

Features

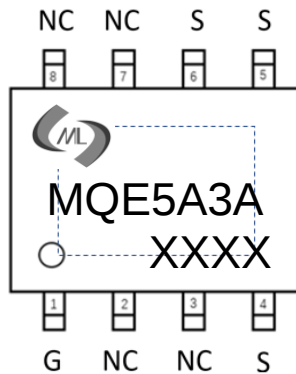
- Fast switching capability
- 100% avalanche tested
- Improved dv/dt capability

Product Summary

V_{DS}	$R_{DS(ON)}$ TYP	I_D
500V	$3.1\Omega@10V$	3A

Application

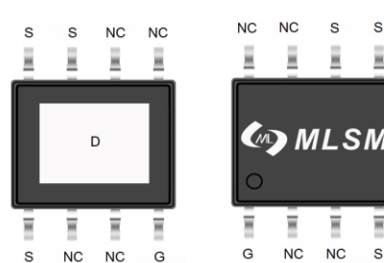
- Switch Mode Power Supply (SMPS)
- Uninterruptible Power Supply (UPS)
- Power Factor Correction (PFC)



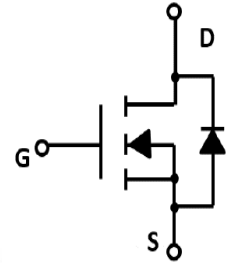
MQE5A3A: Device code
 XXXX: Code

注：底部虚线框为Drain

Marking and pin assignment



ESOP-8L view



Schematic diagram



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		500	V
V _{GS}	Gate-Source Voltage		±30	V
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-50 to 155	°C
EAS	Single Pulsed Avalanche Energy ^{Note1}		100	mJ
I _S	Diode Continuous Forward Current	Tc=25°C	3	A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_c=25^\circ C$	12	A
I_D	Continuous Drain Current	$T_c=25^\circ C$	3	A
P_D	Maximum Power Dissipation	$T_c=25^\circ C$	30	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient		100	°C/W

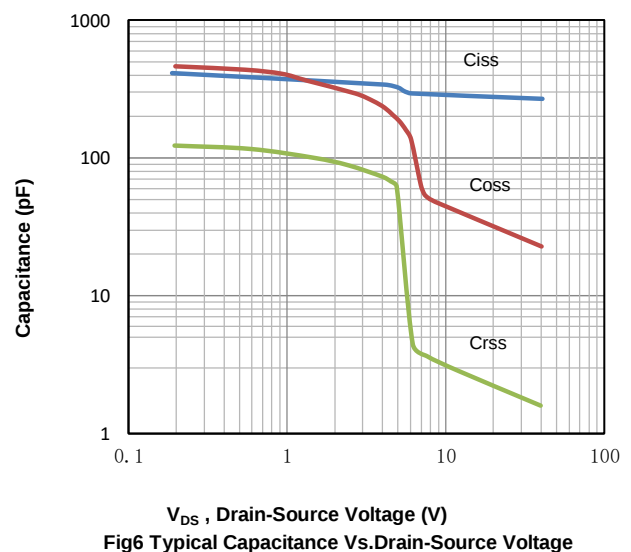
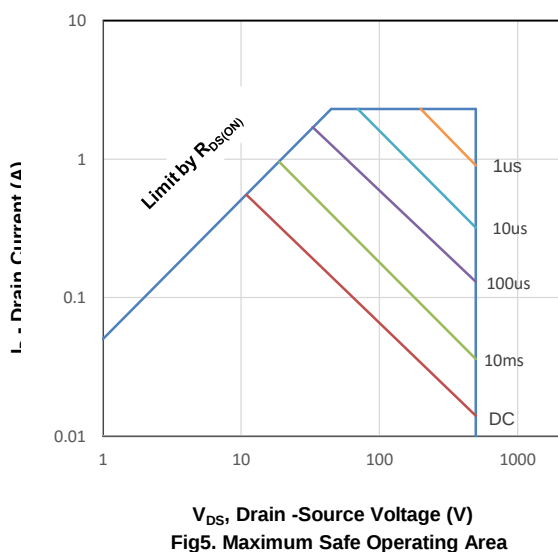
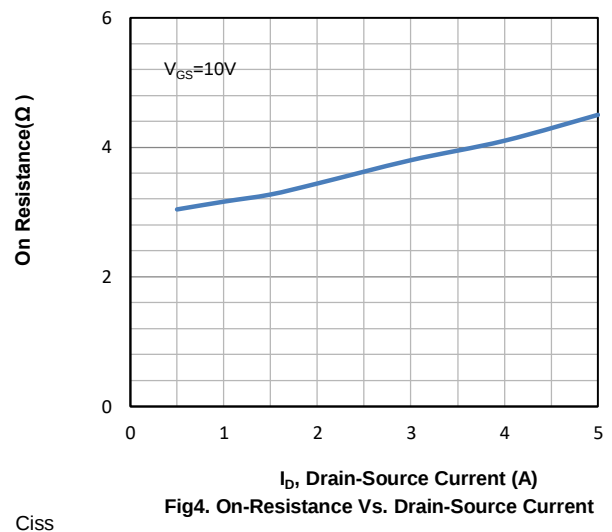
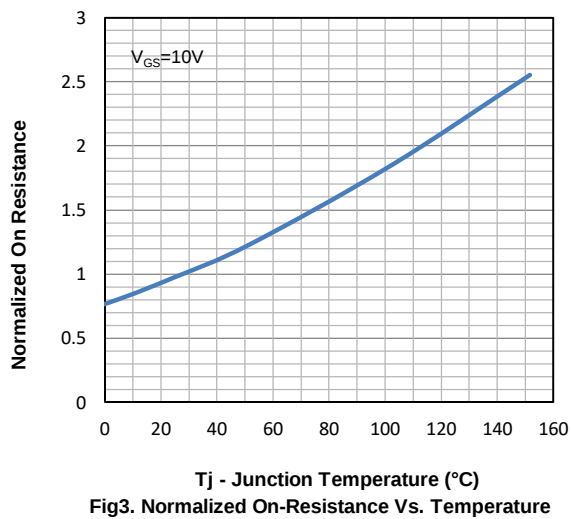
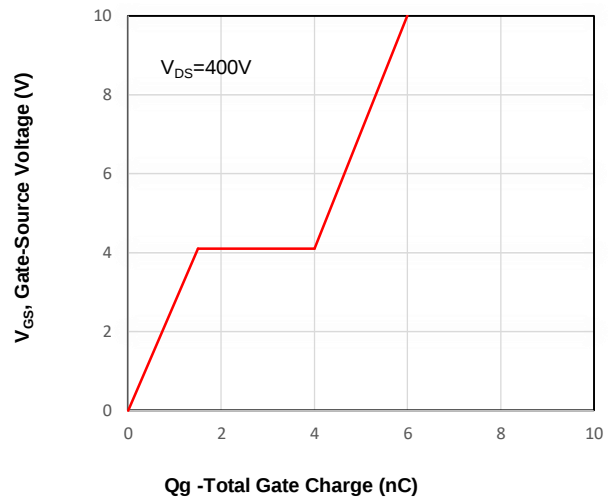
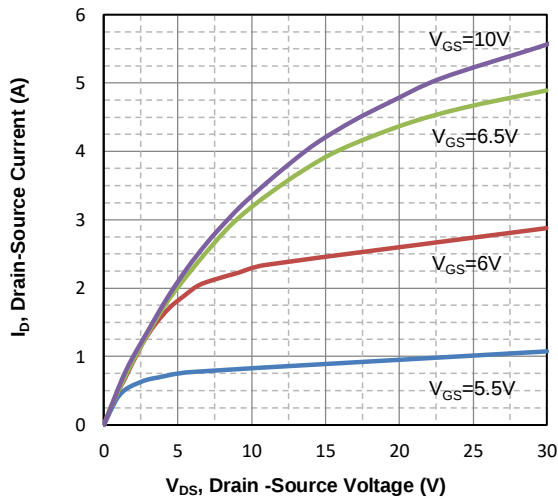
Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MQE5A3A	ESOP-8L	MQE5A3A	4,000	8,000	56,000	13"reel

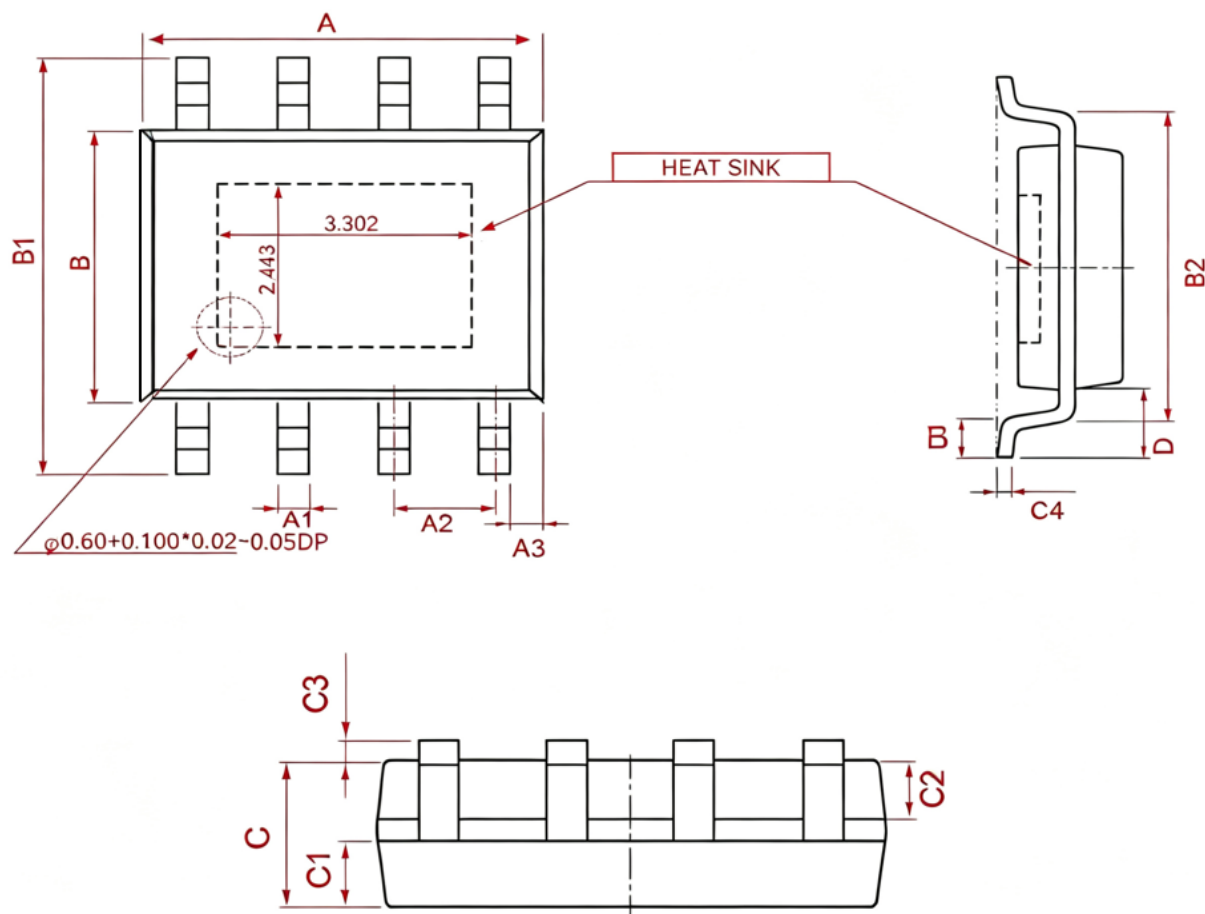
Electrical Characteristics (TJ=25°C unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
BV _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	500	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =500V, V _{GS} =0V	--	--	1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±30V, V _{DS} =0V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	2	3	4	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =1A	--	3.1	4	Ω
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz	--	260	--	pF
C _{OSS}	Output Capacitance		--	63	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	1.1	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =400V, I _D =3A, V _{GS} =10V	--	6	--	nC
Q _{gs}	Gate Source Charge		--	1.5	--	nC
Q _{gd}	Gate Drain Charge		--	3.5	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DD} =250V, I _D =3A, V _{GS} =10V, R _G =25Ω	--	9	--	nS
t _r	Turn-on Rise Time		--	18	--	nS
t _{d(off)}	Turn-Off Delay Time		--	28	--	nS
t _f	Turn-Off Fall Time		--	16	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	Tj=25°C, Is=3A	--	--	1.2	V

Note1: L=10mH、R_G=25Ω、V_{GS}=20V、V_{DD}=30V, Start T_J=25°C

Typical Operating Characteristics



ESOP-8L Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	4.850	4.950	0.190	0.194
A1	0.375	0.425	0.015	0.017
A2	1.250	1.295	0.049	0.051
A3	0.345TYP		0.014TYP	
B	3.890	3.990	0.153	0.157
B1	5.900	6.100	0.232	0.239
B2	5.000TYP		0.196TYP	
C	1.400	1.500	0.055	0.059
C1	0.685	0.709	0.027	0.028
C2	0.520	0.580	0.020	0.023
C3	0.000	0.100	0.000	0.004
C4	0.195	0.211	0.008	0.008
D	1.005	1.055	0.039	0.041
D1	0.500	0.700	0.020	0.027