.376	0.008	0.014
k	0.200	-	0.007	-
E1	0.520	0.720	0.020	0.028
D1	0.800	1.000	0.031	0.039
K1	0.320TYP		0.012TYP	