

Features

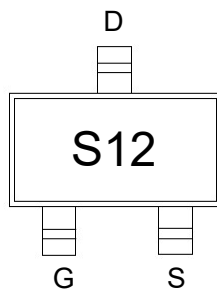
- Trench Power LV MOSFET technology
- High Power and current handing capability

Product Summary

V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
20V	18mΩ@4.5V	6A
	22mΩ@2.5V	

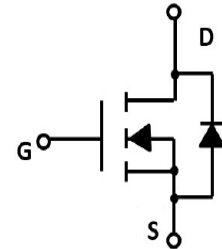
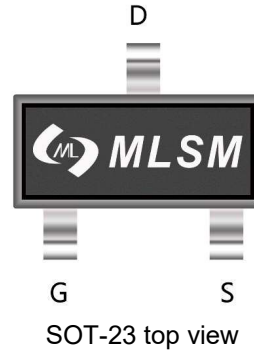
Application

- PWM application
- Load switch



S12: Device code

Marking and pin assignment



Schematic diagram



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	6	A

Mounted on Large Heat Sink

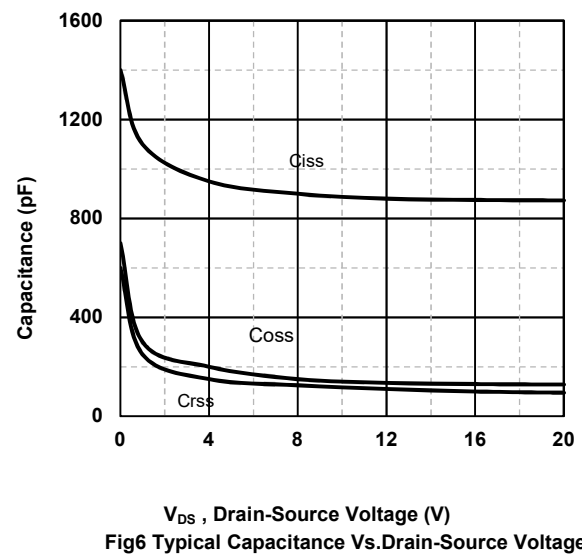
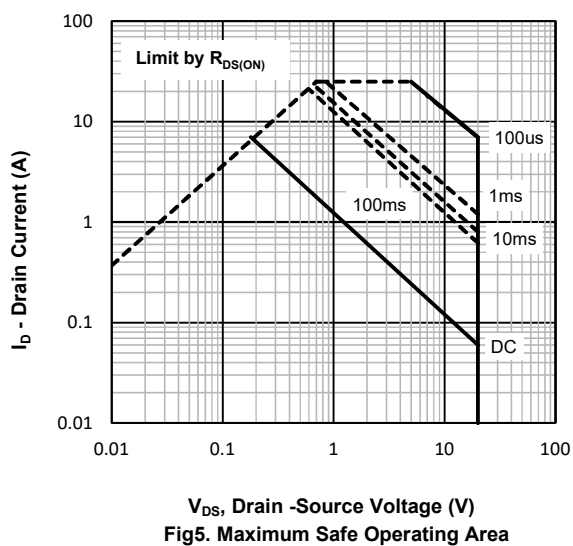
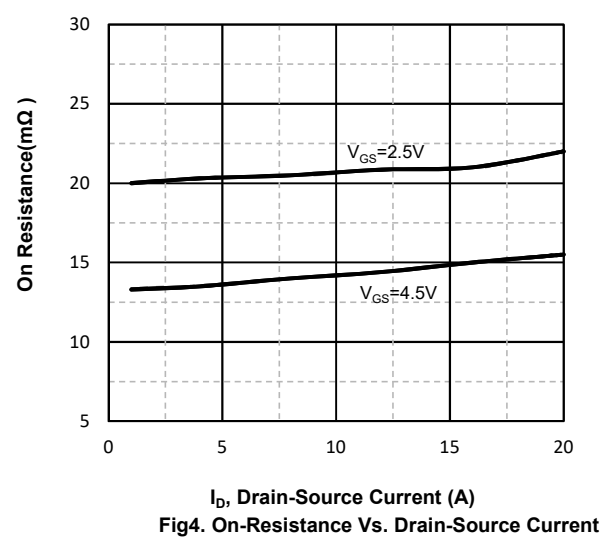
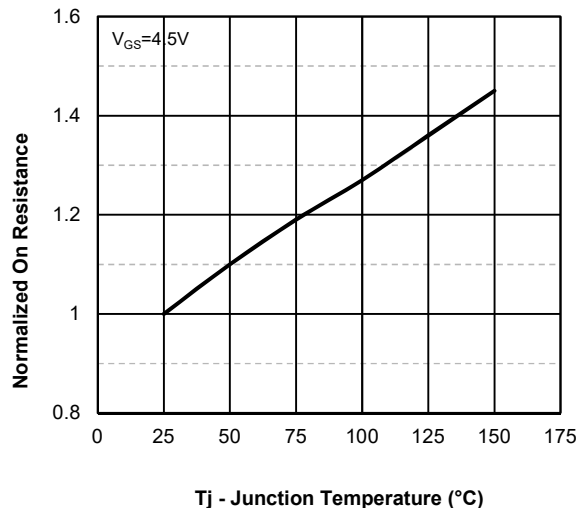
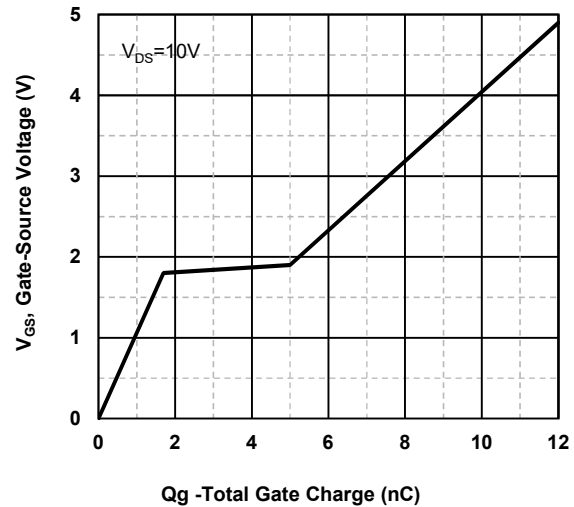
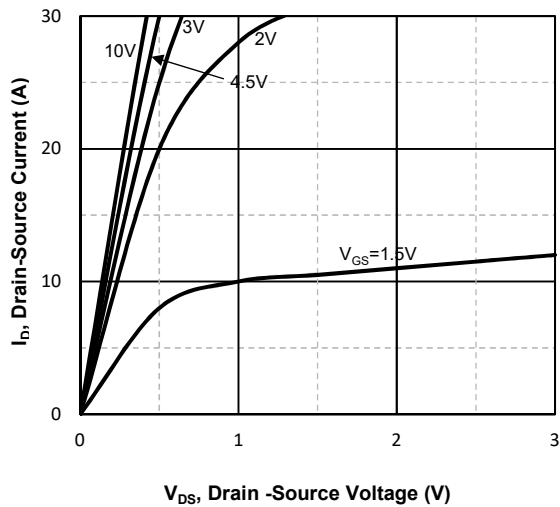
I_{DM}	Pulse Drain Current Tested	$T_C=25^{\circ}C$	25	A
I_D	Continuous Drain Current	$T_C=25^{\circ}C$	6	A
P_D	Maximum Power Dissipation	$T_C=25^{\circ}C$	1.25	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient		100	°C/W

Ordering Information (Example)

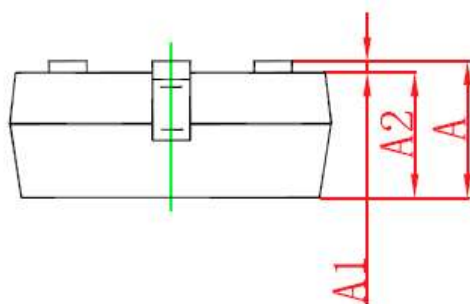
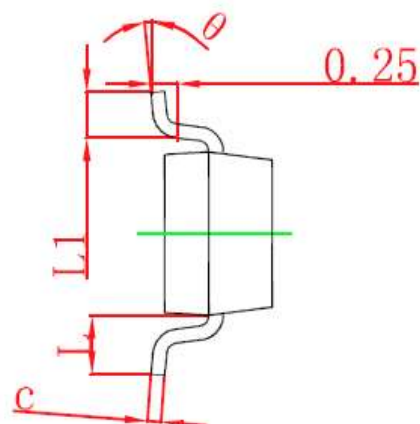
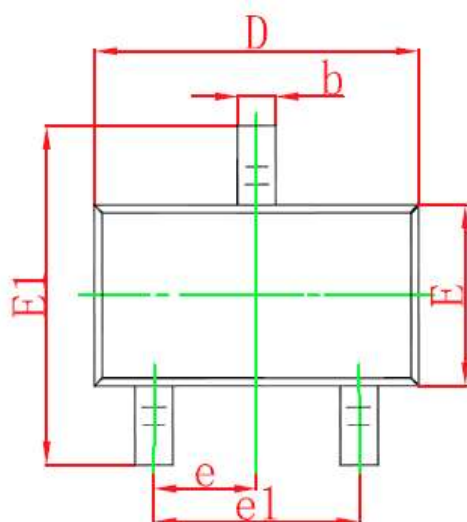
Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MLS2312	SOT-23	S12	3,000	45,000	180,000	7"reel

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	VGS=0V, ID=250μA	20	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=20V, VGS=0V	--	--	1	μA
IGSS	Gate-Body Leakage Current	VGS=±10V, VDS=0V	--	--	±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=250μA	0.45	0.7	1.0	V
RDS(on)	Drain-Source On-State Resistance	VGS=4.5V, ID=5.0A	--	15	18	mΩ
		VGS=2.5V, ID=4.7A	--	19	22	mΩ
		VGS=1.8V, ID=4.3A	--	34	41	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
CISS	Input Capacitance	VDS=10V, VGS=0V, f=1MHz	--	885	--	pF
COSS	Output Capacitance		--	135	--	pF
CRSS	Reverse Transfer Capacitance		--	120	--	pF
Switching Characteristics						
Qg	Total Gate Charge	VDS=10V, ID=6A, VGS=4.5V	--	11	--	nC
Qgs	Gate Source Charge		--	1.75	--	nC
Qgd	Gate Drain Charge		--	3	--	nC
t d(on)	Turn-on Delay Time	VDD=10V, RL=1.5Ω, VGS=4.5V, RG=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						
VSD	Forward on voltage	TJ=25°C, Is=6A	--	--	1.2	V

Typical Operating Characteristics



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°