MLSBA7002K

60V/0.41A N-Channel MOSFET

Features

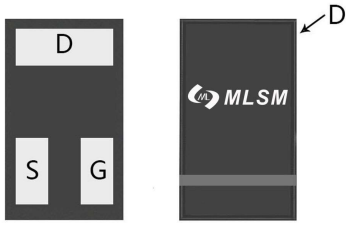
- Low On-Resistance
- Low Threshold Voltage
- Fast Switching Speed
- ESD Protected Gate

Application

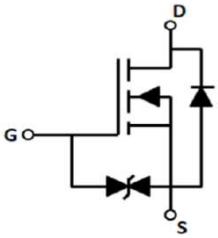
- Load Switch
- Portable Applications
- Power Management Functions

Product Summary

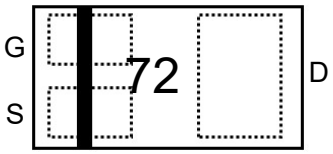
V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
60V	3.5Ω@10V	0.41A
	4.5Ω@4.5V	



DFN1006-3L view



Schematic diagram



72: Device code

Top View
Bar Denotes Gate
and Source Side

Pb-Free RoHS Halogen-Free

Absolute Maximum Ratings (TA=25℃unless otherwise noted)				
Symbol	**Parameter**		**Rating**	**Unit**
Common Ratings (TC=25°C Unless Otherwise Noted)				
V_{DS}	Drain-Source Breakdown Voltage		60	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	Tc=25°C	0.41	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested	Tc=25°C	1.2	A
I_D	Continuous Drain Current	Tc=25°C	0.41	A
P_D	Maximum Power Dissipation	Tc=25°C	275	mW
E_{SD}	Gate-Source ESD Rating (HBM, Method 3015)		2000	V

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MLSBA7002K	DFN1006-3L	72	10,000	150,000	600,000	7"reel

Electrical Characteristics (TJ=25℃ 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	60	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=60V，V_{GS}=0V	--	--	1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±20V，V_{DS}=0V	--	--	±10	μA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}，I_D=250μA	1	1.6	2.5	V
$R_{DS(on)}$	Drain-Source On-State Resistance	V_{GS}=10V，I_D=340mA	--	1.6	3.5	Ω
		V_{GS}=4.5V，I_D=200mA	--	2.1	4.5	Ω
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C_{ISS}	Input Capacitance	V_{DS}=30V，V_{GS}=0V， f=1MHz	--	21	--	pF
C_{OSS}	Output Capacitance		--	9	--	pF
C_{RSS}	Reverse Transfer Capacitance		--	4	--	pF
Switching Characteristics						
Q_g	Total Gate Charge	V_{DS}=30V，I_D=0.3A，V_{GS}=10V	--	1.22	2.4	nC
Q_{gs}	Gate-Source Charge		--	0.5	--	nC
Q_{gd}	Gate-Drain Charge		--	0.18	--	nC
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=50V，I_D=0.2A，V_{GS}=10V，R_G=50Ω	--	7	--	nS
t_r	Turn-on Rise Time		--	19	--	nS
$t_{d(off)}$	Turn-Off Delay Time		--	20	--	nS
t_f	Turn-off fall Time		--	84	--	nS
Source- Drain Diode Characteristics						
V_{SD}	Forward on voltage	Tj=25℃，Is=0.41A	--	--	1.2	V

Typical Operating Characteristics

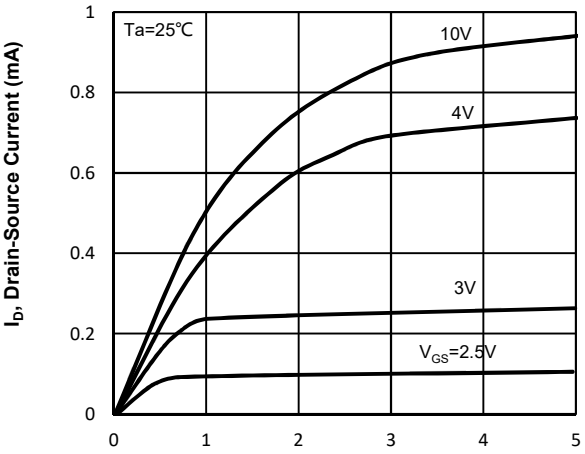


Fig1. Typical Output Characteristics

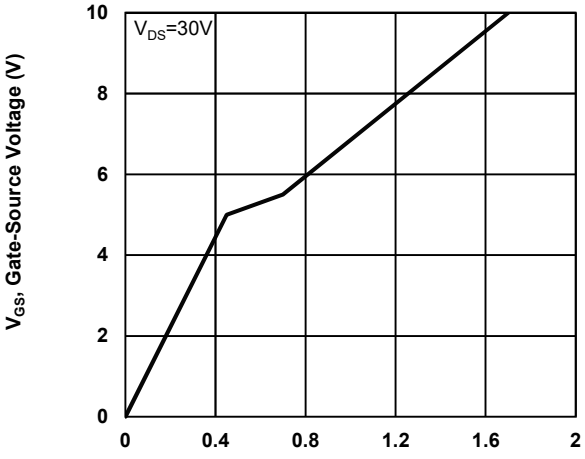


Fig2. Typical Gate Charge Vs.Gate-Source Voltage

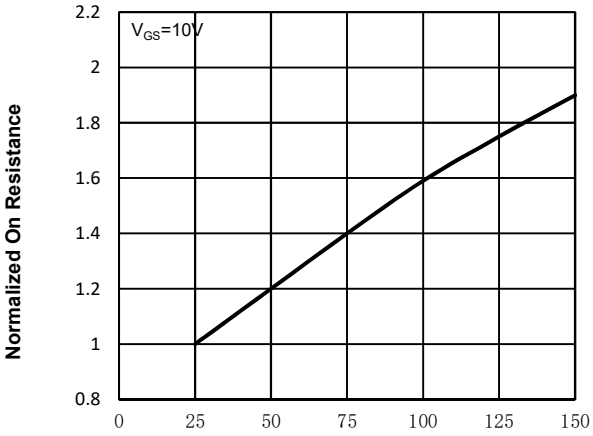


Fig3. Normalized On-Resistance Vs. Temperature

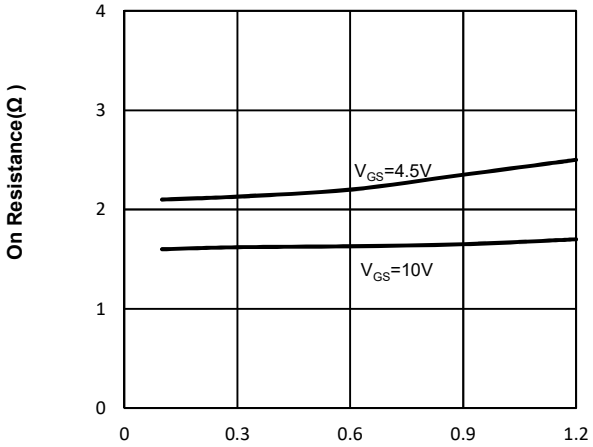


Fig4. On-Resistance Vs. Drain-Source Current

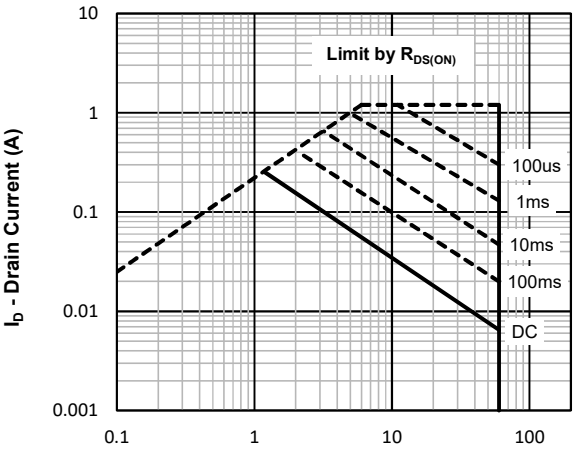


Fig5. Maximum Safe Operating Area

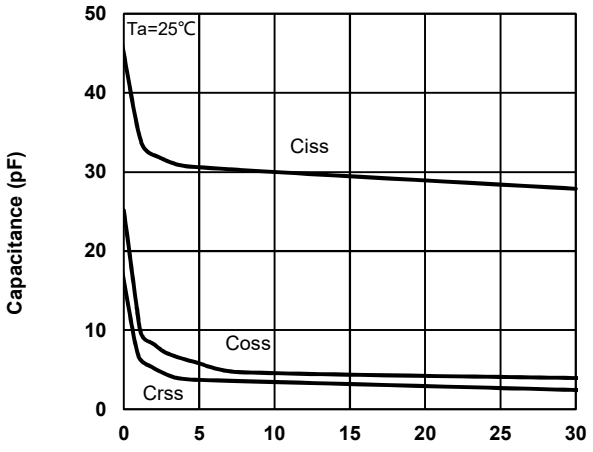
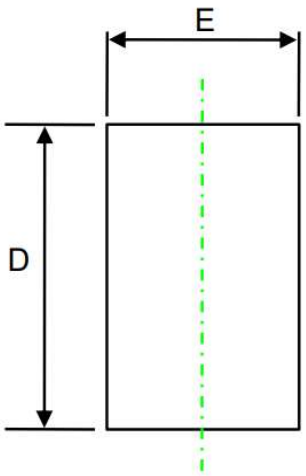
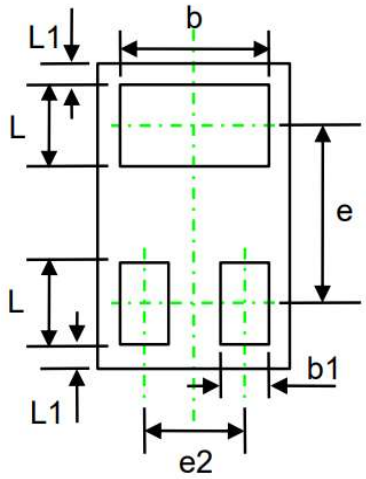


Fig6 Typical Capacitance Vs.Drain-Source Voltage

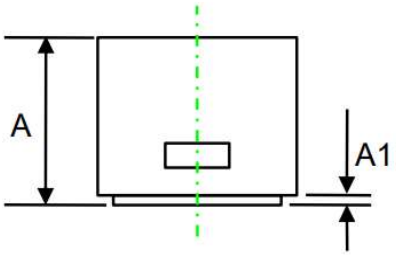
DFN1006-3L Package information



TOP VIEW



BOTTOM VIEW



SIDE VIEW

Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	0.450	0.550	0.017	0.021
A1	0.000	0.030	0.000	0.001
D	0.950	1.050	0.037	0.041
E	0.550	0.650	0.021	0.025
b	0.470	0.550	0.018	0.021
e	0.65TYP		0.025TYP	
e2	0.35TYP		0.013TYP	
L1	0.05TYP		0.001TYP	
L	0.220	0.300	0.008	0.012
b1	0.110	0.190	0.004	0.007