

Features

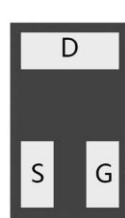
- Lead Free Product is Acquired
- Surface Mount Package
- P-Channel Switch with Low $R_{DS(on)}$
- Operated at Low Logic Level Gate Drive

Product Summary

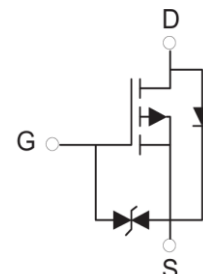
V_{DS}	$R_{DS(ON)}$ TYP	I_D
-20V	380mΩ@-4.5V	-0.66A
	520mΩ@-2.5V	

Application

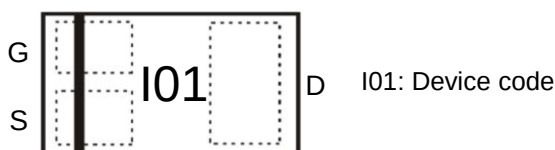
- Load/Power Switching
- Interfacing, Logic Switching
- Battery Management for Ultra Small Portable Electronics



DFN1006-3L view



Schematic diagram



Marking and pin assignment



Pb-Free



RoHS



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	±12	V
T_J	Maximum Junction Temperature	150	°C
T_{STG}	Storage Temperature Range	-55 to 150	°C
I_S	Diode Continuous Forward Current	$T_c=25^\circ\text{C}$	-0.66
			A

Mounted on Large Heat Sink

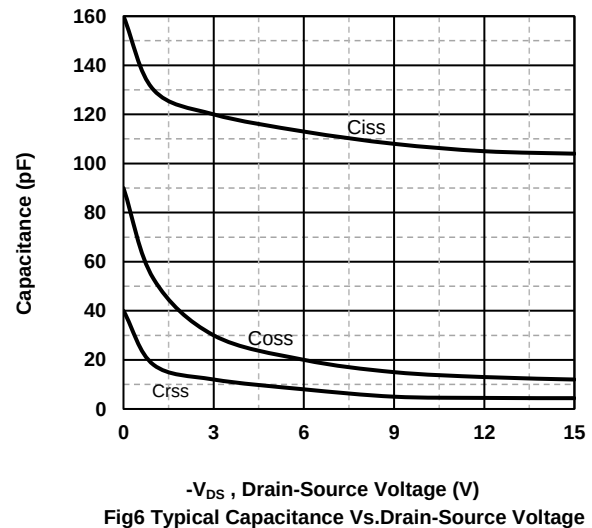
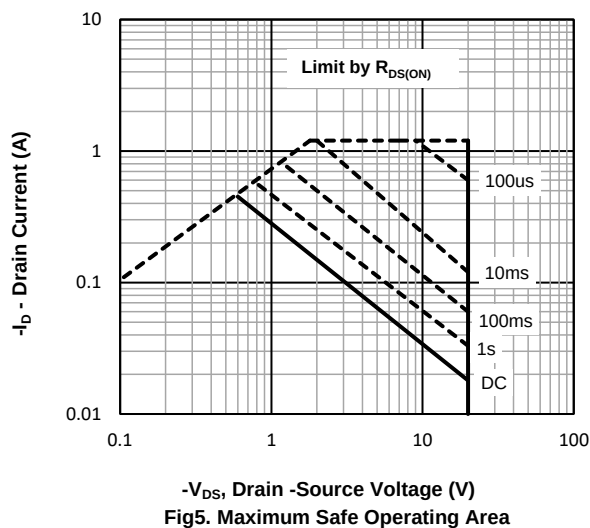
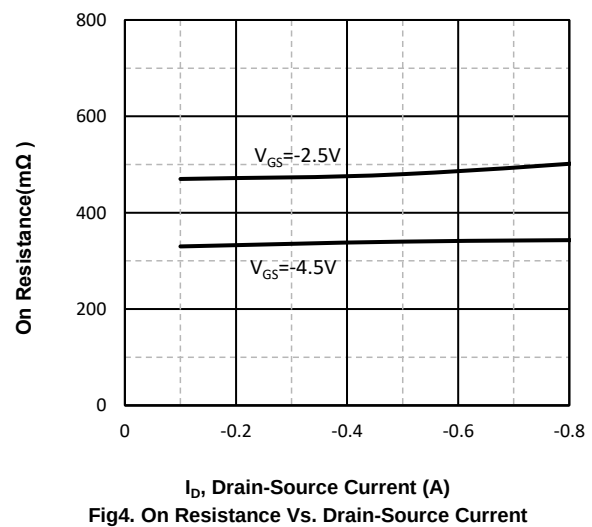
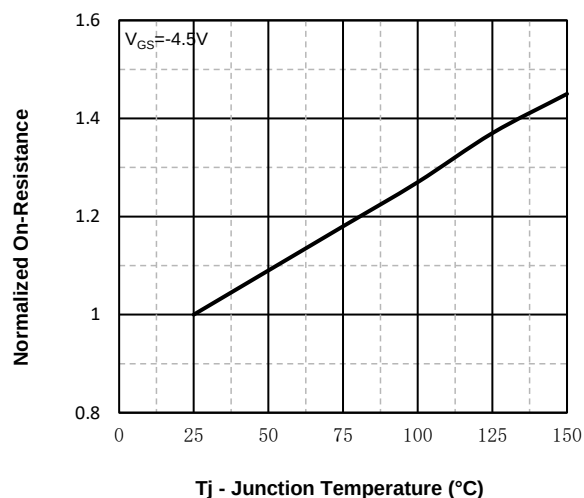
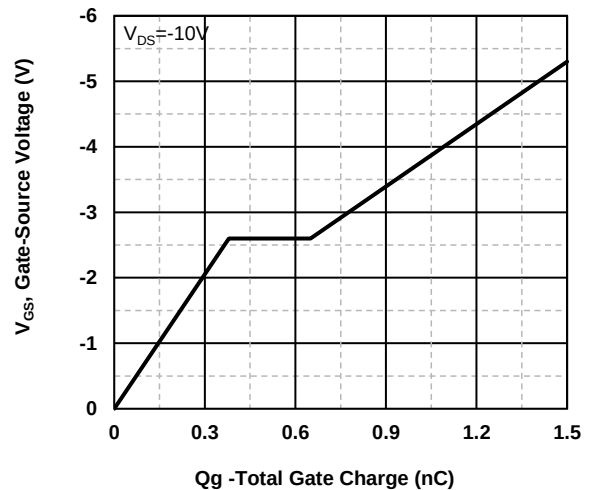
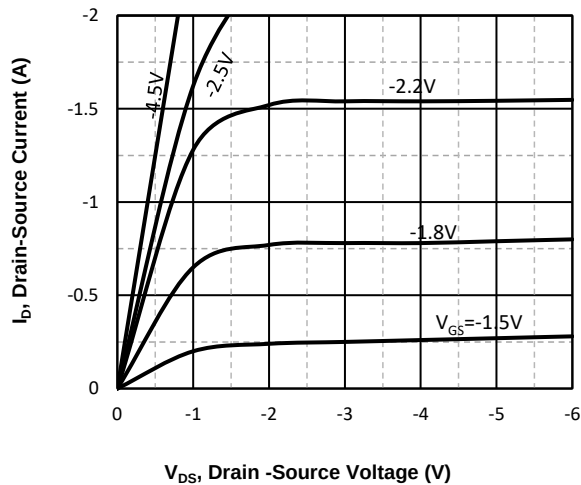
I_{DM}	Pulse Drain Current Tested	$T_c=25^\circ\text{C}$	-1.2	A
I_D	Continuous Drain Current	$T_c=25^\circ\text{C}$	-0.66	A
P_D	Maximum Power Dissipation	$T_c=25^\circ\text{C}$	0.275	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient		455	°C/W

Ordering Information (Example)

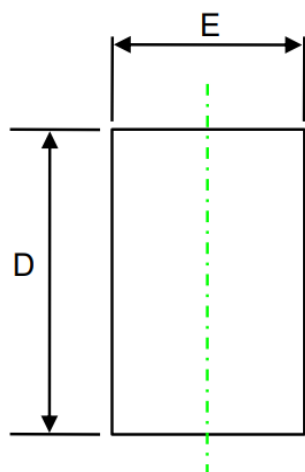
Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MLSBA3139K	DFN1006-3L	I01	10,000	150,000	600,000	7"reel

Electrical Characteristics (T _J =25℃ unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T _J = 25℃ (unless otherwise stated)						
BV _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	-20	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-20V, V _{GS} =0V	--	--	-1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±12V, V _{DS} =0V	--	--	±10	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-0.35	-0.65	-1.10	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =-4.5V, I _D =-1.0A	--	380	520	mΩ
		V _{GS} =-2.5V, I _D =-0.8A	--	520	700	mΩ
		V _{GS} =-1.8V, I _D =-0.5A	--	750	--	mΩ
Dynamic Electrical Characteristics @ T _J = 25℃ (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =-10V, V _{GS} =0V, f=1MHz	--	115	--	pF
C _{OSS}	Output Capacitance		--	15	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	8.8	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DD} =-10V, I _D =-0.5A, V _{GS} =-4.5V	--	1.25	--	nC
Q _{gs}	Gate Source Charge		--	0.35	--	nC
Q _{gd}	Gate Drain Charge		--	0.29	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =-10V, I _D =-0.2A, V _{GS} =-4.5V, R _G =10Ω	--	9	--	nS
t _r	Turn-on Rise Time		--	5.5	--	nS
t _{d(off)}	Turn-Off Delay Time		--	30.8	--	nS
t _f	Turn-Off Fall Time		--	20	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	T _J =25℃, I _S =-0.66A	--	--	-1.2	V

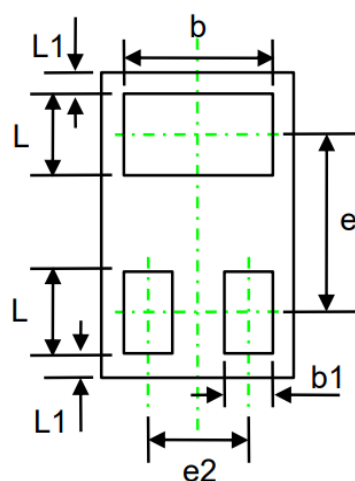
Typical Operating Characteristics



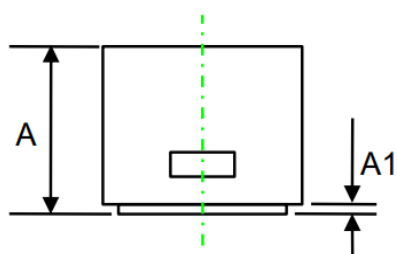
DFN1006-3L Package information



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