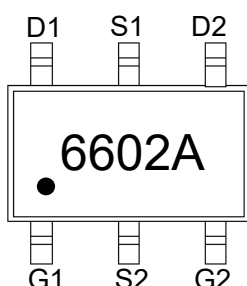


Features

- Trench Power LV MOSFET technology
- High density cell design for Low $R_{DS(ON)}$
- High Speed switching

Application

- DC/DC converter
- Load switch
- LCD display inverter

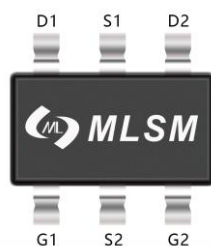


6602A : Device code

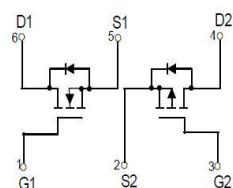
Marking and pin assignment

Product Summary

V_{DS}	$R_{DS(ON)}$ TYP	I_D
30V	40mΩ@10V	3.5A
	52mΩ@4.5V	
-30V	82mΩ@-10V	-2.7A
	130mΩ@-4.5V	



SOT-23-6L top view



Schematic diagram



Halogen-Free

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	N-Channel	P-Channel	Unit
V_{DS}	Drain-Source Breakdown Voltage	30	-30	V
V_{GS}	Gate-Source Voltage	± 20	± 20	V
T_J	Maximum Junction Temperature	150	150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature Range	-55 to 150	-55 to 150	$^{\circ}\text{C}$
I_S	Diode Continuous Forward Current	$T_c=25^{\circ}\text{C}$ 3.5	-2.7	A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_c=25^{\circ}\text{C}$ 14	-10	A
I_D	Continuous Drain Current	$T_c=25^{\circ}\text{C}$ 3.5	-2.7	A
P_D	Maximum Power Dissipation	$T_c=25^{\circ}\text{C}$ 0.35	0.35	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	357	357	$^{\circ}\text{C/W}$

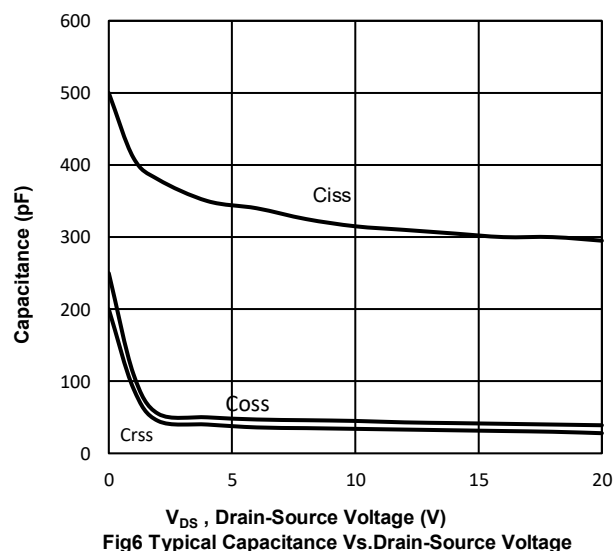
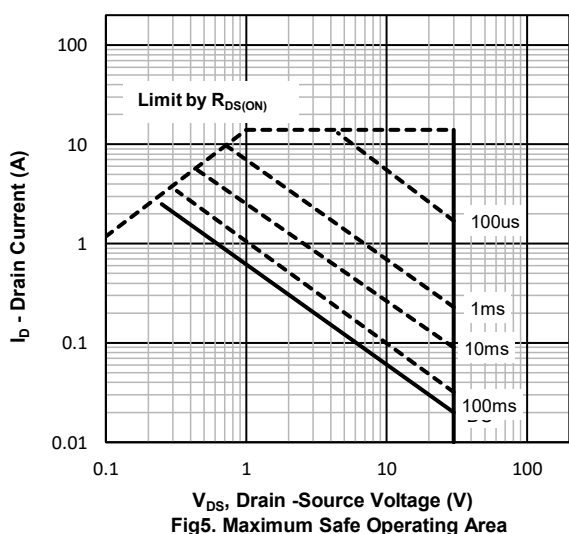
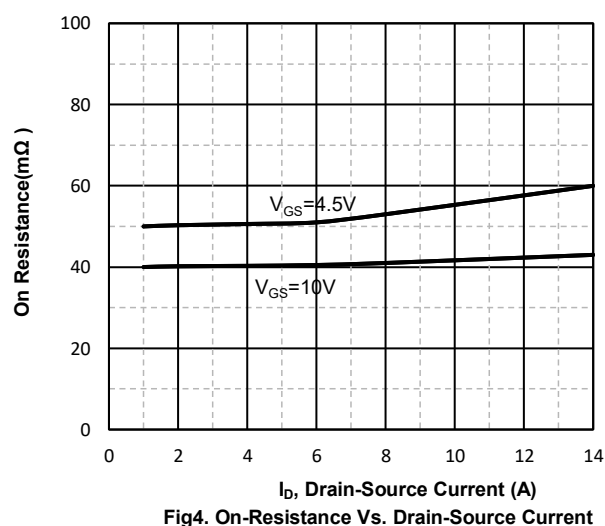
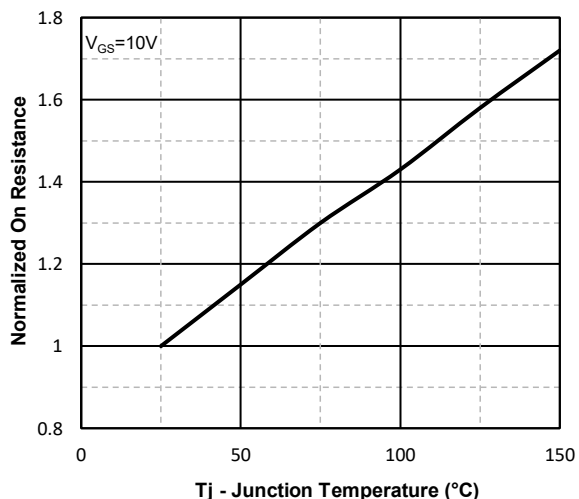
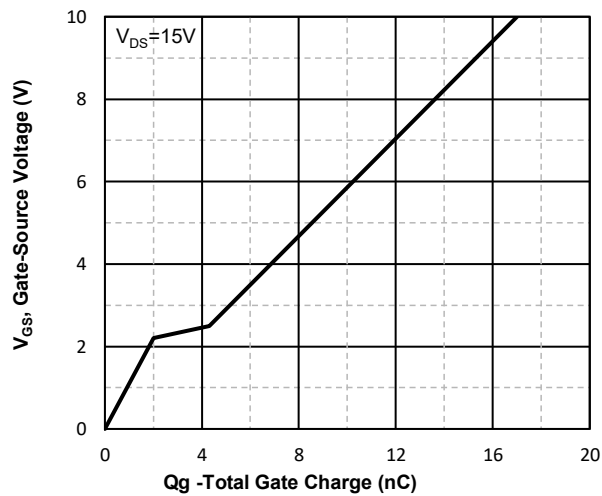
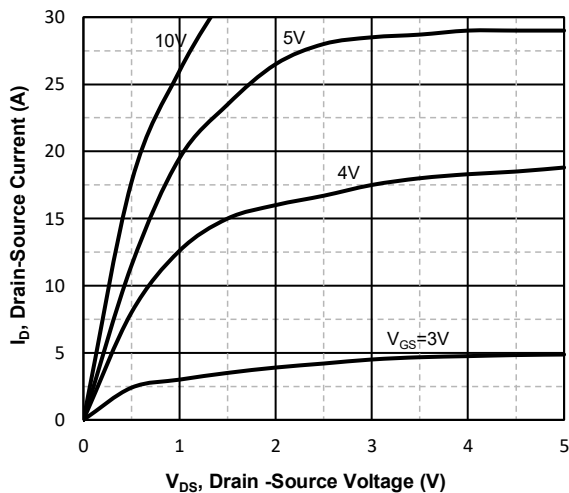
Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MLSL6602A	SOT-23-6L	6602A	3,000	45,000	180,000	7"reel

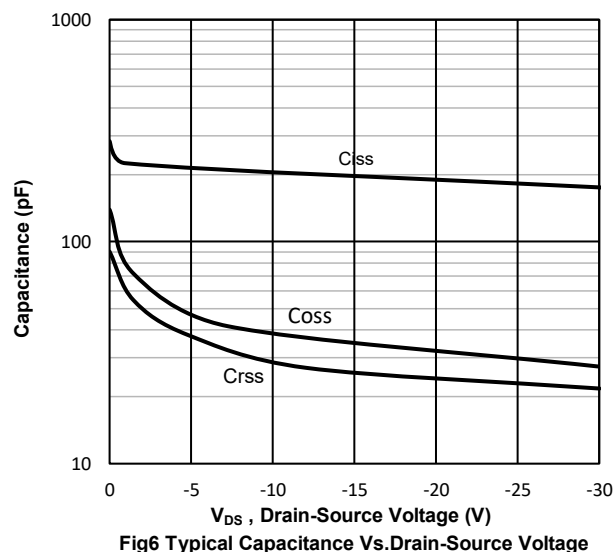
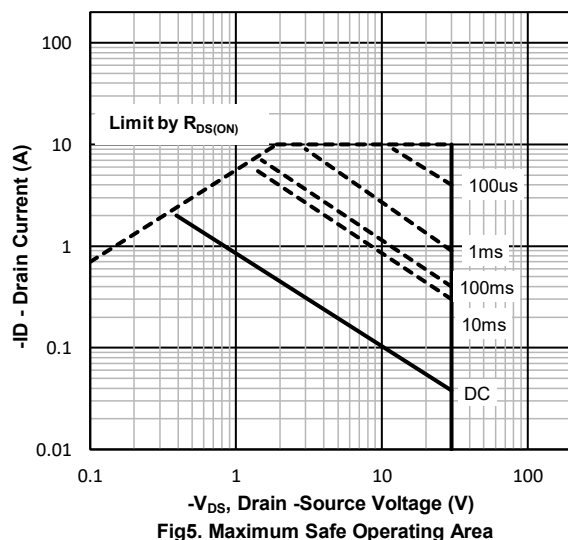
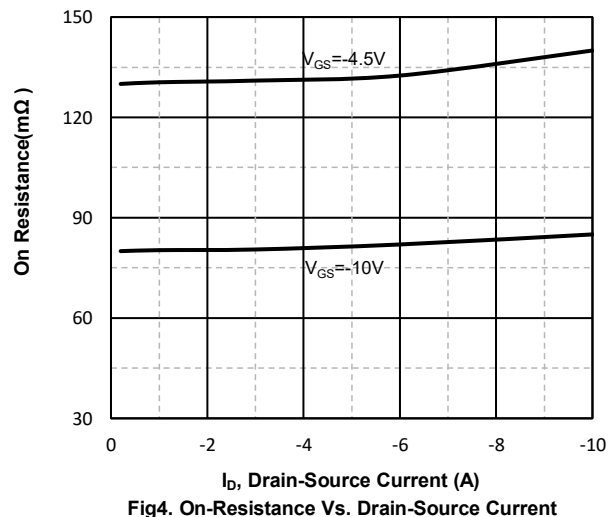
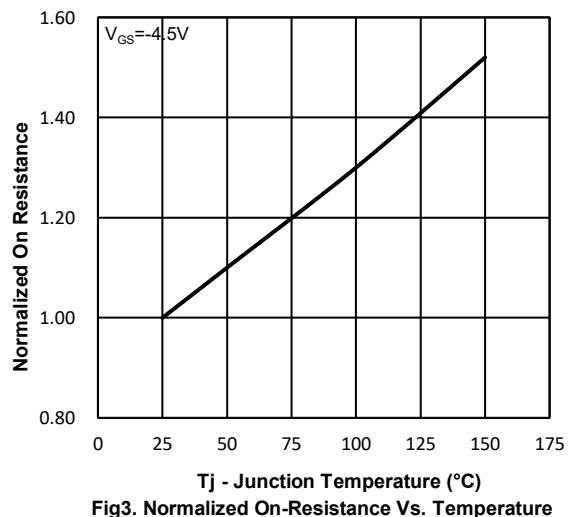
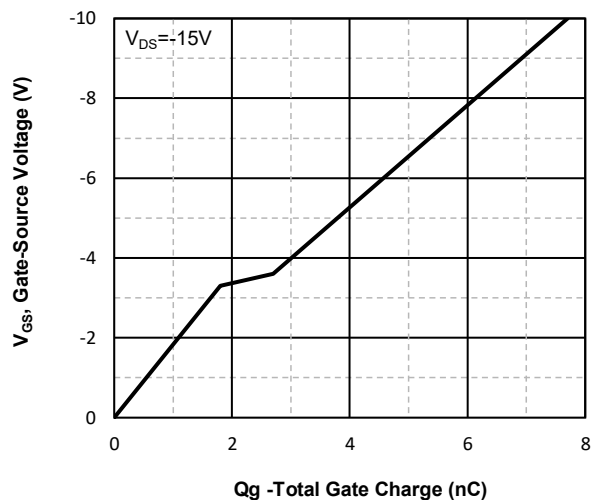
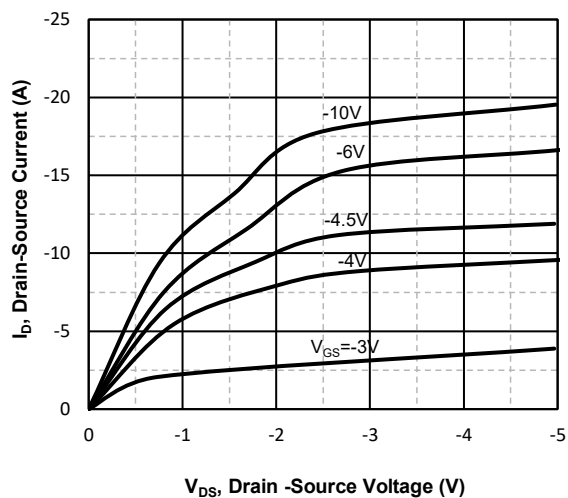
N-Ch Electrical Characteristics (TJ=25°C unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
BV _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	30	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, 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	1.5	--	2.5	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =3.7A	--	40	50	mΩ
		V _{GS} =4.5V, I _D =3.0A	--	52	70	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =10V, V _{GS} =0V, f=1MHz	--	314	--	pF
C _{OSS}	Output Capacitance		--	59	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	48	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =10V, I _D =3.7A, V _{GS} =24V	--	6.08	--	nC
Q _{gs}	Gate Source Charge		--	1.26	--	nC
Q _{gd}	Gate Drain Charge		--	1.32	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =10V, R _L =2Ω, V _{GS} =10V, R _G =3Ω	--	3.8	--	nS
t _r	Turn-on Rise Time		--	23.2	--	nS
t _{d(off)}	Turn-Off Delay Time		--	7	--	nS
t _f	Turn-Off Fall Time		--	18.6	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	Tj=25°C, Is=3.7A	--	--	1.2	V

P-Ch 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	-30	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-30V, 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	-1.5	--	-2.5	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =-10V, I _D =-2.7A	--	82	100	mΩ
		V _{GS} =-4.5V, I _D =-2.0A	--	130	170	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, f=1MHz	--	190	--	pF
C _{OSS}	Output Capacitance		--	34	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	26	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =-10V, I _D =-2.7A, V _{GS} =-10V	--	6.1	--	nC
Q _{gs}	Gate Source Charge		--	1.3	--	nC
Q _{gd}	Gate Drain Charge		--	1.2	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DD} =-15V, I _D =-2.7A, V _{GS} =-10V, R _G =2.5Ω	--	4	--	nS
t _r	Turn-on Rise Time		--	22	--	nS
t _{d(off)}	Turn-Off Delay Time		--	20	--	nS
t _f	Turn-Off Fall Time		--	27	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	Tj=25°C, Is=-2.7A	--	--	-1.2	V

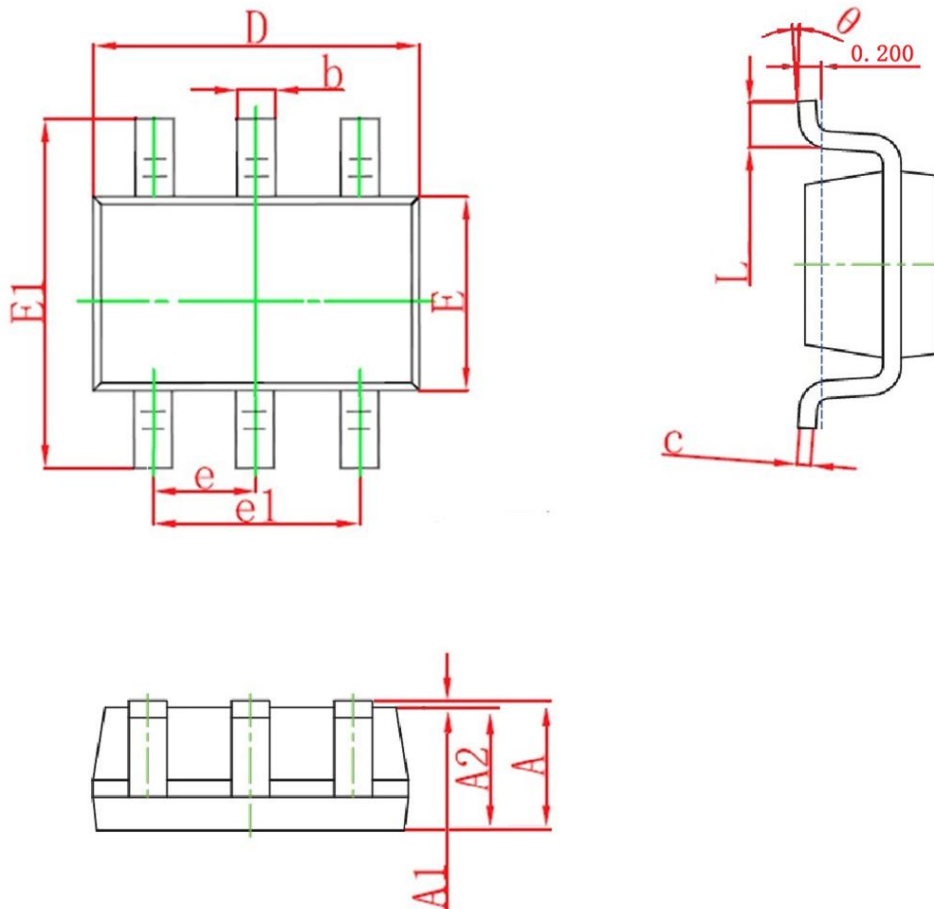
N-Channel Typical Operating Characteristics



P-Channel Typical Operating Characteristics



SOT-23-6L Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.000	1.200	0.039	0.047
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.600	3.000	0.102	0.118
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
K	0°	8°	0°	8°