

Features

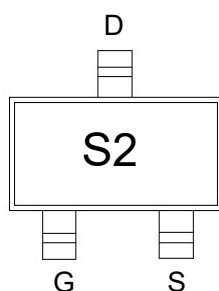
- Trench Power LV MOSFET technology
- High Power and current handling capability

Product Summary

V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
20V	100mΩ@4.5V	2.3A
	150mΩ@2.5V	

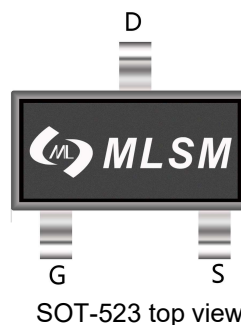
Application

- PWM application
- Load switch

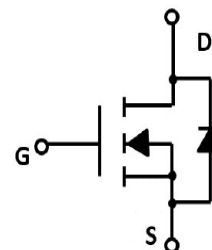


S2: Device code

Marking and pin assignment



SOT-523 top view



Schematic diagram



Pb-Free



Halogen-Free

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

Symbol	Parameter	Rating	Unit
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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	2.3	A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_c=25^\circ\text{C}$	9	A
I_D	Continuous Drain Current	$T_c=25^\circ\text{C}$	2.3	A
P_D	Maximum Power Dissipation	$T_c=25^\circ\text{C}$	0.35	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient		833	°C/W

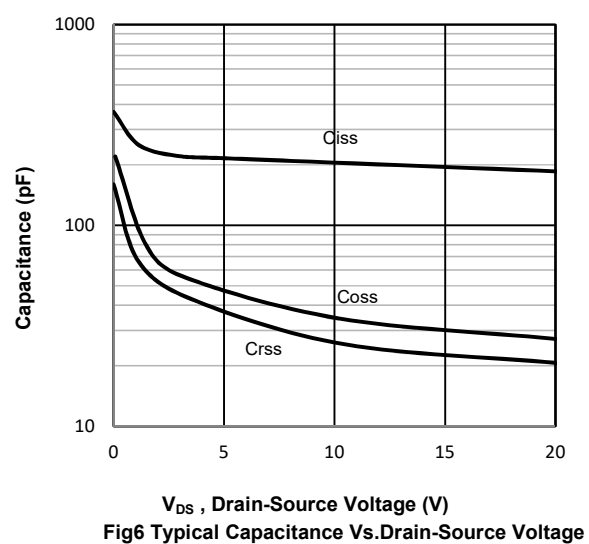
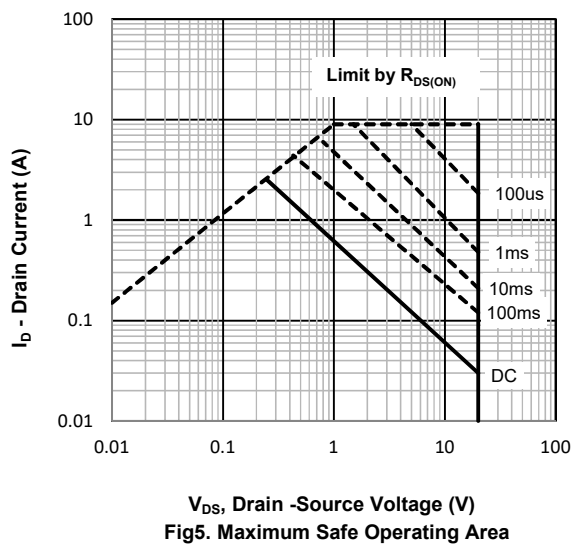
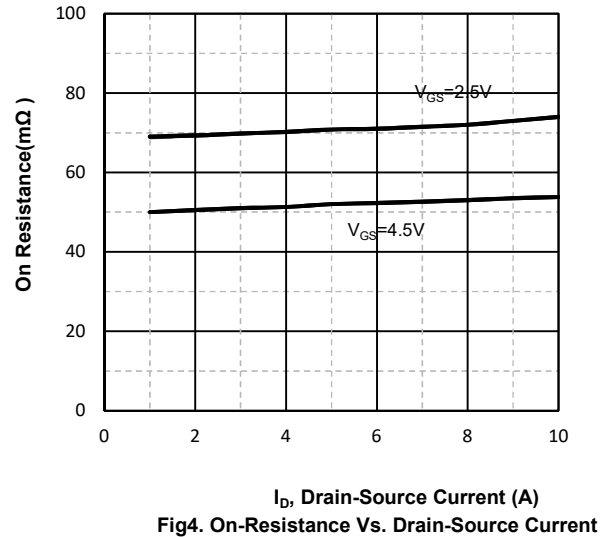
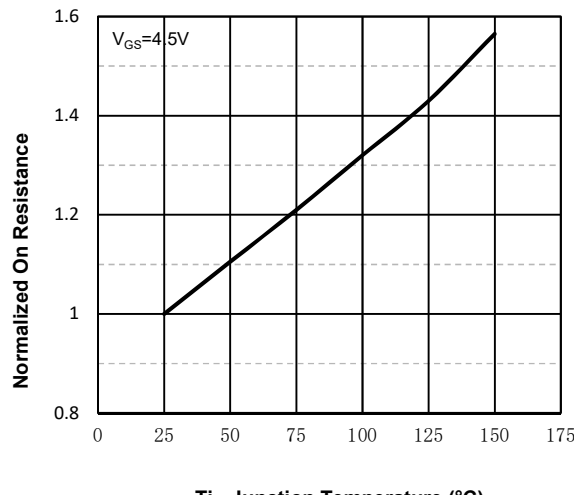
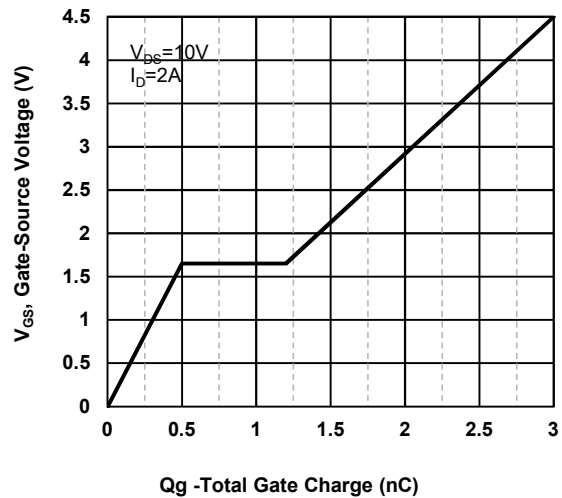
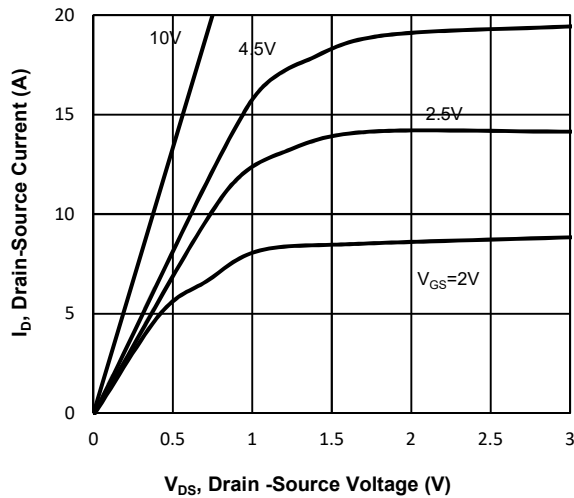
Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MLS2302T	SOT-523	S2	3,000	45,000	180,000	7"reel

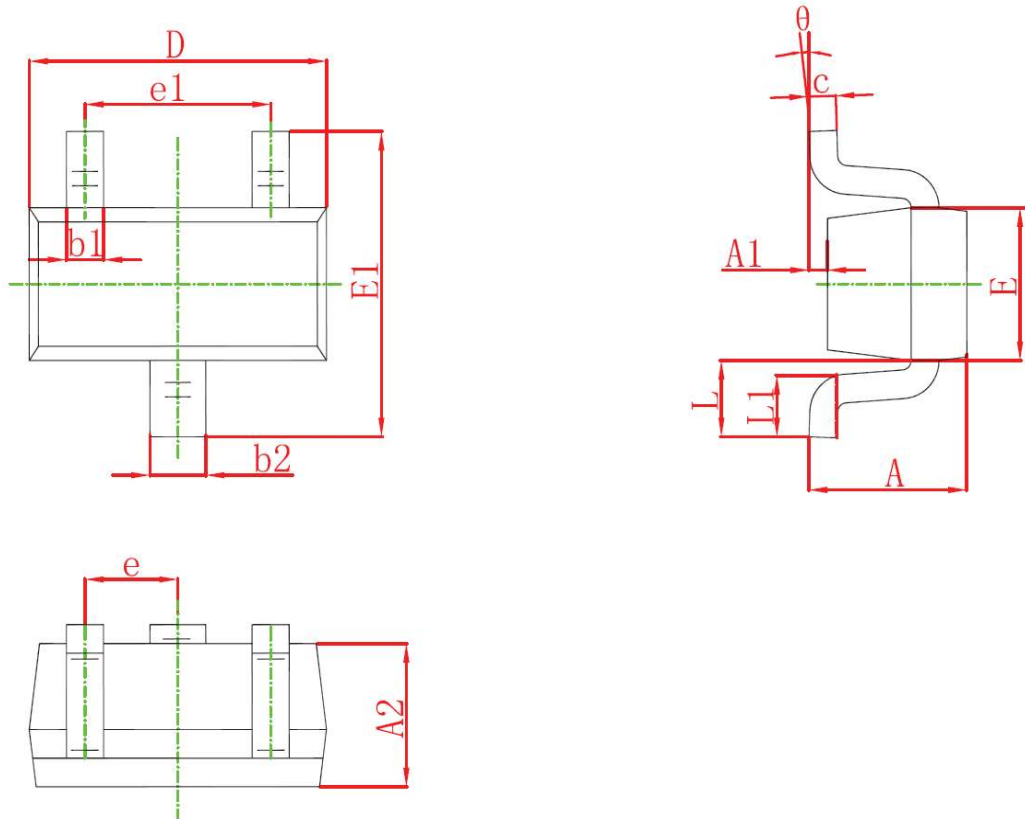
Electrical Characteristics (T_J=25°C unless otherwise noted)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ 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} =±10V, V _{DS} =0V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	0.45	0.7	0.9	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =4.5V, I _D =2.3A	--	55	100	mΩ
		V _{GS} =2.5V, I _D =1.5A	--	75	150	mΩ
		V _{GS} =1.8V, I _D =1.0A	--	130	150	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =10V, V _{GS} =0V, f=1MHz	--	200	--	pF
C _{OSS}	Output Capacitance		--	35	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	28	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =10V, I _D =2A, V _{GS} =4.5V	--	3	--	nC
Q _{gs}	Gate Source Charge		--	0.5	--	nC
Q _{gd}	Gate Drain Charge		--	0.7	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DD} =10V, I _D =2A, V _{GS} =4.5V, R _G =3Ω	--	3	--	nS
t _r	Turn-on Rise Time		--	11	--	nS
t _{d(off)}	Turn-Off Delay Time		--	20	--	nS
t _f	Turn-Off Fall Time		--	8	--	nS
Source- Diode Characteristics						
V _{SD}	Forward on voltage	Tj=25°C, Is=2.5A	--	--	1.2	V

Typical Operating Characteristics



SOT-523 Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500TYP		0.020TYP	
e1	0.900	1.100	0.035	0.043
L	0.400REF		0.016REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°