

Features

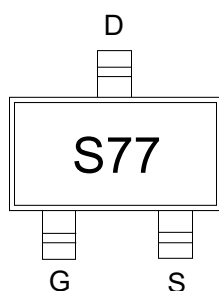
- Leading trench technology for low $R_{DS(on)}$
- Low Gate Charge and Typical ESD performance 2000V

Product Summary

V_{DS}	$R_{DS(on)}$ TYP	I_D
-20V	50mΩ@-4.5V	-4.4A
	65mΩ@-2.5V	

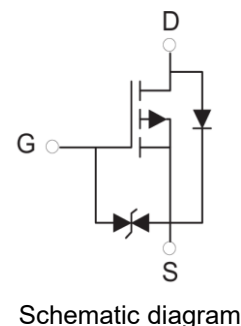
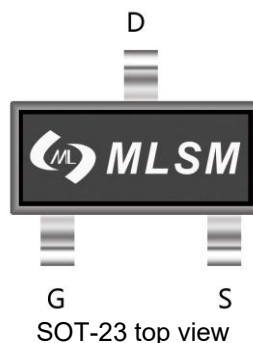
Application

- Video monitor
- Power management



S77: 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		±8	V
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	°C
I _S	Diode Continuous Forward Current	Tc=25°C	-4.4	A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_c=25^\circ\text{C}$	-20	A
I_D	Continuous Drain Current	$T_c=25^\circ\text{C}$	-4.4	A
P_D	Maximum Power Dissipation	$T_c=25^\circ\text{C}$	1.8	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
MLS2377	SOT-23	S77	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	VGS=0V, ID=-250μA	-20	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=-20V, VGS=0V	--	--	-1	μA
IGSS	Gate-Body Leakage Current	VGS=±8V, VDS=0V	--	--	±10	μA
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=-250μA	-0.4	--	-1.0	V
RDS(on)	Drain-Source On-State Resistance	VGS=-4.5V, ID=-3.2A	--	50	61	mΩ
		VGS=-2.5V, ID=-2.8A	--	65	80	mΩ
		VGS=-1.8V, ID=-1.5A	--	90	110	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
Ciss	Input Capacitance	VDS=-10V, VGS=0V, f=1MHz	--	606	--	pF
Coss	Output Capacitance		--	114	--	pF
CRSS	Reverse Transfer Capacitance		--	103	--	pF
Switching Characteristics						
Qg	Total Gate Charge	VDS=-10V, ID=-3.8A, VGS=-10V	--	7.45	--	nC
Qgs	Gate Source Charge		--	1.54	--	nC
Qgd	Gate Drain Charge		--	2.61	--	nC
td(on)	Turn-on Delay Time	VDS=-10V, RL=2.5Ω, VGS=-4.5V, RG=3Ω	--	5.8	--	nS
tr	Turn-on Rise Time		--	34.8	--	nS
td(off)	Turn-Off Delay Time		--	51.4	--	nS
tf	Turn-Off Fall Time		--	52	--	nS
Source- Drain Diode Characteristics						
VSD	Forward on voltage	TJ=25°C, IS=-4.4A	--	--	-1.2	V

Typical Operating Characteristics

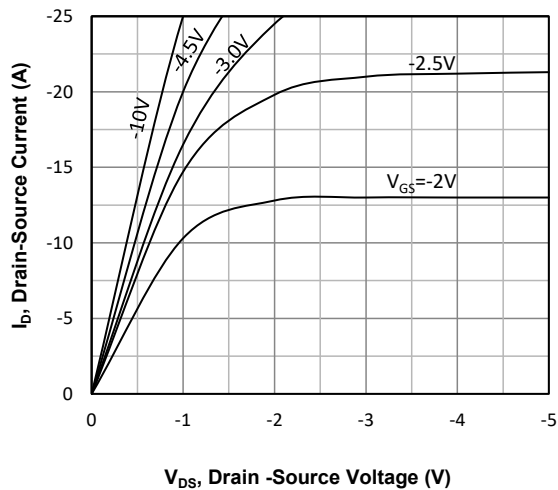


Fig1. Typical Output Characteristics

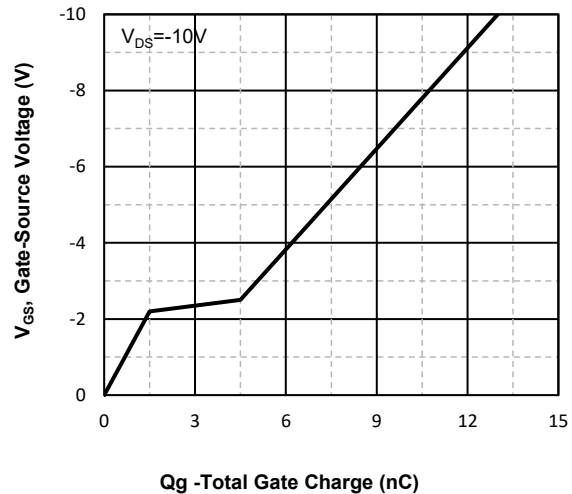


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

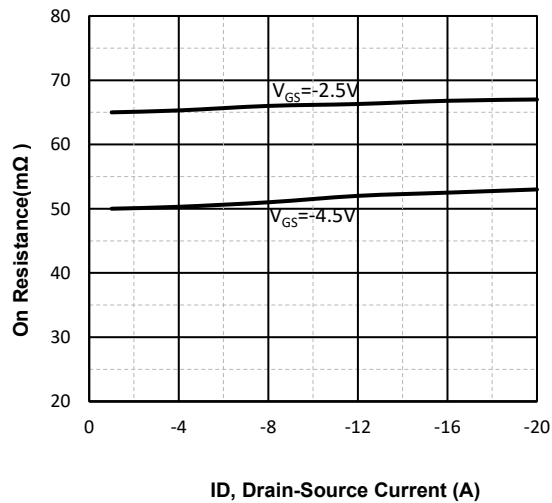


Fig3. Drain-Source on Resistance

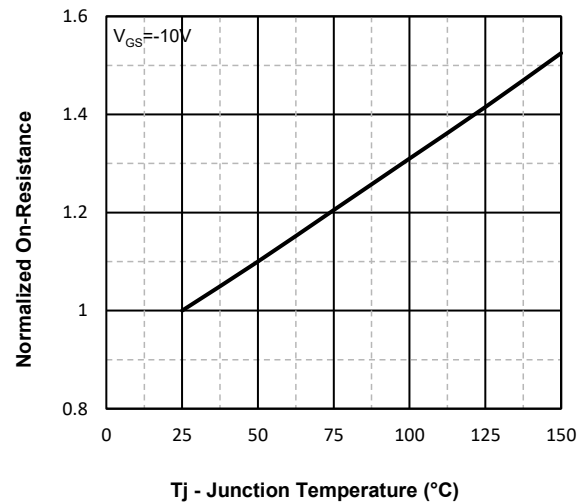


Fig4. Normalized On-Resistance Vs. Temperature

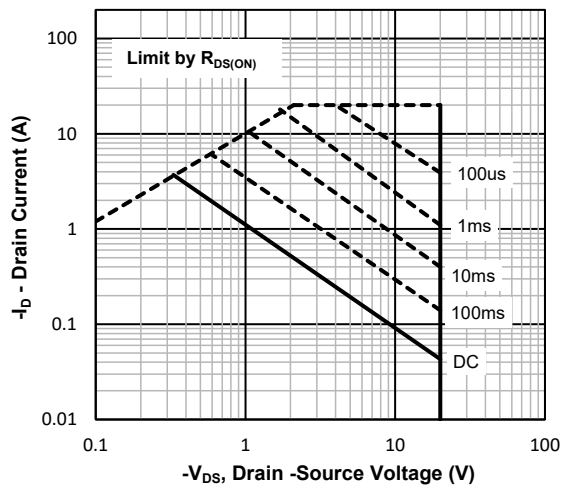


Fig5. Maximum Safe Operating Area

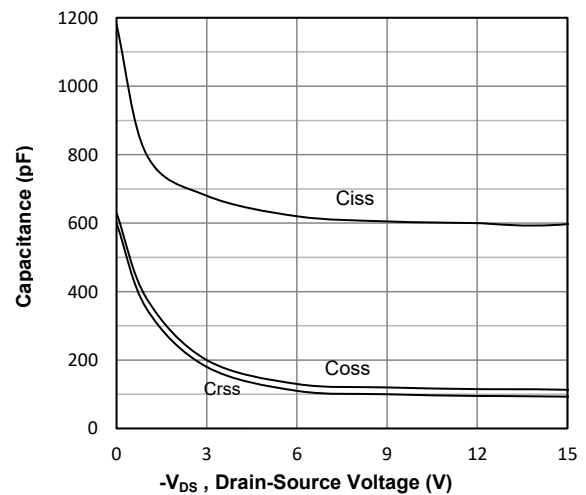
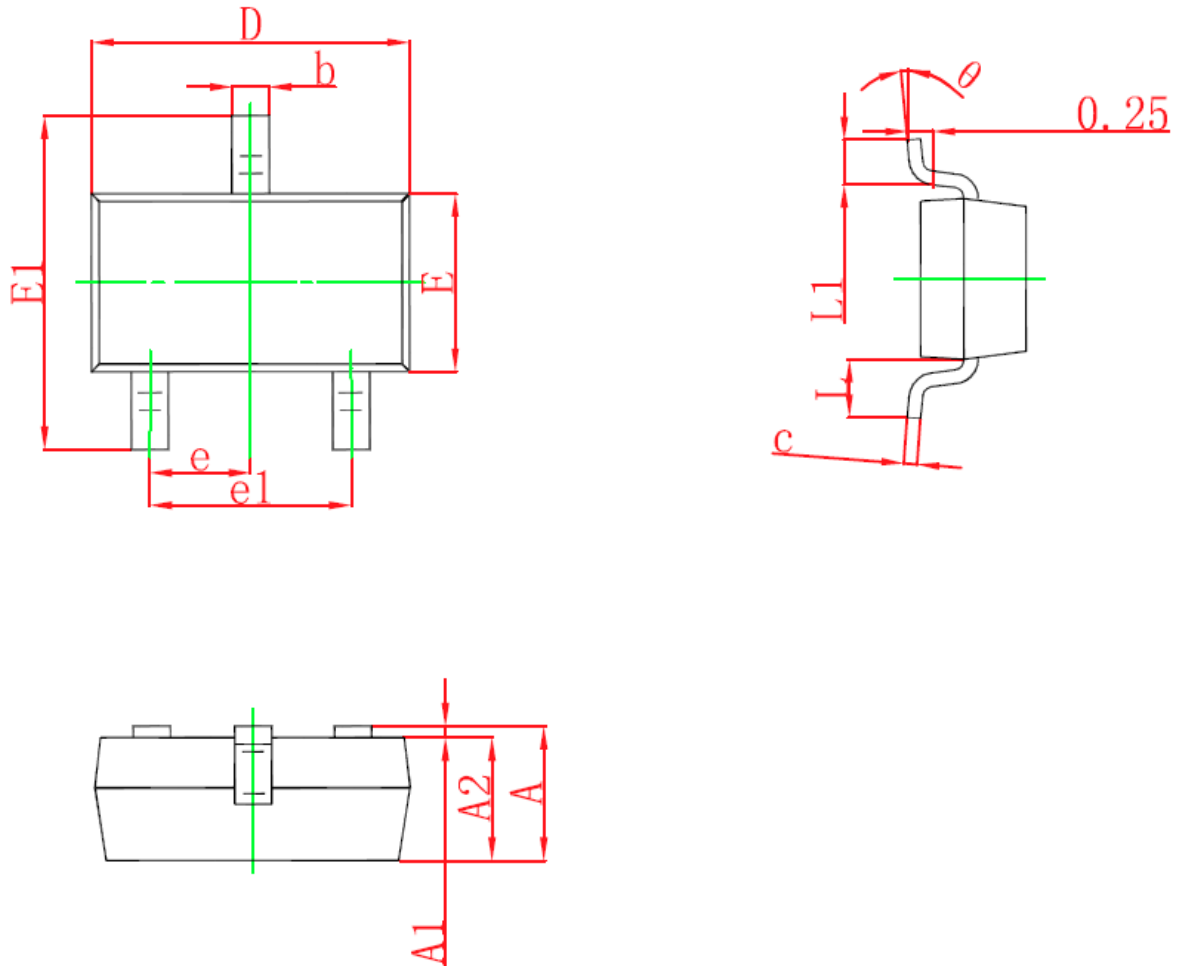


Fig6 Typical Capacitance Vs. Drain-Source Voltage

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°