

Features

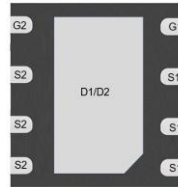
- Advanced high cell density Trench technology
- ESD Rating: $\geq 2000V$ HBM
- Excellent CdV/dt effect decline
- Green Device Available

Application

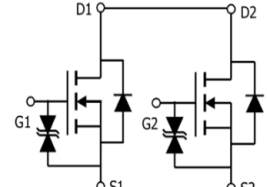
- Battery Protection
- Load Switch

Product Summary

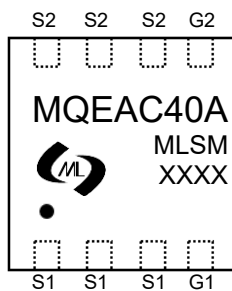
V_{DS}	$R_{DS(ON)}$ TYP	I_D
18V	4.0m Ω @4.5V	40A
	6.2m Ω @2.5V	



DFN3X3-8L view



Schematic diagram



MQEAC40A : Device code
XXXX : Code

Marking and pin assignment



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		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	$T_c=25^\circ C$	160	A
I_D	Continuous Drain Current	$T_c=25^\circ C$	40	A
P_D	Maximum Power Dissipation	$T_c=25^\circ C$	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
MQEAC40A	DFN3X3-8L	MQEAC40A	5,000	10,000	70,000	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	VGS=0V, ID=250μA	18	20.5	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=16V, VGS=0V	--	--	1.0	μA
IGSS	Gate-Body Leakage Current	VGS=±12V, VDS=0V	--	--	±10	μA
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=250μA	0.5	0.7	1.0	V
RDS(on)	Drain-Source On-State Resistance	VGS=4.5V, ID=6A	--	4.0	5.2	mΩ
		VGS=3.9V, ID=5A	--	5.1	7.2	mΩ
		VGS=2.5V, ID=3A	--	6.2	8.5	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
CISS	Input Capacitance	VDS=10V, VGS=0V, f=1MHz	--	1550	--	pF
COSS	Output Capacitance		--	188	--	pF
CRSS	Reverse Transfer Capacitance		--	165	--	pF
Switching Characteristics						
Qg	Total Gate Charge	VDS=10V, ID=6A, VGS=4.5V	--	28	--	nC
Qgs	Gate Source Charge		--	2.5	--	nC
Qgd	Gate Drain Charge		--	3.9	--	nC
td(on)	Turn-on Delay Time	VDD=10V, ID=2A, VGS=4.5V, RG=3Ω	--	12	--	nS
tr	Turn-on Rise Time		--	45	--	nS
td(off)	Turn-Off Delay Time		--	60	--	nS
tf	Turn-Off Fall Time		--	40	--	nS
Source- Drain Diode Characteristics						
VSD	Forward on voltage	Tj=25°C, Is=1A	--	--	1.2	V

Typical Operating Characteristics

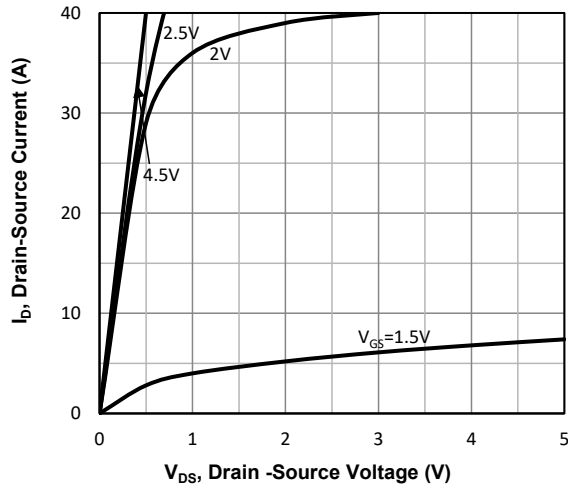


Fig1. Typical Output Characteristics

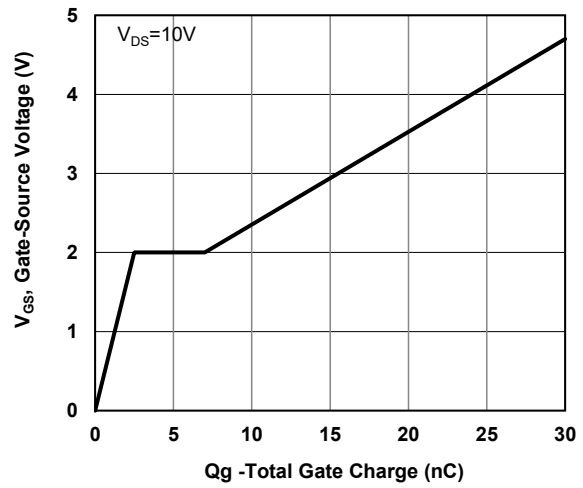


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

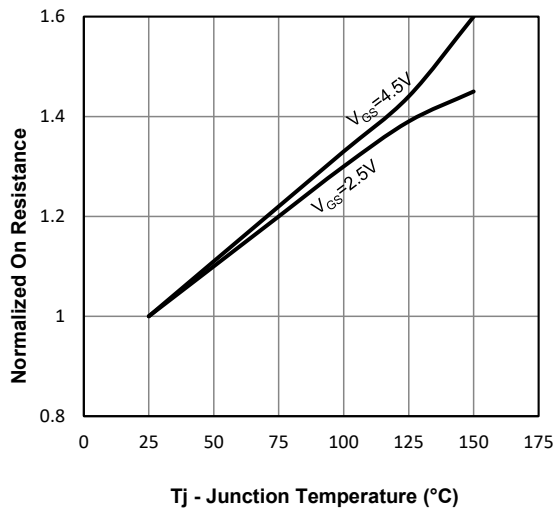


Fig3. Normalized On-Resistance Vs. Temperature

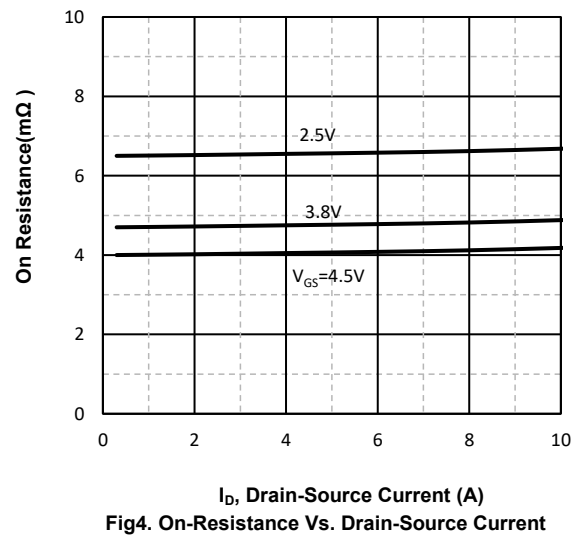


Fig4. On-Resistance Vs. Drain-Source Current

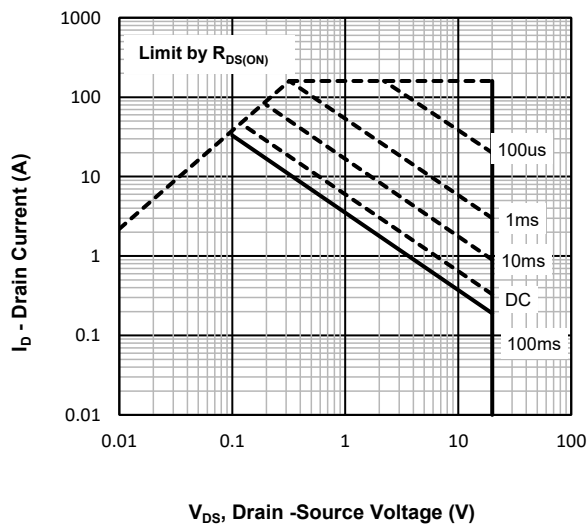


Fig5. Maximum Safe Operating Area

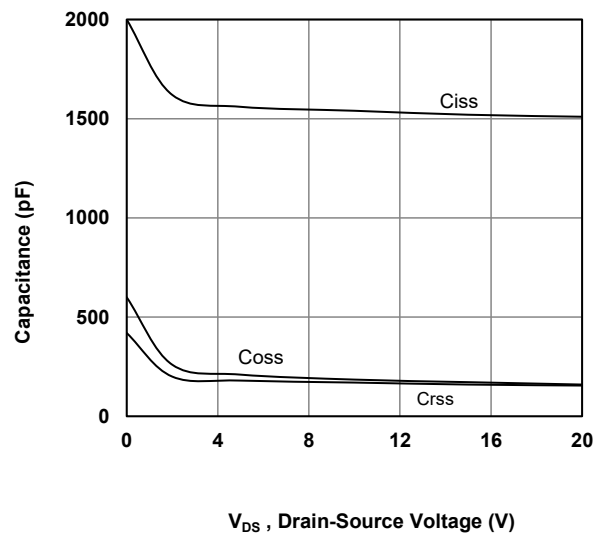
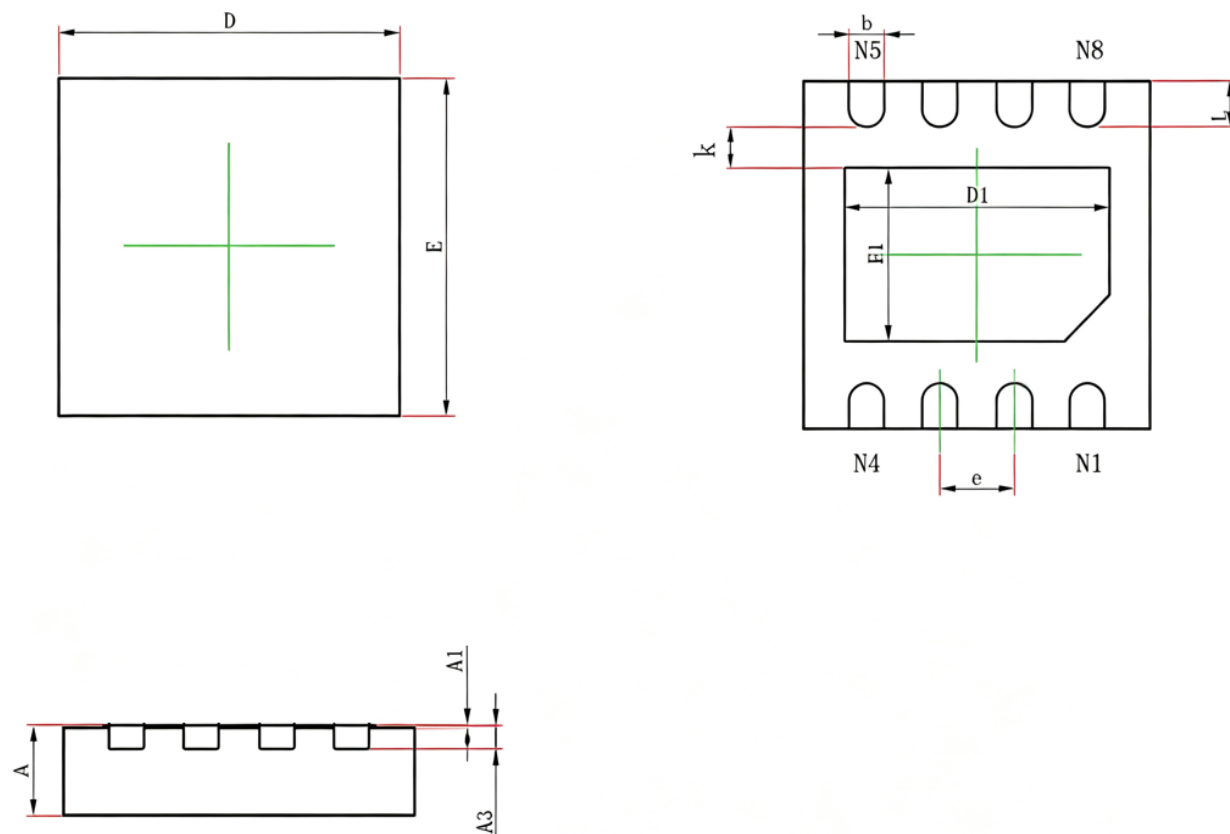


Fig6. Typical Capacitance Vs. Drain-Source Voltage

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