MEQAC40A

18V/40A Dual N-Channel MOSFET

Features

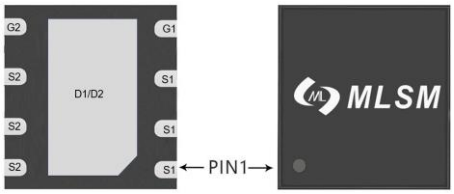
- Advanced high cell density Trench technology
- ESD Rating: ≧2000V HBM
- Excellent CdV/dt effect decline
- Green Device Available

Product Summary

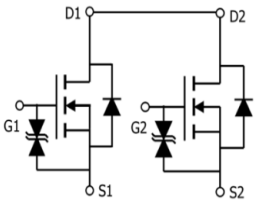
V_{DS}	$R_{DS(ON)}$ TYP	I_D
18V	4.0mΩ@4.5V	40A
	6.2mΩ@2.5V	

Application

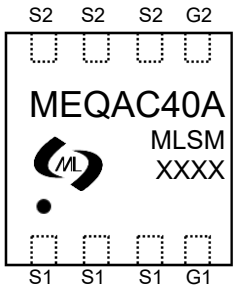
- Battery Protection
- Load Switch



DFN3X3-8L view



Schematic diagram



Marking and pin assignment

MEQAC40A : Device code
XXXX : Code

Pb-Free RoHS HAL 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		18	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	Tc=25°C	40	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested	Tc=25°C	160	A
I_D	Continuous Drain Current	Tc=25°C	40	A
P_D	Maximum Power Dissipation	Tc=25°C	3	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient		45	°C/W

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MEQAC40A	DFN3X3-8L	MEQAC40A	5,000	10,000	70,000	13"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	18	20.5	--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=16V，V_{GS}=0V	--	--	1.0	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	0.5	0.7	1.0	V
$R_{DS(on)}$	Drain-Source On-State Resistance	V_{GS}=4.5V， I_D=6A	--	4.0	5.2	mΩ
		V_{GS}=3.9V，I_D=5A	--	5.1	7.2	mΩ
		V_{GS}=2.5V，I_D=3A	--	6.2	8.5	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C_{ISS}	Input Capacitance	V_{DS}=10V，V_{GS}=0V， f=1MHz	--	1550	--	pF
C_{OSS}	Output Capacitance		--	188	--	pF
C_{RSS}	Reverse Transfer Capacitance		--	165	--	pF
Switching Characteristics						
Q_g	Total Gate Charge	V_{DS}=10V，I_D=6A，V_{GS}=4.5V	--	28	--	nC
Q_{gs}	Gate Source Charge		--	2.5	--	nC
Q_{gd}	Gate Drain Charge		--	3.9	--	nC
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=10V，I_D=2A，V_{GS}=4.5V，R_G=3Ω	--	12	--	nS
t_r	Turn-on Rise Time		--	45	--	nS
$t_{d(off)}$	Turn-Off Delay Time		--	60	--	nS
t_f	Turn-Off Fall Time		--	40	--	nS
Source- Drain Diode Characteristics						
V_{SD}	Forward on voltage	Tj=25°C，Is=1A	--	--	1.2	V

Typical Operating Characteristics

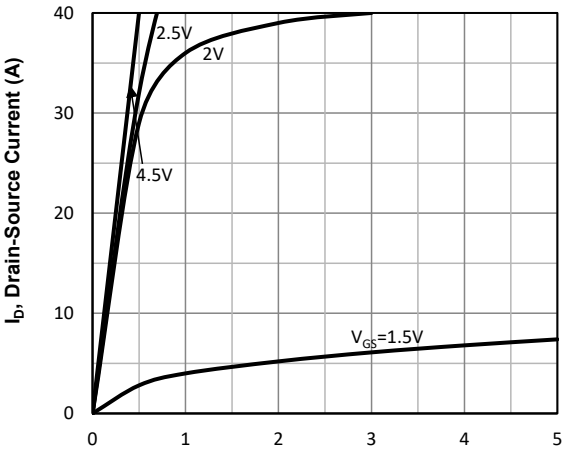


Fig1. Typical Output Characteristics

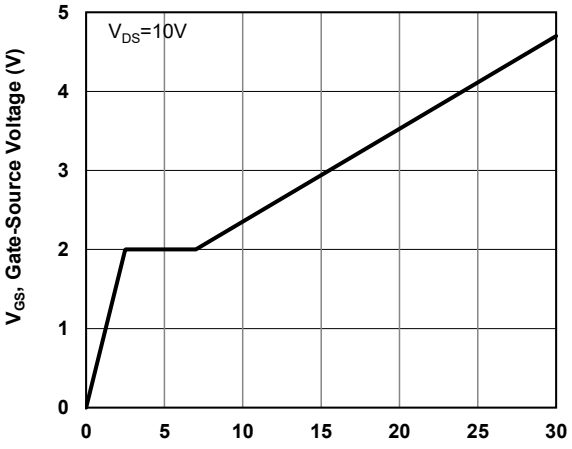


Fig2. Typical Gate Charge Vs.Gate-Source Voltage

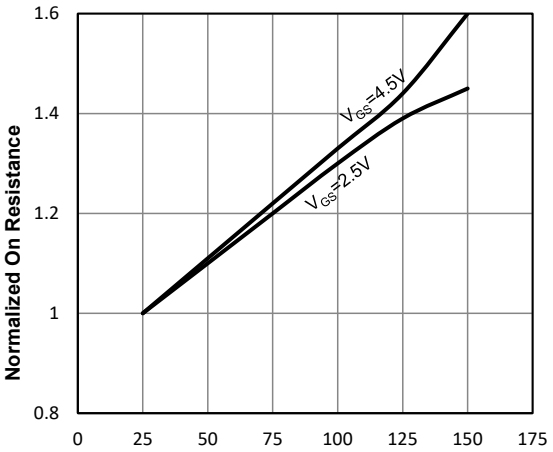


Fig3. Normalized On-Resistance Vs. Temperature

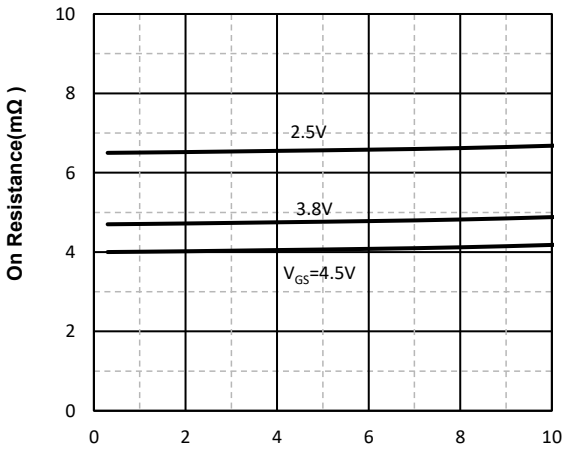


Fig4. On-Resistance Vs. Drain-Source Current

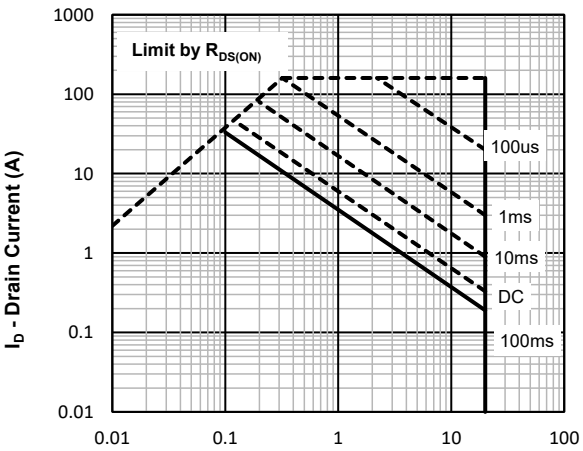


Fig5. Maximum Safe Operating Area

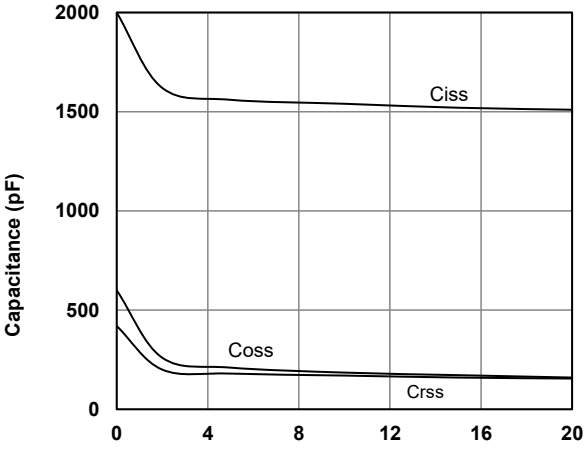
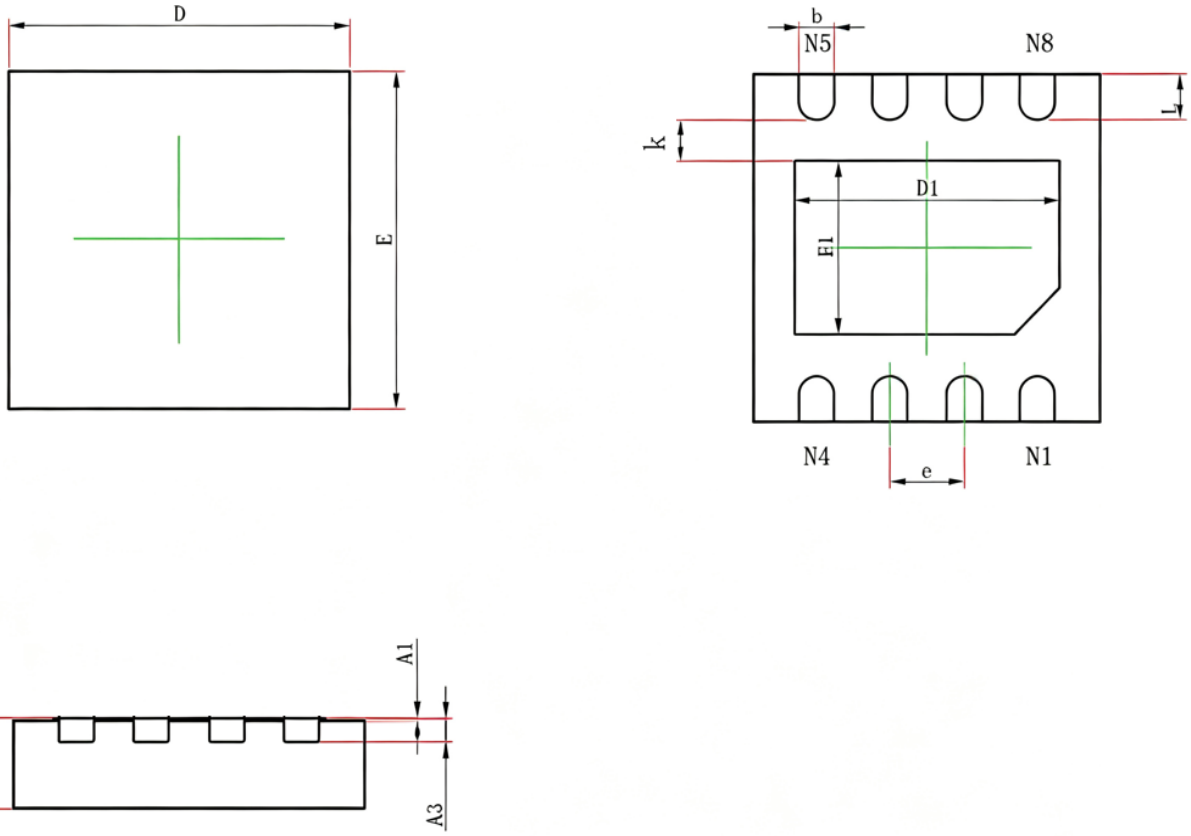


Fig6 Typical Capacitance Vs.Drain-Source Voltage

DFN3X3-8L Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	0.700	0.800	0.028	0.032
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	2.900	3.100	0.115	0.123
E	2.900	3.100	0.115	0.123
D1	2.200	2.400	0.087	0.095
E1	1.400	1.600	0.055	0.063
b	0.250	0.350	0.010	0.014
k	0.350REF.		0.014REF.	
e	0.650TYP		0.026TYP	
H	0.324	0.476	0.013	0.019