

Features

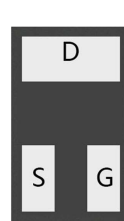
- High density cell design for extremely low $R_{DS(on)}$
- Fast switching speed
- Easily designed drive circuits
- Easy to parallel Portable equipment

Application

- Interfacing, Switching

Product Summary

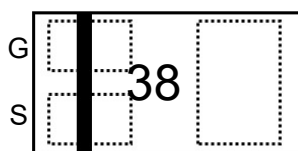
V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
50V	3.5Ω@10V	0.22A
	6.0Ω@4.5V	



DFN1006-3L view



Schematic diagram



38: 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	50	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	$T_C=25^{\circ}C$ 0.22	A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_C=25^{\circ}C$ 1	A
I_D	Continuous Drain Current	$T_C=25^{\circ}C$ 0.22	A
P_D	Maximum Power Dissipation	$T_C=25^{\circ}C$ 0.35	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	357	°C/W

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MLSBA138	DFN1006-3L	38	10,000	150,000	600,000	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	V _{GS} =0V, I _D =250μA	50	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =50V, 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	0.8	1.2	1.5	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =0.22A	--	0.7	3.5	Ω
		V _{GS} =4.5V, I _D =0.22A	--	0.8	6.0	Ω
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz	--	28.5	--	pF
C _{OSS}	Output Capacitance		--	2.7	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	1.78	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =25V, I _D =0.3A, V _{GS} =10V	--	1.7	--	nC
Q _{gs}	Gate Source Charge		--	0.4	--	nC
Q _{gd}	Gate Drain Charge		--	0.24	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DD} =25V, I _D =0.3A, V _{GS} =10V, R _G =6Ω	--	2.6	--	nS
t _r	Turn-on Rise Time		--	18.8	--	nS
t _{d(off)}	Turn-Off Delay Time		--	9.7	--	nS
t _f	Turn-Off Fall Time		--	47	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	Tj=25°C, Is=0.22A	--	--	1.2	V

Typical Operating Characteristics

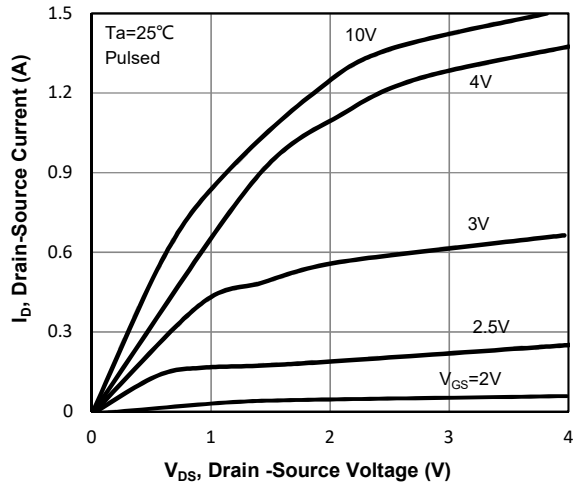


Fig1. Typical Output Characteristics

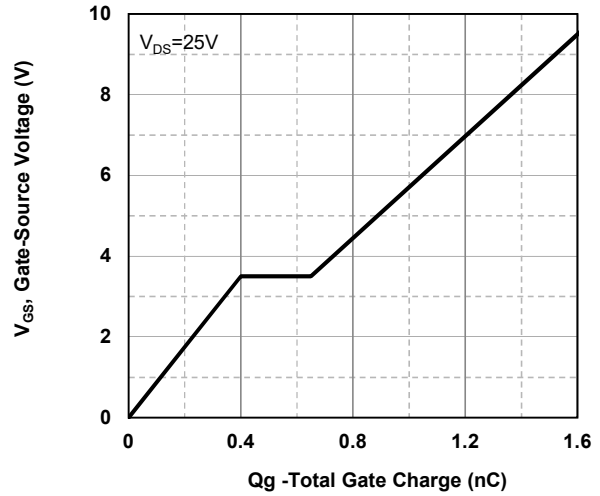


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

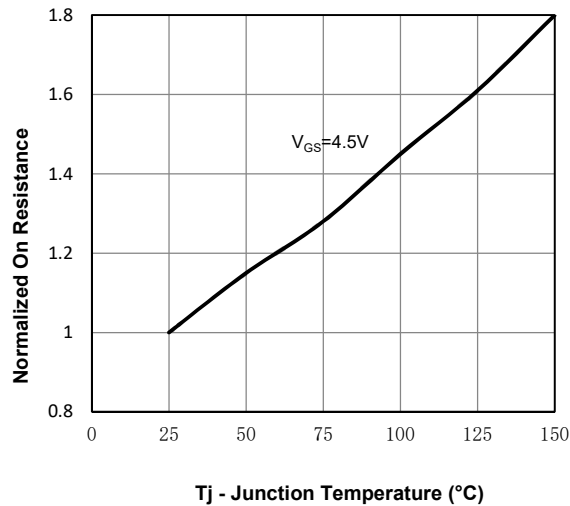


Fig3. Normalized On-Resistance Vs. Temperature

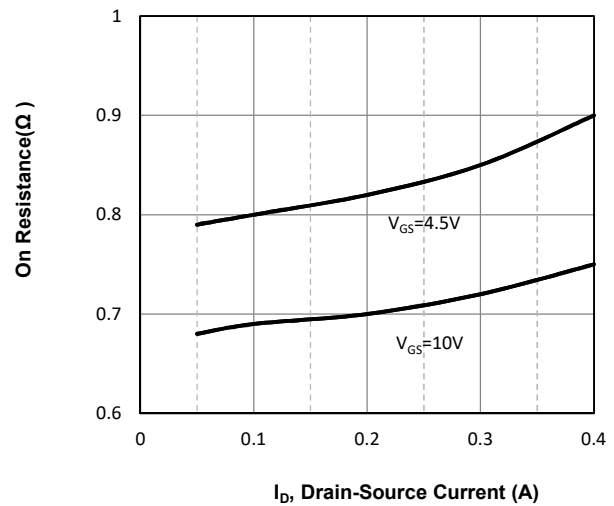


Fig4. On-Resistance Vs. Drain-Source Current

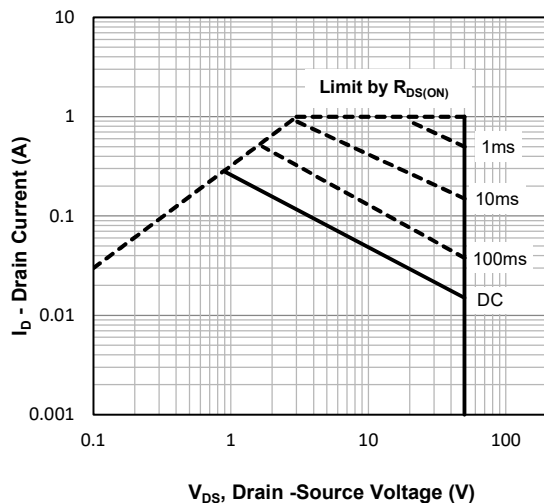


Fig5. Maximum Safe Operating Area

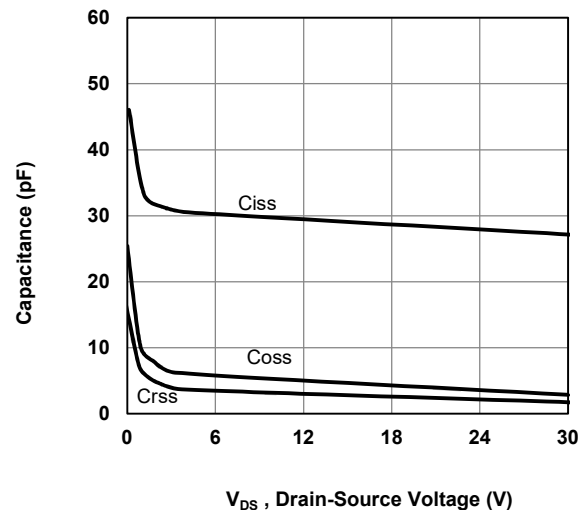
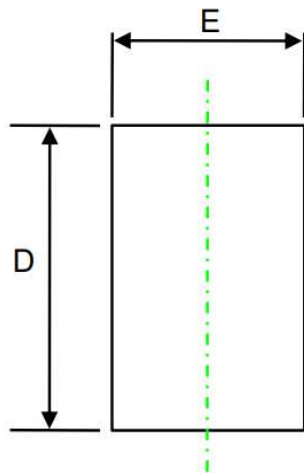
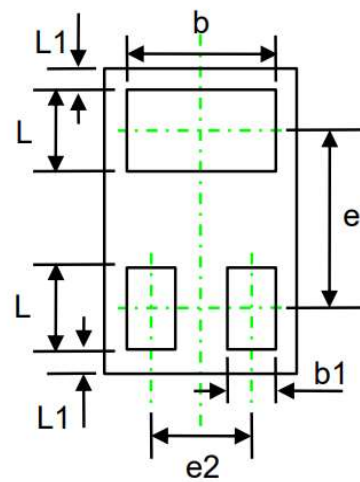


Fig6 Typical Capacitance Vs. Drain-Source Voltage

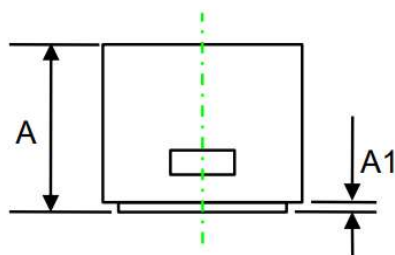
DFN1006-3L Package information



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