MEAE25A

40V/25A Dual N-Channel MOSFET

Features

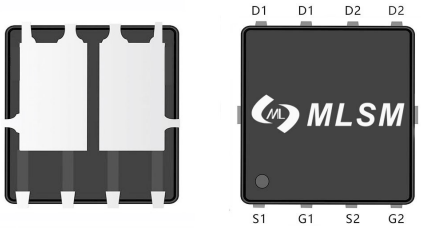
- High density cell design for ultra low Rdson
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation

Product Summary

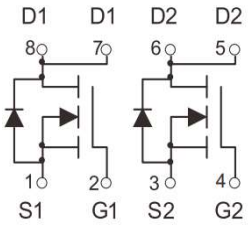
V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
40V	13mΩ@10V	25A
	20mΩ@4.5V	

Application

- Load switching
- Hard switched and high frequency circuits
- Uninterruptible power supply



PDFN3X3-8L view



Schematic diagram

MEAE25A : Device code
XXXX : Code

Marking and pin assignment

Pb-Free RoHS 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		40	V
V_{GS}	Gate-Source Voltage		±20	V
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-50 to 155	°C
I_S	Diode Continuous Forward Current	Tc=25°C	25	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested	Tc=25°C	100	A
I_D	Continuous Drain Current	Tc=25°C	25	A
P_D	Maximum Power Dissipation	Tc=25°C	5	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient		136	°C/W

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MEAE25A	PDFN3X3-8L	MEAE25A	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	40	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=40V, 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=25A	--	10	13	mΩ
		V_{GS}=4.5V, I_D=15A	--	15	20	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C_{ISS}	Input Capacitance	V_{DS}=20V, V_{GS}=0V, f=1MHz	--	917	--	pF
C_{OSS}	Output Capacitance		--	128	--	pF
C_{RSS}	Reverse Transfer Capacitance		--	108	--	pF
Switching Characteristics						
Q_g	Total Gate Charge	V_{DD}=20V, I_D=25A, V_{GS}=10V	--	23.6	--	nC
Q_{gs}	Gate Source Charge		--	4.4	--	nC
Q_{gd}	Gate Drain Charge		--	6.3	--	nC
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=10V, I_D=25A, V_{GS}=4.5V, R_G=3Ω	--	10	--	nS
t_r	Turn-on Rise Time		--	56	--	nS
$t_{d(off)}$	Turn-Off Delay Time		--	27	--	nS
t_f	Turn-Off Fall Time		--	72	--	nS
Source- Drain Diode Characteristics						
V_{SD}	Forward on voltage	Tj=25℃, Is=25A	--	--	1.2	V

Typical Operating Characteristics

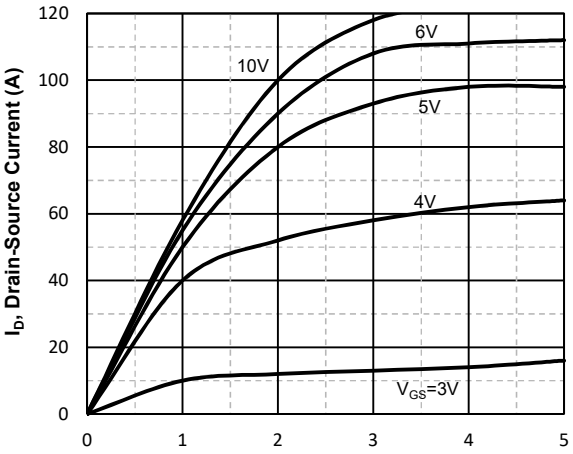


Fig1. Typical Output Characteristics

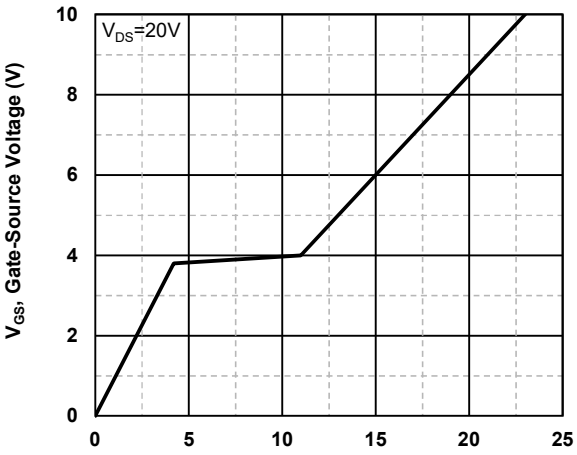


Fig2. Typical Gate Charge Vs.Gate-Source Voltage

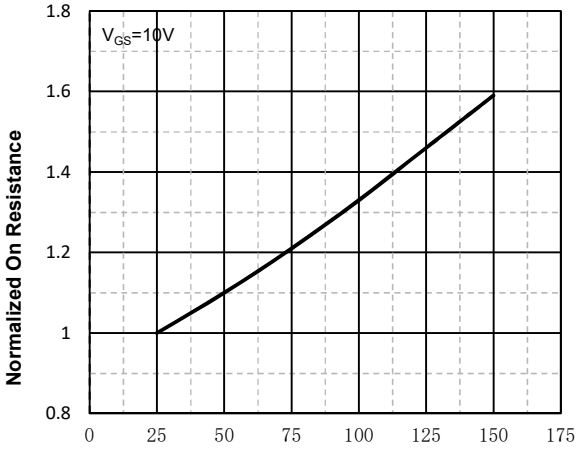


Fig3. Normalized On-Resistance Vs. Temperature

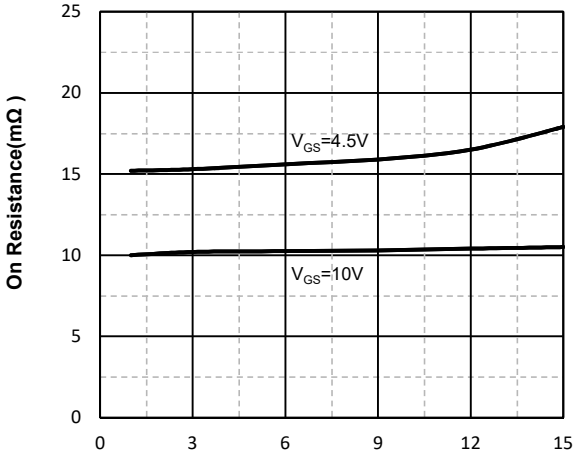


Fig4. On-Resistance Vs. Drain-Source Current

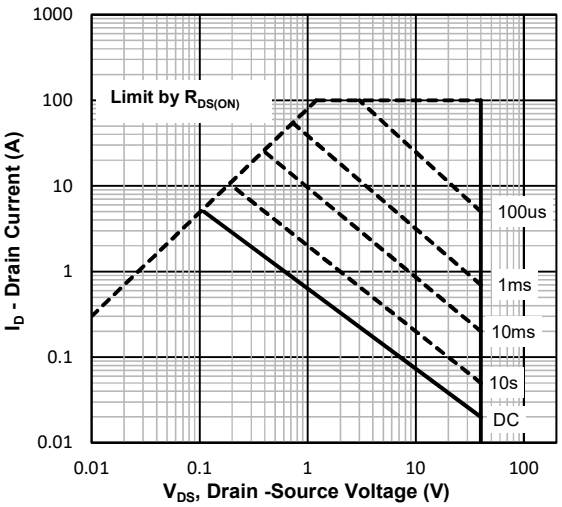


Fig5. Maximum Safe Operating Area

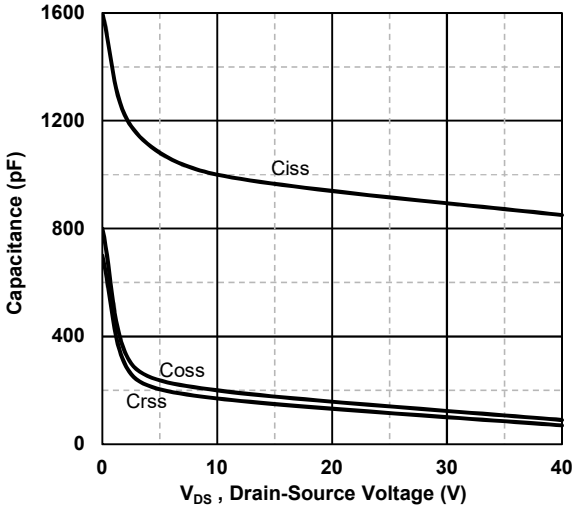
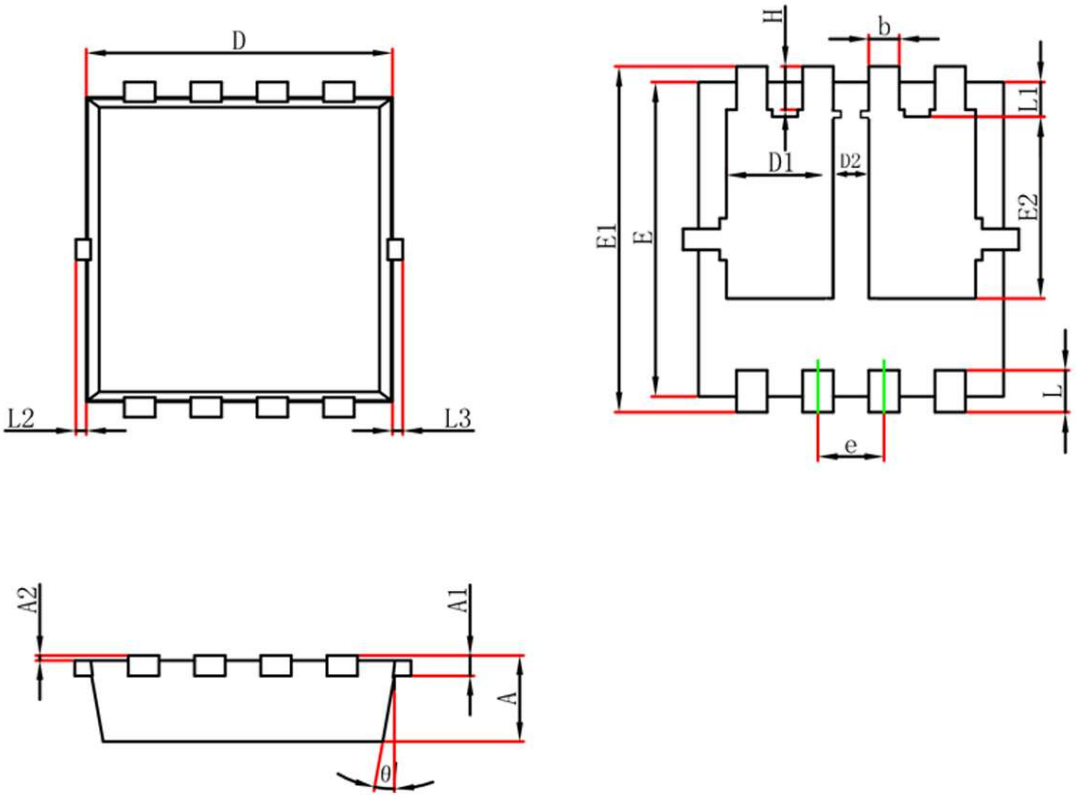


Fig6 Typical Capacitance Vs.Drain-Source

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°