

Features

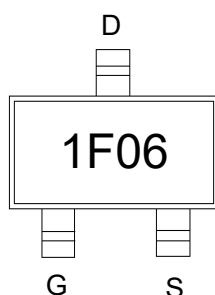
- Split Gate Trench MOSFET technology
- Low $R_{DS(on)}$ & FOM
- Excellent stability and uniformity
- Fast switching and soft recovery

Application

- Load Switch
- Isolated DC/DC convertor

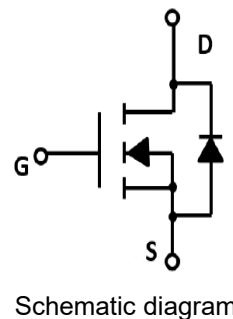
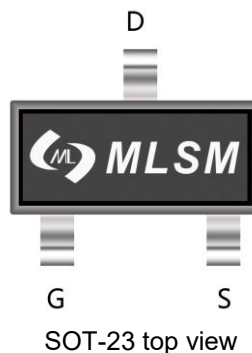
Product Summary

V_{DS}	$R_{DS(on)}$ TYP	I_D
150V	95mΩ@10V	6A



Marking and pin assignment

1F06: Device code



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	150	V
V_{GS}	Gate-Source Voltage	±20	V
T_J	Maximum Junction Temperature	150	°C
T_{STG}	Storage Temperature Range	-50 to 155	°C
I_S	Diode Continuous Forward Current	$T_C=25^\circ\text{C}$ 6	A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_C=25^\circ\text{C}$ 25	A
I_D	Continuous Drain Current	$T_C=25^\circ\text{C}$ 6	A
P_D	Maximum Power Dissipation	$T_C=25^\circ\text{C}$ 23	W
$R_{\theta JC}$	Thermal Resistance, Junction to Case	3.8	°C/W

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MLS1F06	SOT-23	1F06	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	150	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=150V, VGS=0V	--	--	1.0	μA
IGSS	Gate-Body Leakage Current	VGS=±20V, VDS=0V	--	--	±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=250μA	1.5	2.4	3.0	V
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=6A	--	95	120	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
CISS	Input Capacitance	VDS=50V, VGS=0V, f=1MHz	--	390	--	pF
COSS	Output Capacitance		--	41	--	pF
CRSS	Reverse Transfer Capacitance		--	5	--	pF
Switching Characteristics						
Qg	Total Gate Charge	VDS=100V, ID=5A, VGS=10V	--	6.8	--	nC
Qgs	Gate Source Charge		--	2.2	--	nC
Qgd	Gate Drain Charge		--	1.7	--	nC
t d(on)	Turn-on Delay Time	VDS=100V, ID=5A, VGS=10V, RG=6.8Ω	--	32	--	nS
t r	Turn-on Rise Time		--	17	--	nS
t d(off)	Turn-Off Delay Time		--	8.9	--	nS
t f	Turn-Off Fall Time		--	910	--	nS
Source- Drain Diode Characteristics						
VSD	Forward on voltage	TJ=25°C, IS=6A	--	--	1.2	V

Typical Operating Characteristics

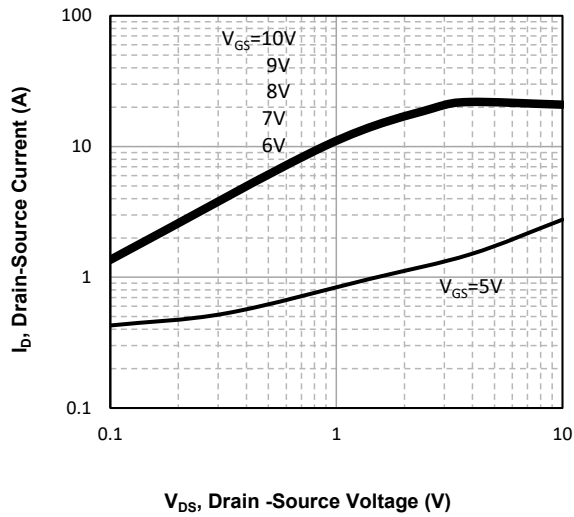


Fig1. Typical Output Characteristics

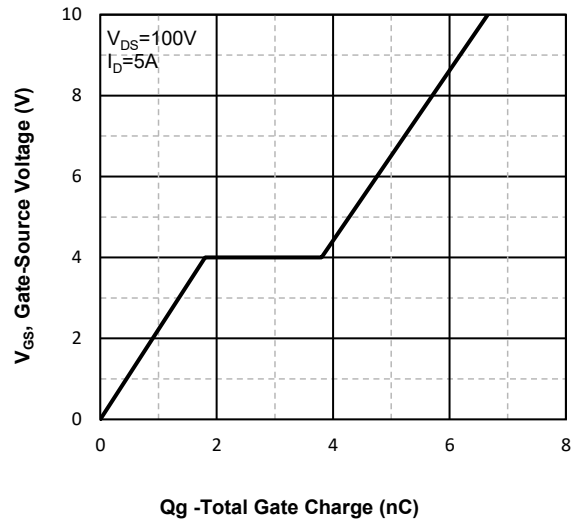


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

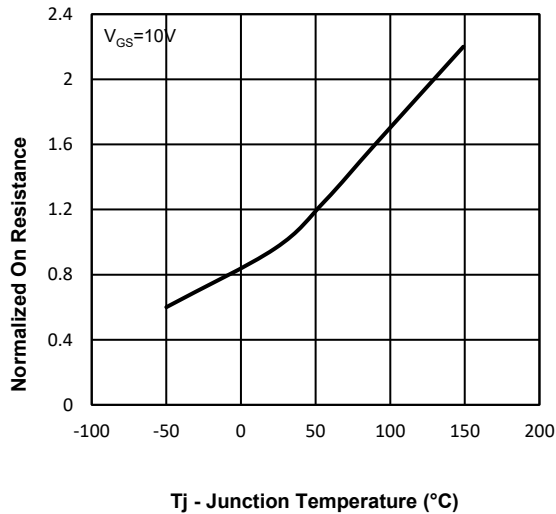


Fig3. Normalized On-Resistance Vs. Temperature

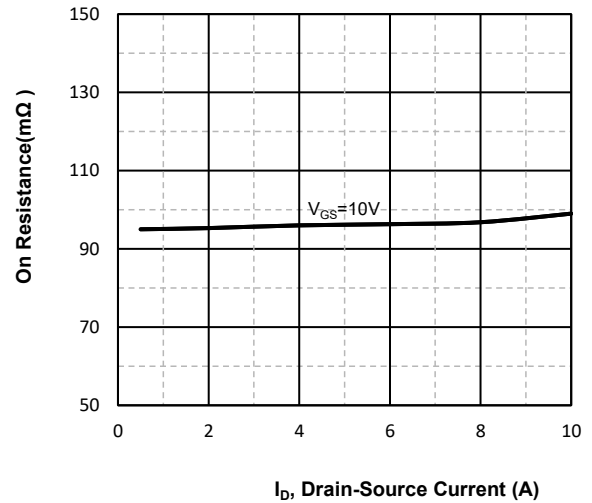


Fig4. On-Resistance Vs. Drain-Source Current

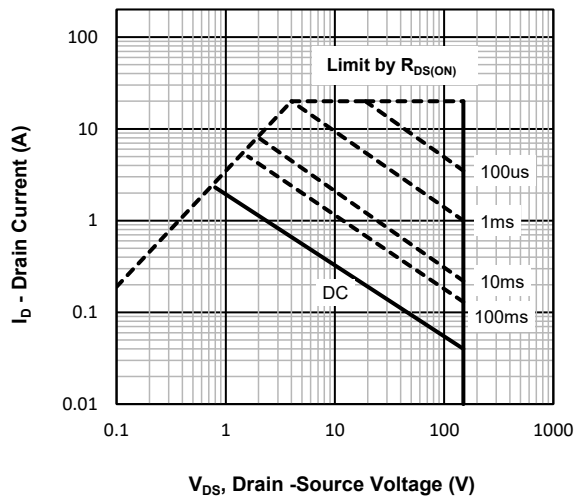


Fig5. Maximum Safe Operating Area

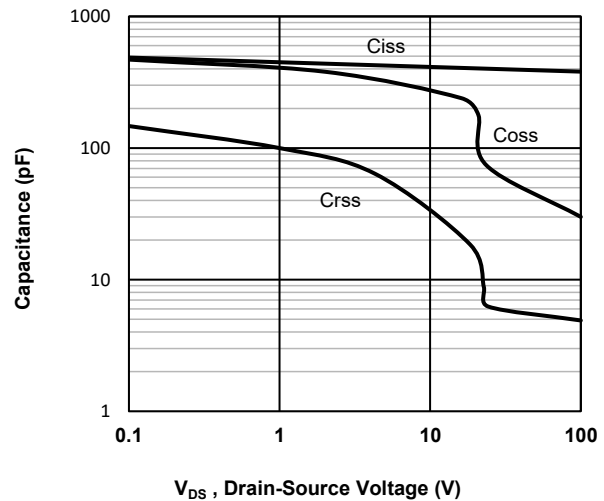
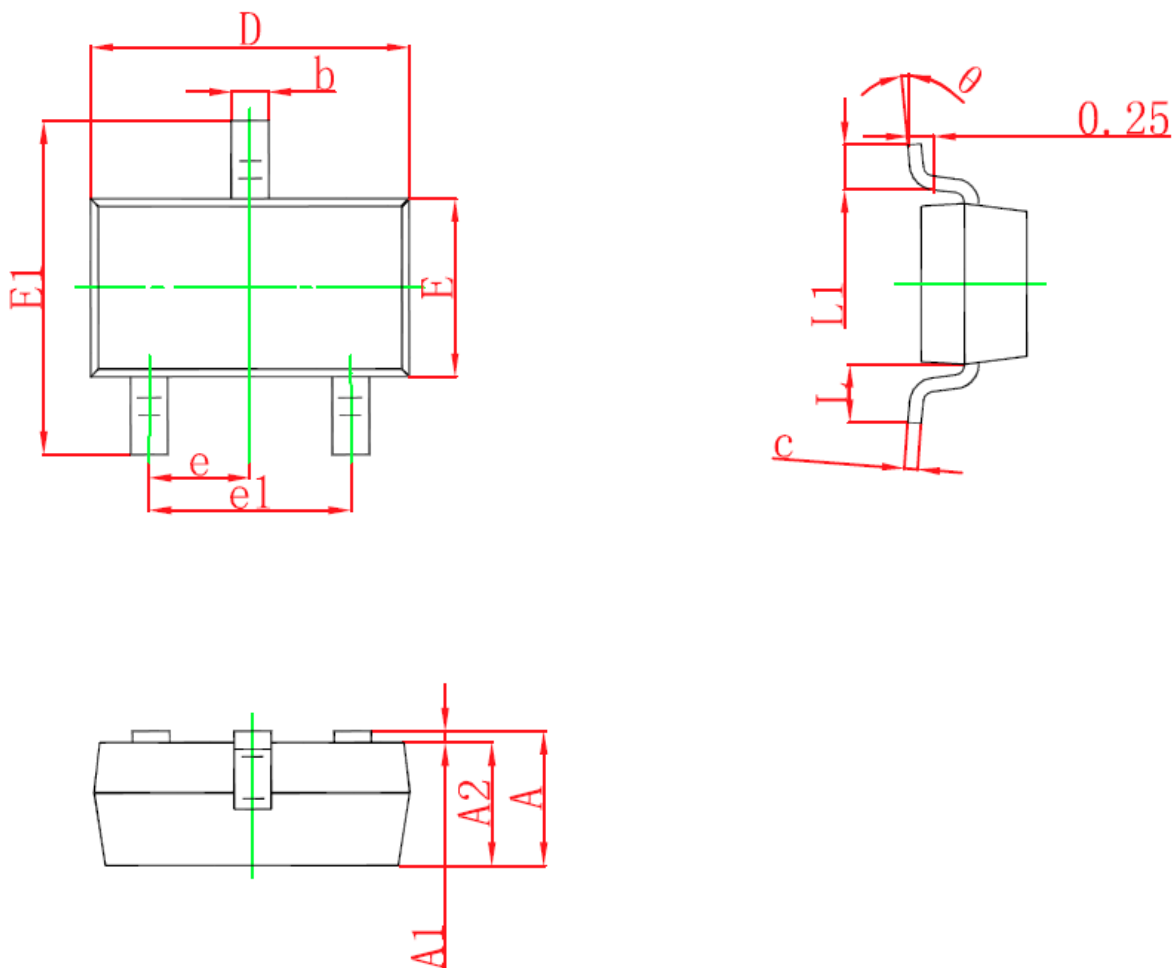


Fig6 Typical Capacitance Vs. Drain-Source Voltage

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°