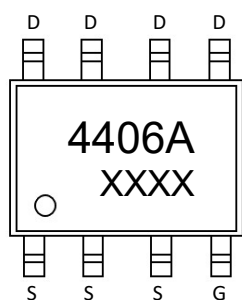


Features

- Advanced high cell density Trench technology
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- Green Device Available

Application

- High Frequency Point-of-Load Synchronous Buck Converter for MB/NB/UMPC/VGA
- Networking DC-DC Power System
- Load Switch

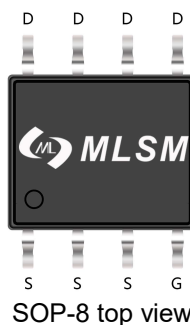


4406A : Device code
 XXXX : Code

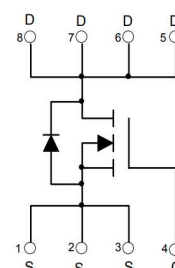
Marking and pin assignment

Product Summary

V_{DS}	$R_{DS(ON)} \text{ MAX}$	$I_D \text{ MAX}$
30V	11.5mΩ@10V	13A
	15.5mΩ@4.5V	



SOP-8 top view



Schematic diagram



Pb-Free



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	30	V
V_{GS}	Gate-Source Voltage	±20	V
T_J	Maximum Junction Temperature	150	°C
T_{STG}	Storage Temperature Range	-55 to 150	°C
I_S	Diode Continuous Forward Current	$T_c=25^\circ\text{C}$ 13	A

Mounted on Large Heat Sink

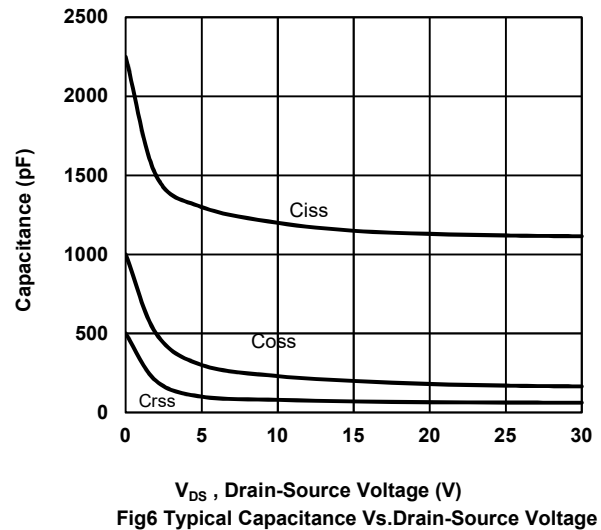
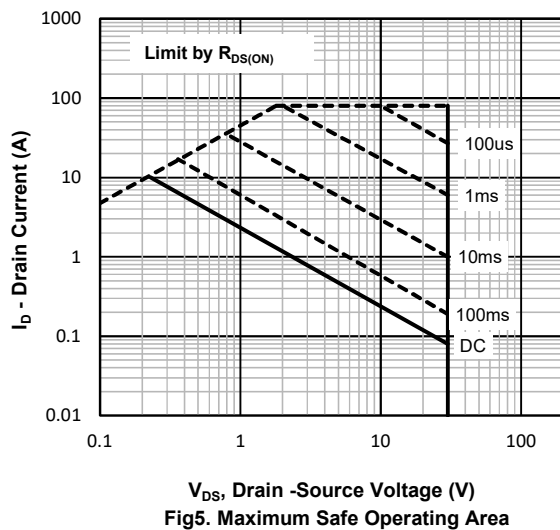
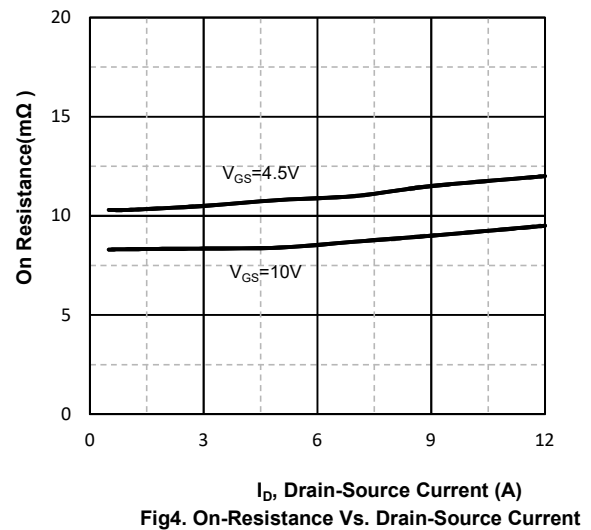
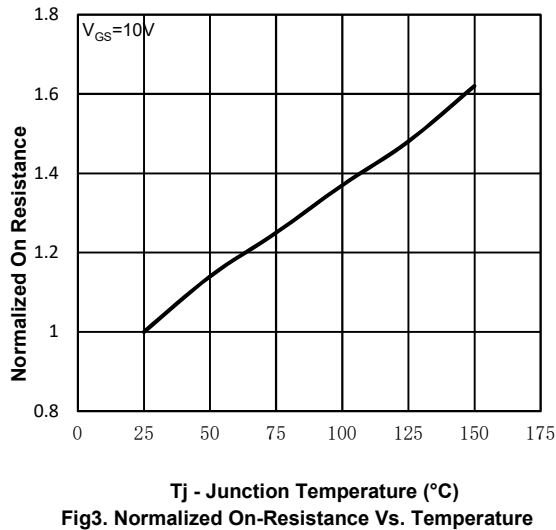
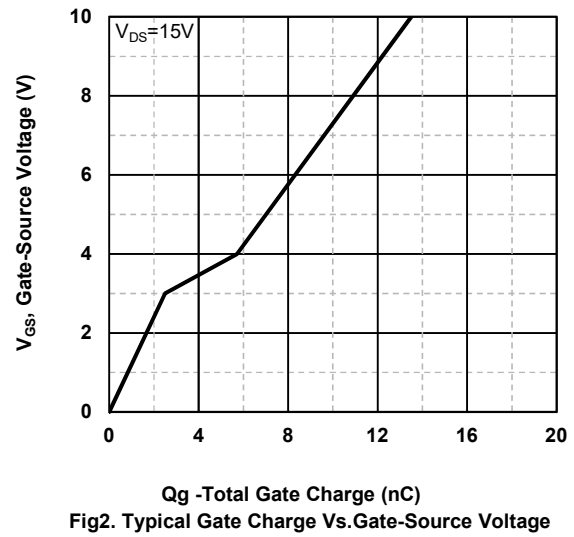
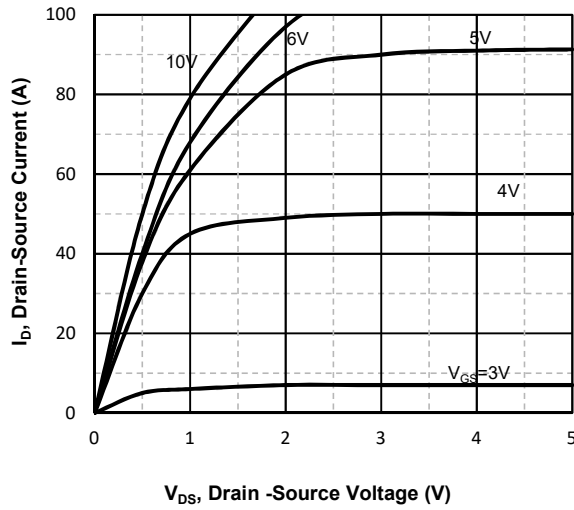
I_{DM}	Pulse Drain Current Tested	$T_c=25^\circ\text{C}$ 80	A
I_D	Continuous Drain Current	$T_c=25^\circ\text{C}$ 13	A
P_D	Maximum Power Dissipation	$T_c=25^\circ\text{C}$ 1.5	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	89	°C/W

Ordering Information (Example)

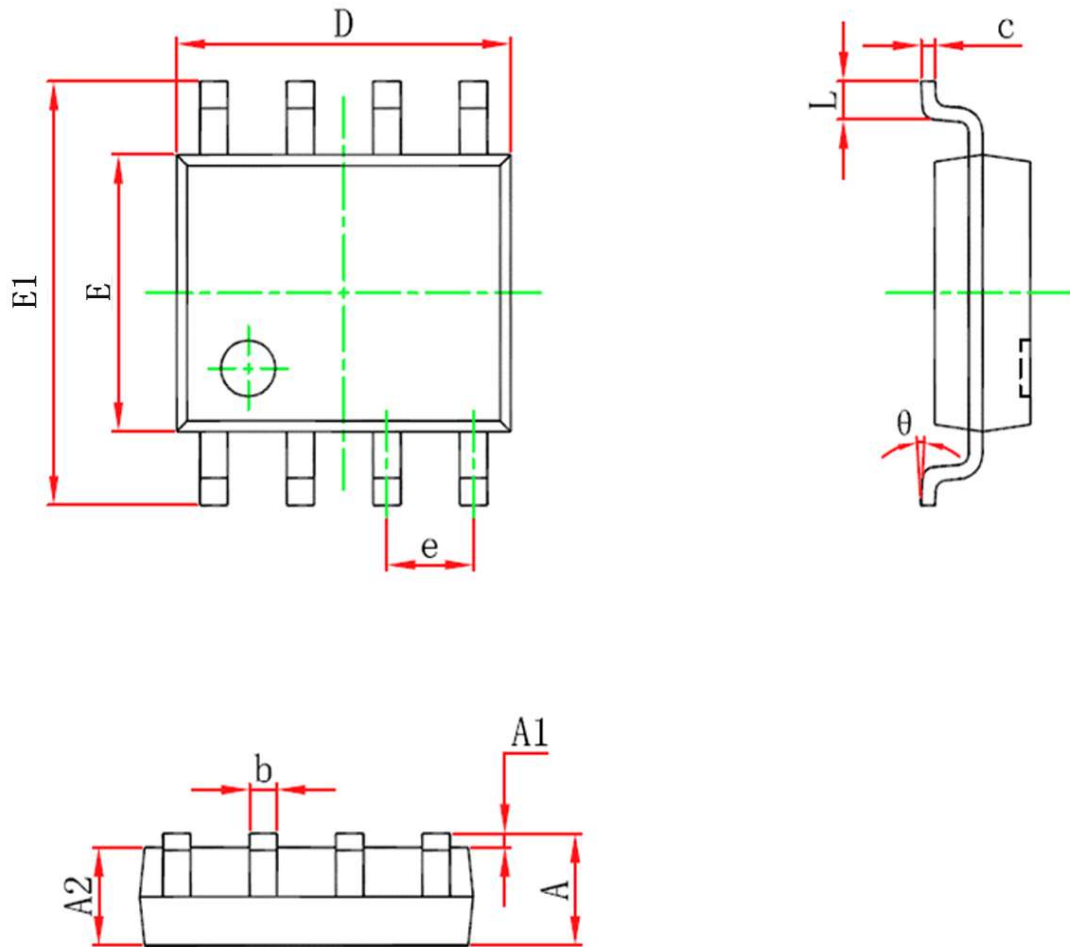
Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MLSQ4406A	SOP-8	4406A	3,000	6,000	42,000	13"reel

Electrical Characteristics (T _J =25°C unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T _J = 25°C (unless otherwise stated)						
B _{V(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	30	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, 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	1.0	1.5	2.5	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =12.8A	--	8	11.5	mΩ
		V _{GS} =4.5V, I _D =12.0A	--	10	15.5	mΩ
Dynamic Electrical Characteristics @ T _J = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	--	1150	--	pF
C _{OSS}	Output Capacitance		--	200	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	80	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =15V, I _D =13A, V _{GS} =10V	--	15	--	nC
Q _{gs}	Gate Source Charge		--	2.4	--	nC
Q _{gd}	Gate Drain Charge		--	3.1	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =15V, R _L =1.8Ω, V _{GS} =10V, R _G =3Ω	--	4.3	--	nS
t _r	Turn-on Rise Time		--	9	--	nS
t _{d(off)}	Turn-Off Delay Time		--	17	--	nS
t _f	Turn-Off Fall Time		--	6	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	T _J =25°C, I _S =13A	--	--	1.2	V

Typical Operating Characteristics



SOP-8 Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	1.450	1.750	0.057	0.068
A1	0.100	0.250	0.003	0.009
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.012	0.020
c	0.170	0.250	0.006	0.009
D	4.700	5.100	0.185	0.200
e	1.270(BSC)		0.050(BSC)	
E	3.800	4.000	0.149	0.157
E1	5.800	6.200	0.228	0.244
L	0.400	1.270	0.015	0.050
θ	0°	8°	0°	8°