

Features

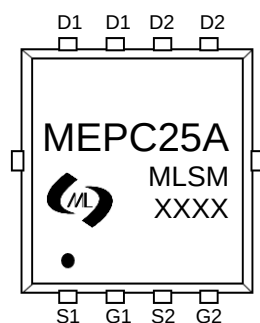
- High power and current handing capability
- Lead free product is acquired
- Surface mount package

Application

- Battery protection
- Load switch
- Power management

Product Summary

V_{DS}	$R_{DS(ON)}$ TYP	I_D
20V	10m Ω @4.5V	25A
	13m Ω @2.5V	
-20V	12m Ω @-4.5V	-25A
	15m Ω @-4.5V	

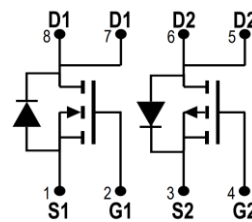


MEPC25A : Device code
XXXX : Code

Marking and pin assignment



PDFN3X3-8L view



Schematic diagram



Halogen-Free

Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Symbol	Parameter	N-Channel	P-Channel	Unit
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Common Ratings (TC=25°C Unless Otherwise Noted)

V_{DS}	Drain-Source Breakdown Voltage	20	-20	V
V_{GS}	Gate-Source Voltage	± 12	± 12	V
T_J	Maximum Junction Temperature	150	150	°C
T_{STG}	Storage Temperature Range	-55 to 150	-55 to 150	°C
I_S	Diode Continuous Forward Current	25	-25	A
	$T_C=25^\circ\text{C}$			

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_C=25^\circ\text{C}$	110	110	A
I_D	Continuous Drain Current	$T_C=25^\circ\text{C}$	25	-25	A
P_D	Maximum Power Dissipation	$T_C=25^\circ\text{C}$	30	30	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient		10.5	10.5	°C/W

Ordering Information (Example)

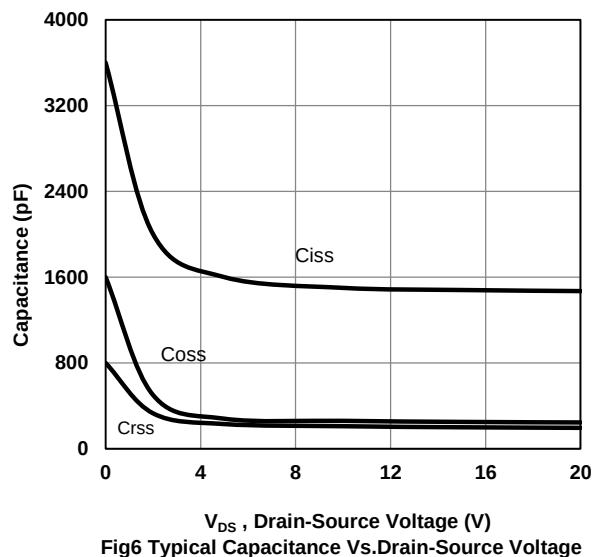
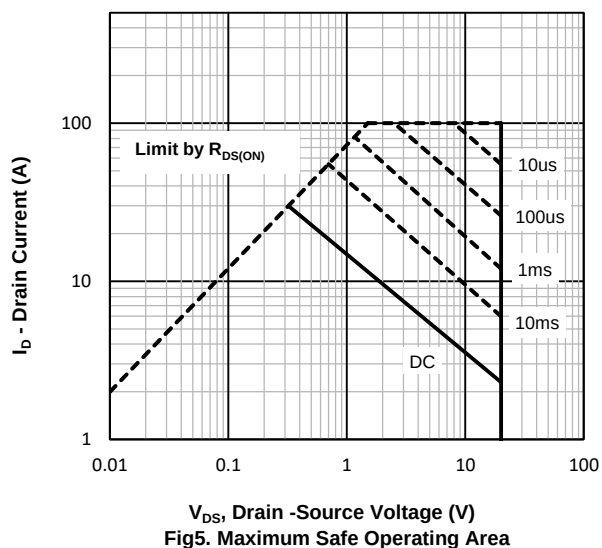
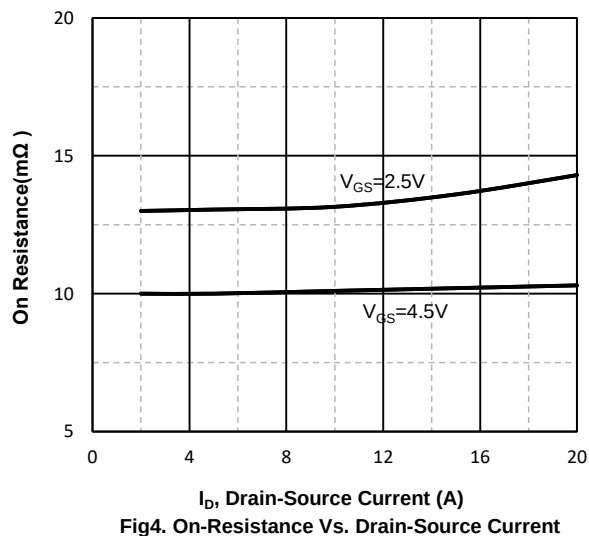
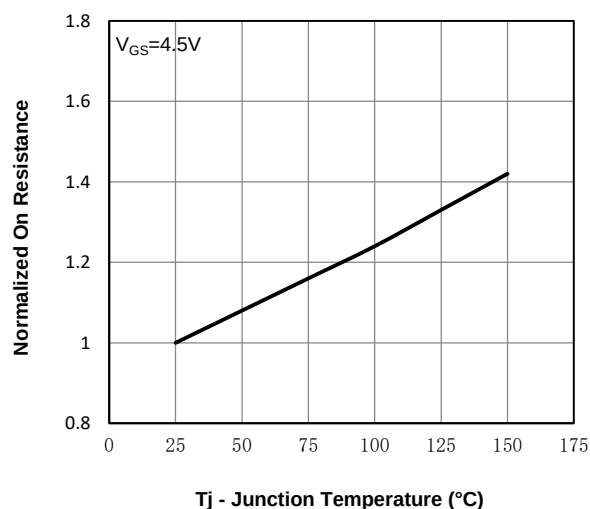
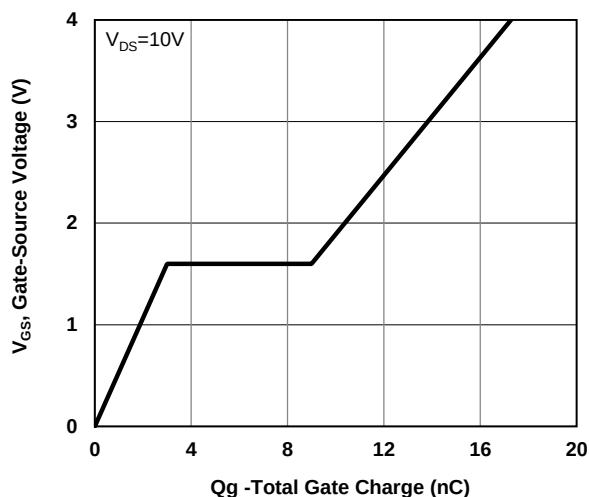
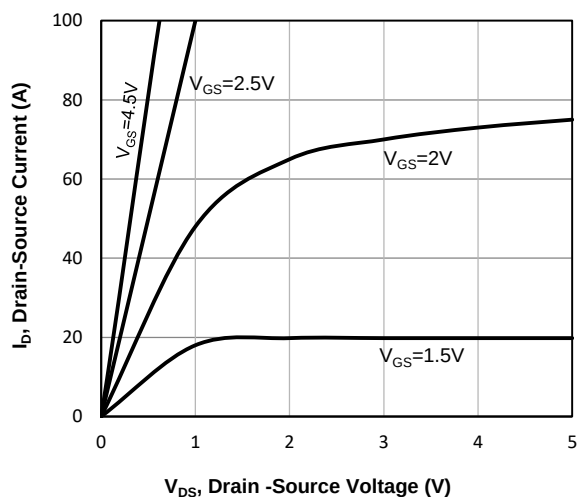
Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MEPC25A	PDFN3X3-8L	MEPC25A	5,000	10,000	70,000	13"reel

N-CH 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	20	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =20V, V _{GS} =0V	--	--	1.0	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±12V, V _{DS} =0V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	0.4	0.75	1.0	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =4.5V, I _D =10A	--	10	15	mΩ
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =2.5V, I _D =5A	--	13	18	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =10V, V _{GS} =0V, f=1MHz	--	1460	--	pF
C _{OSS}	Output Capacitance		--	240	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	215	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =10V, I _D =10A, V _{GS} =10V	--	20	--	nC
Q _{gs}	Gate Source Charge		--	3	--	nC
Q _{gd}	Gate Drain Charge		--	6.5	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DD} =10V, I _D =10A, V _{GS} =4.5V, R _G =3Ω	--	10	--	nS
t _r	Turn-on Rise Time		--	20	--	nS
t _{d(off)}	Turn-Off Delay Time		--	40	--	nS
t _f	Turn-Off Fall Time		--	20	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	Tj=25°C, Is=10A	--	--	1.2	V

P-CH Electrical Characteristics (T_J=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	-20	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-20V, V _{GS} =0V	--	--	-1.0	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±10V, V _{DS} =0V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-0.4	-0.58	-1.0	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =-4.5V, I _D =-20A	--	12	20	mΩ
		V _{GS} =-2.5V, I _D =-10A	--	15	25	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =-10V, V _{GS} =0V, f=1MHz	--	2995	--	pF
C _{OSS}	Output Capacitance		--	330	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	270	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =-10V, I _D =-20A, V _{GS} =-9V	--	73	--	nC
Q _{gs}	Gate Source Charge		--	6.5	--	nC
Q _{gd}	Gate Drain Charge		--	10	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DD} =-10V, I _D =-20A, V _{GS} =-10V, R _G =3Ω	--	7	--	nS
t _r	Turn-on Rise Time		--	33	--	nS
t _{d(off)}	Turn-Off Delay Time		--	130	--	nS
t _f	Turn-Off Fall Time		--	135	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	Tj=25°C, Is=-20A	--	-0.8	-1.2	V

N-Channel Typical Operating Characteristics



P-Channel Typical Operating Characteristics

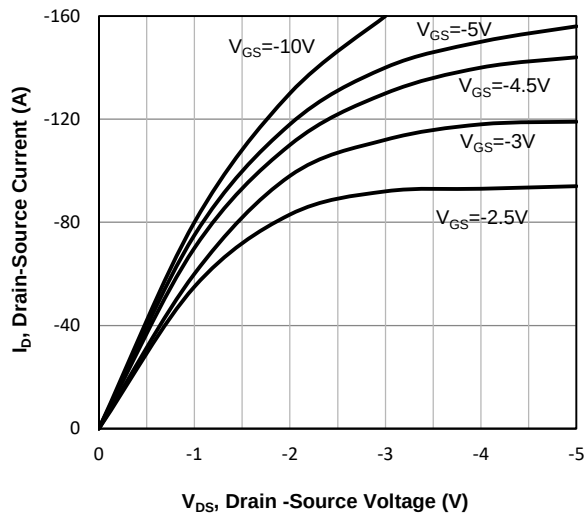


Fig7. Typical Output Characteristics

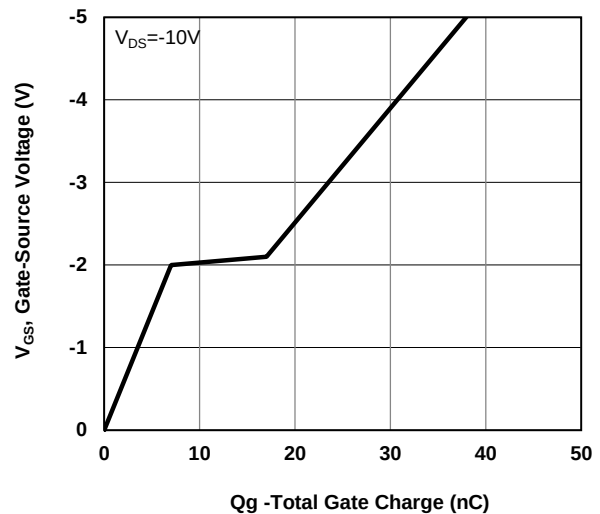


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

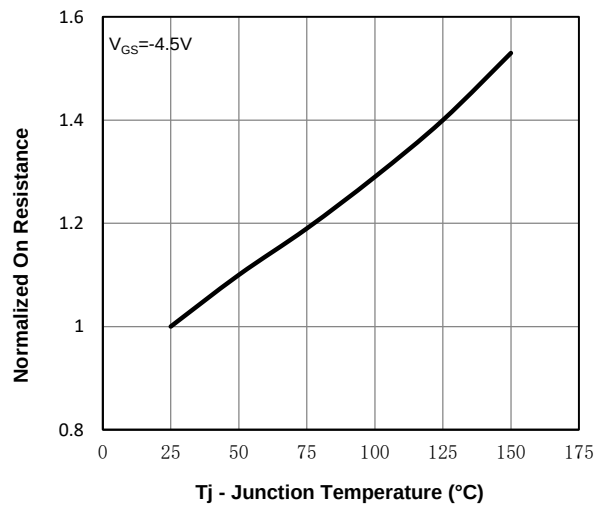


Fig9. Normalized On-Resistance Vs. Temperature

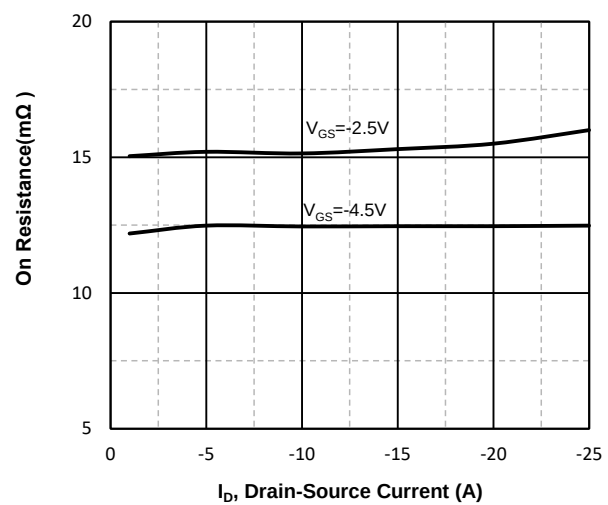


Fig10. On-Resistance Vs. Drain-Source Current

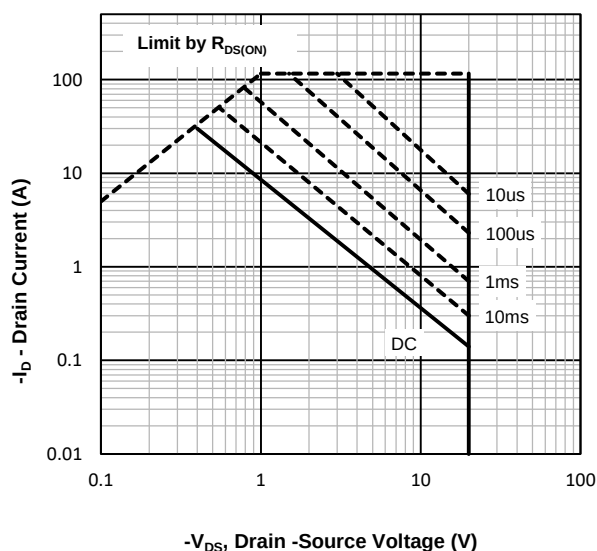


Fig11. Maximum Safe Operating Area

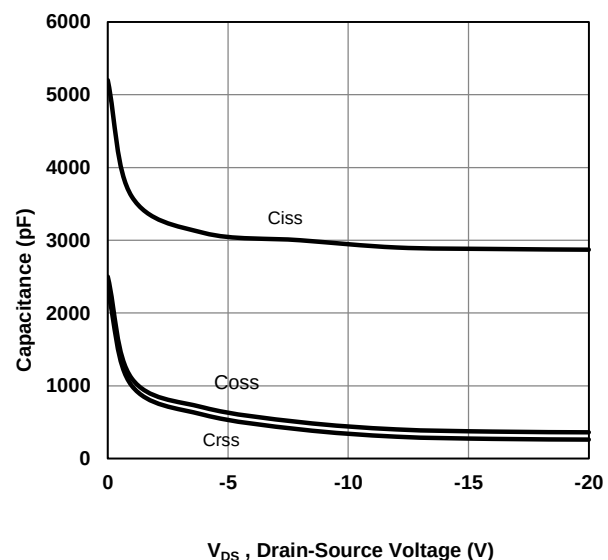
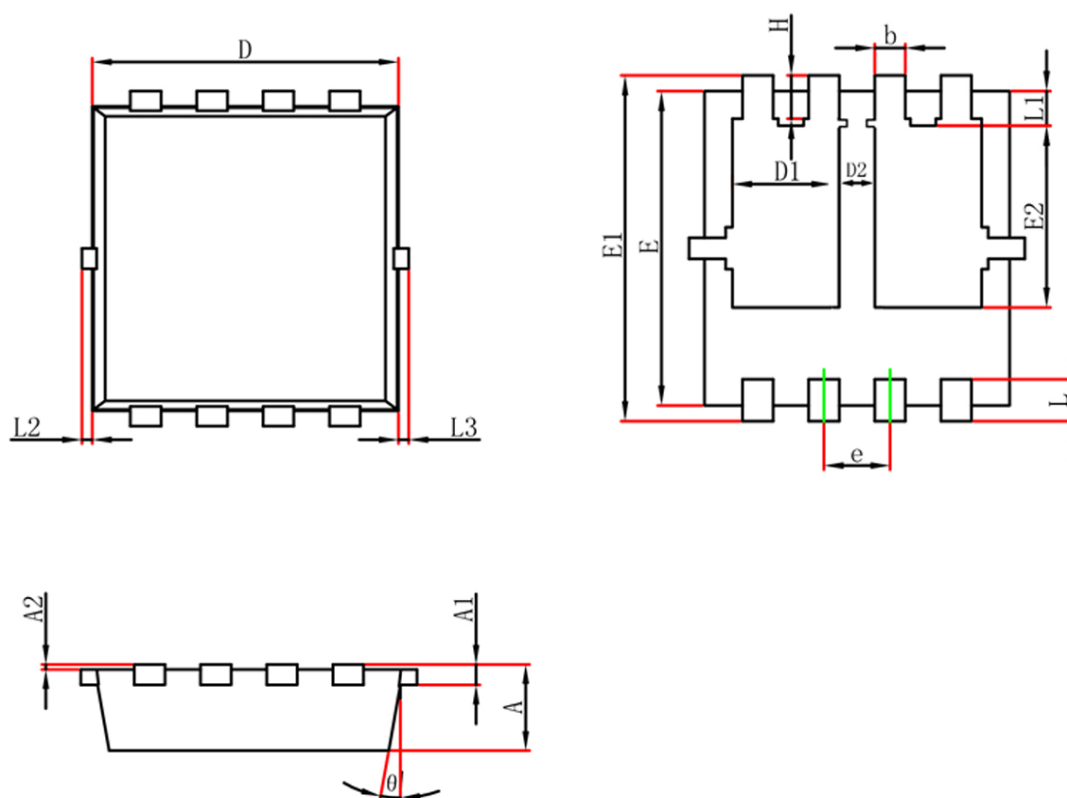


Fig12. Typical Capacitance Vs. Drain-Source Voltage

PDFN3X3-8L Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	0.750	0.850	0.030	0.034
A1	0.152 REF.		0.006 REF.	
A2	0~0.05		0~0.002	
D	3.050	3.150	0.121	0.125
D1	0.985	1.085	0.039	0.043
D2	0.330	0.430	0.013	0.017
E	2.950	3.050	0.117	0.121
E1	3.250	3.350	0.129	0.132
E2	1.685	1.785	0.067	0.071
b	0.250	0.350	0.010	0.014
e	0.600	0.700	0.024	0.028
L	0.350	0.450	0.014	0.018
L1	0.280	0.380	0.011	0.015
L2	0~0.100		0~0.004	
L3	0~0.100		0~0.004	
H	0.350	0.450	0.014	0.018
θ	9°	13°	10°	12°