

Features

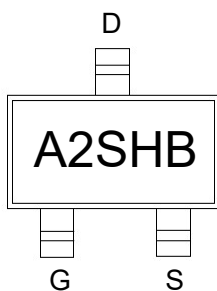
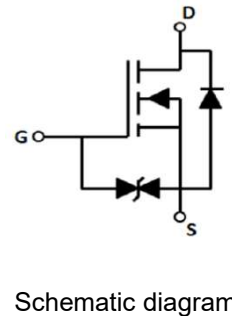
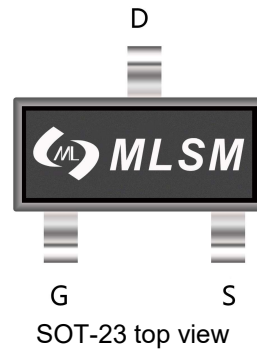
- Trench Power LV MOSFET technology
- High Power and current handing capability

Product Summary

V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
20V	130mΩ@4.5V	2A
	160mΩ@2.5V	

Application

- Load/Power Switching
- Interfacing Switching
- Logic Level Shift



A2SHB: Device code

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	±10	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	2	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested	Tc=25°C	8	A
I_D	Continuous Drain Current	Tc=25°C	2	A
P_D	Maximum Power Dissipation	Tc=25°C	0.35	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient		357	°C/W

Ordering Information (Example)						
Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MLS2302F	SOT-23	A2SHB	3,000	45,000	180,000	7" reel

Electrical Characteristics (T _J =25°C unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T_J = 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} =±10V, V _{DS} =0V	--	--	±20	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	0.35	0.7	1.1	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =4.5V, I _D =1.0A	--	100	130	mΩ
		V _{GS} =2.5V, I _D =0.5A	--	135	160	mΩ
		V _{GS} =1.8V, I _D =0.1A	--	200	400	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =10V, V _{GS} =0V, f=1MHz	--	33	--	pF
C _{OSS}	Output Capacitance		--	21	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	10	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =10V, I _D =0.5A, V _{GS} =4.5V	--	0.8	--	nC
Q _{gs}	Gate Source Charge		--	0.3	--	nC
Q _{gd}	Gate Drain Charge		--	0.17	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DD} =10V, I _D =0.5A, V _{GS} =4.5V, R _G =10Ω	--	4.2	--	nS
t _r	Turn-on Rise Time		--	19.1	--	nS
t _{d(off)}	Turn-Off Delay Time		--	10.3	--	nS
t _f	Turn-Off Fall Time		--	24	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	T _J =25°C, I _S =2A	--	--	1.2	V

Typical Operating Characteristics

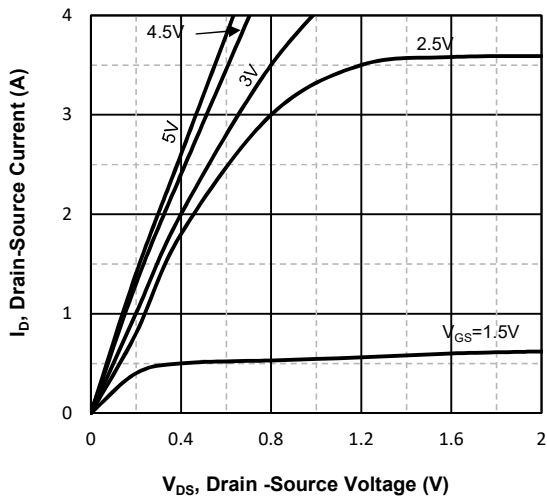


Fig1. Typical Output Characteristics

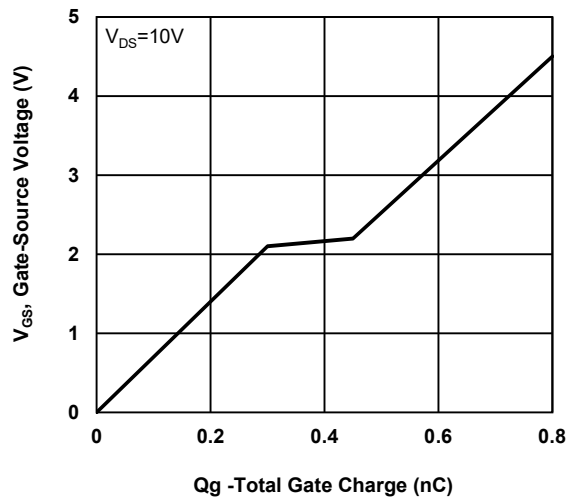


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

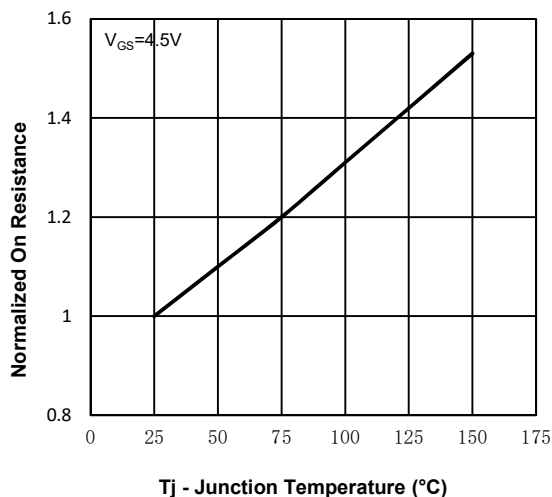


Fig3. Normalized On-Resistance Vs. Temperature

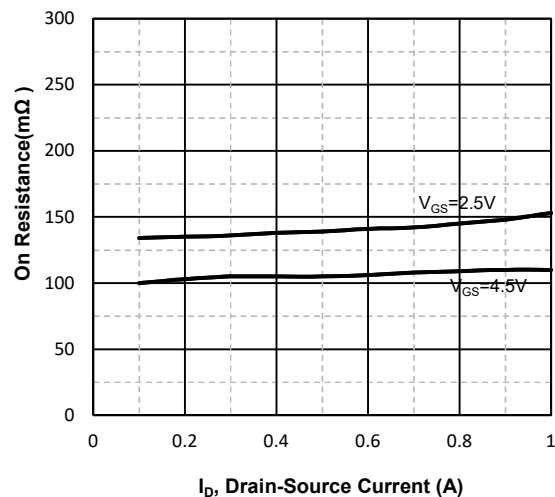


Fig4. On-Resistance Vs. Drain-Source Current

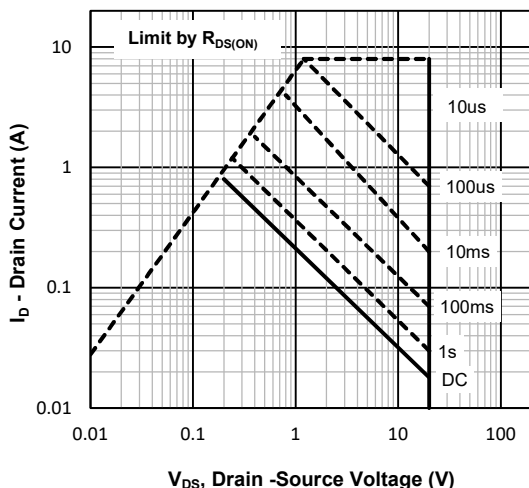


Fig5. Maximum Safe Operating Area

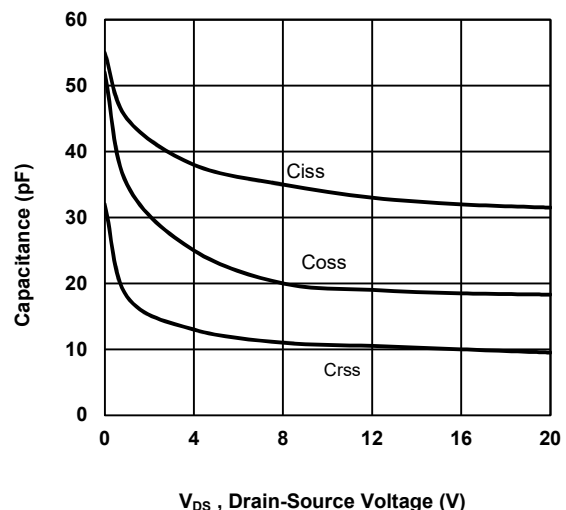
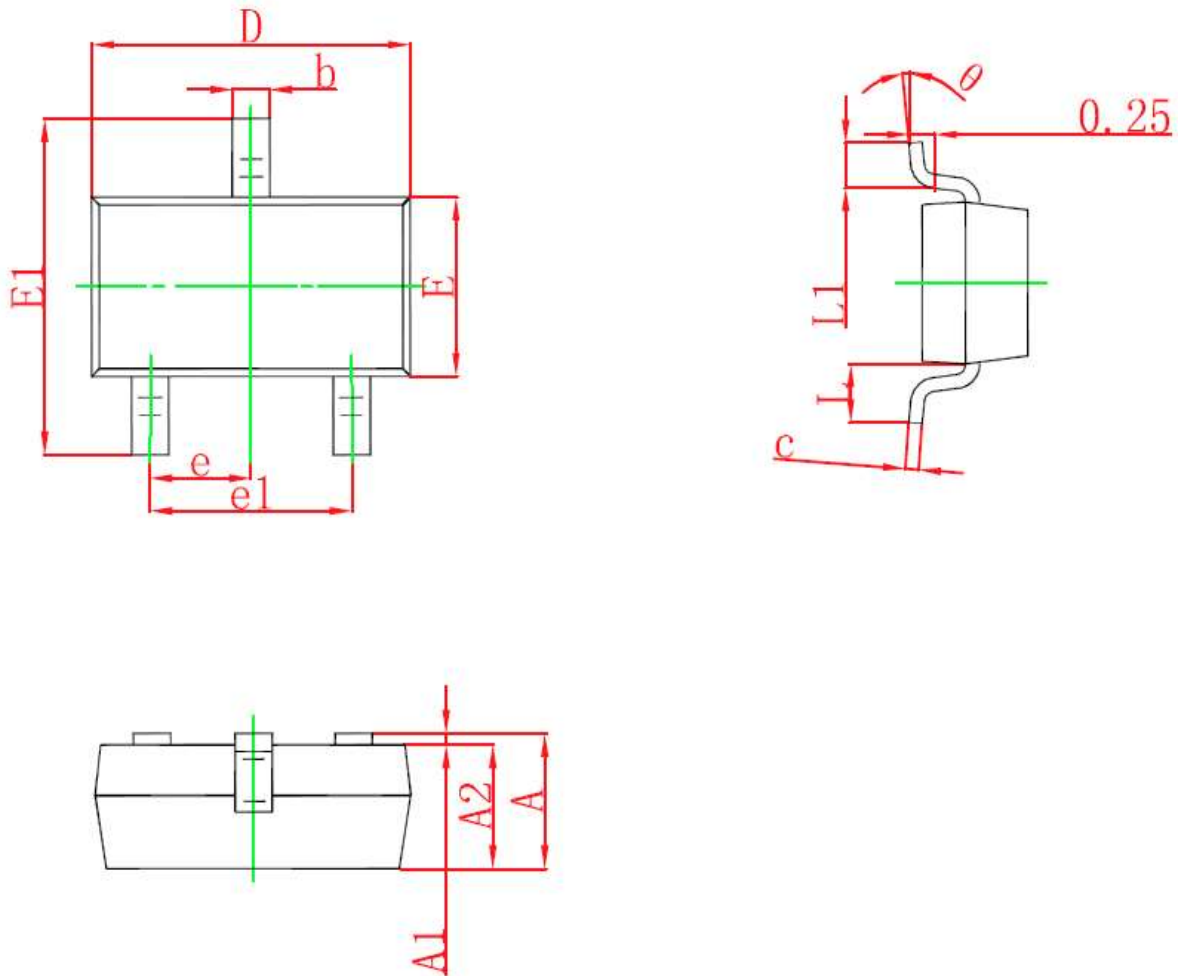


Fig6 Typical Capacitance Vs. Drain-Source

SOT-23 Package information


Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°