# MLSQ4882A

## 40V/8A Dual N-Channel MOSFET

### Features

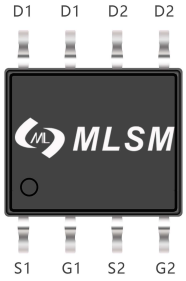
- Trench Power LV MOSFET technology
- High Density Cell Design for Low $R_{DS(ON)}$
- High Speed switching

### Product Summary

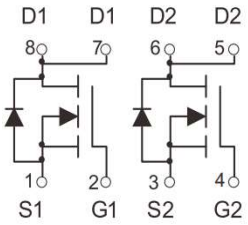
| $V_{DS}$ | $R_{DS(ON)}$ MAX | $I_D$ MAX |
|---|---|---|
| 40V | 20mΩ@10V | 8A |
| | 35mΩ@4.5V | |

### Application

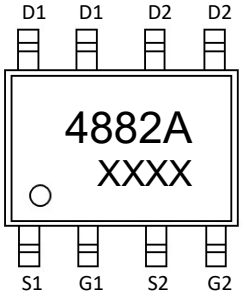
- Battery protection
- Load switch
- Power management




SOP-8 top view




Schematic diagram




4882A: 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 | | -55 to 150 | °C |
| $I_S$ | Diode Continuous Forward Current | Tc=25°C | 8 | A |
| **Mounted on Large Heat Sink** | | | | |
| $I_{DM}$ | Pulse Drain Current Tested | Tc=25°C | 38 | A |
| $I_D$ | Continuous Drain Current | Tc=25°C | 8 | A |
| $P_D$ | Maximum Power Dissipation | Tc=25°C | 2 | W |
| $R_{\theta JA}$ | Thermal Resistance Junction-Ambient | | 60 | °C/W |

**Ordering Information (Example)**

| Type | Package | Marking | Minimum Package(pcs) | Inner Box Quantity(pcs) | Outer Carton Quantity(pcs) | Delivery Mode |
|---|---|---|---|---|---|---|
| MLSQ4882A | SOP-8 | 4882A | 3,000 | 6,000 | 42,000 | 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, $I_D$=8A | -- | 15 | 20 | mΩ |
| | | $V_{GS}$=4.5V, $I_D$=4A | -- | 24 | 35 | mΩ |
| **Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)** | | | | | | |
| $C_{ISS}$ | Input Capacitance | $V_{DS}$=20V, $V_{GS}$=0V, f=1MHz | -- | 421 | -- | pF |
| $C_{OSS}$ | Output Capacitance | | -- | 115 | -- | pF |
| $C_{RSS}$ | Reverse Transfer Capacitance | | -- | 13 | -- | pF |
| **Switching Characteristics** | | | | | | |
| $Q_g$ | Total Gate Charge | VDS=20V, $I_D$=8A, $V_{GS}$=10V | -- | 6.8 | -- | nC |
| $Q_{gs}$ | Gate Source Charge | | -- | 1.1 | -- | nC |
| $Q_{gd}$ | Gate Drain Charge | | -- | 1.3 | -- | nC |
| $t_{d(on)}$ | Turn-on Delay Time | $V_{DS}$=20V, $R_L$=2.5Ω, $V_{GS}$=10V, $R_G$=3Ω | -- | 3.8 | -- | nS |
| $t_r$ | Turn-on Rise Time | | -- | 2.5 | -- | nS |
| $t_{d(off)}$ | Turn-Off Delay Time | | -- | 14.4 | -- | nS |
| $t_f$ | Turn-Off Fall Time | | -- | 2 | -- | nS |
| **Source- Drain Diode Characteristics** | | | | | | |
| $V_{SD}$ | Forward on voltage | Tj=25℃, Is=8A | -- | -- | 1.2 | V |

## Typical Operating Characteristics

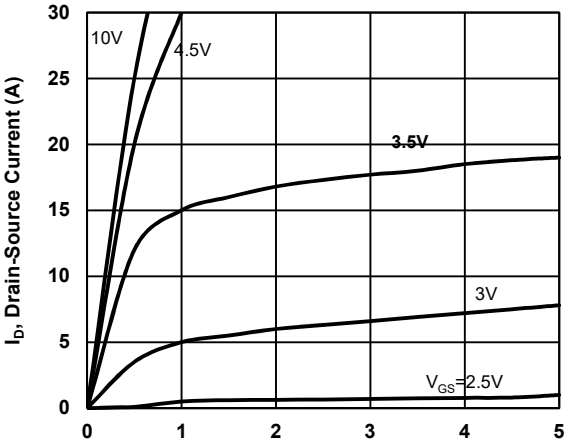



Fig1. Typical Output Characteristics

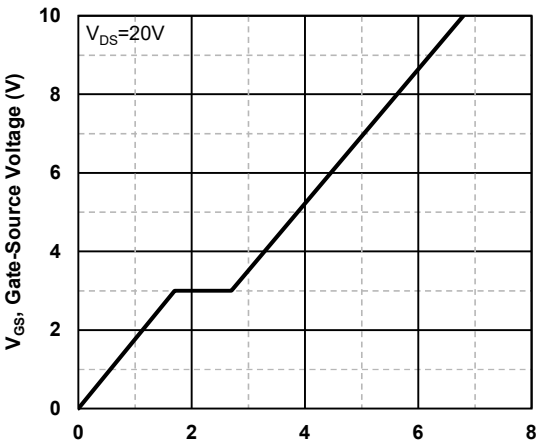



Fig2. Typical Gate Charge Vs.Gate-Source Voltage

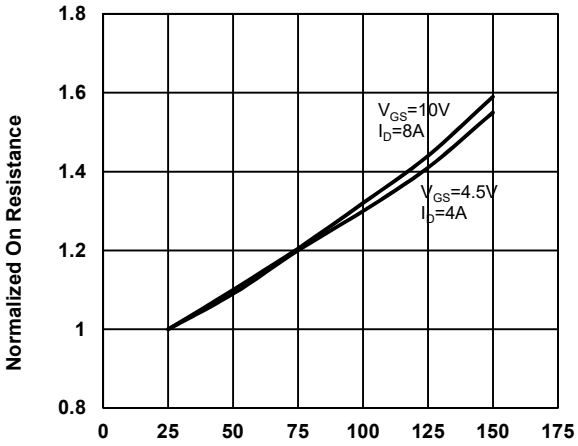



Fig3. Normalized On-Resistance Vs. Temperature

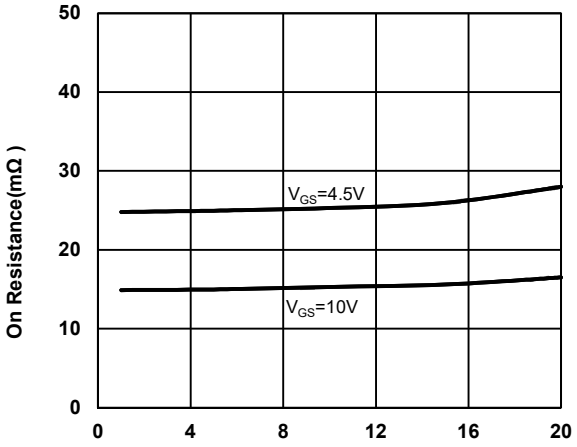



Fig4. On-Resistance Vs. Drain-Source Current

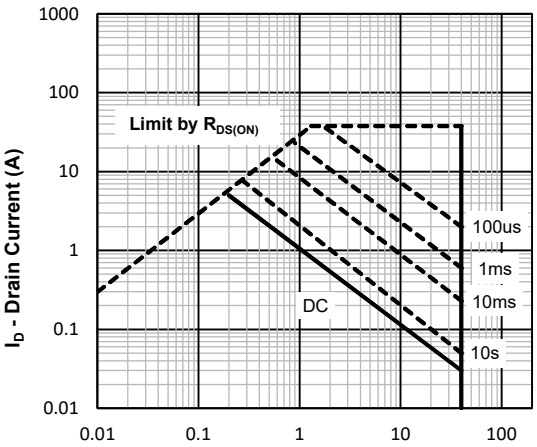



Fig5. Maximum Safe Operating Area

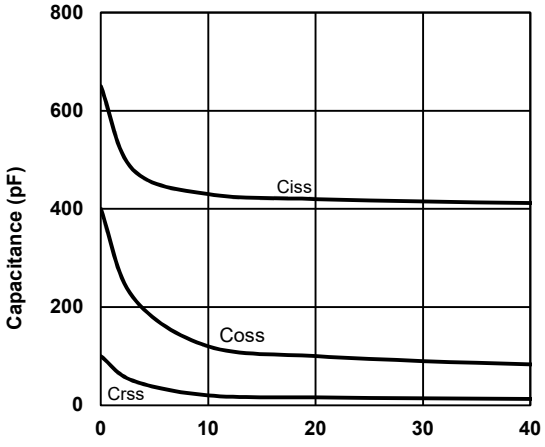
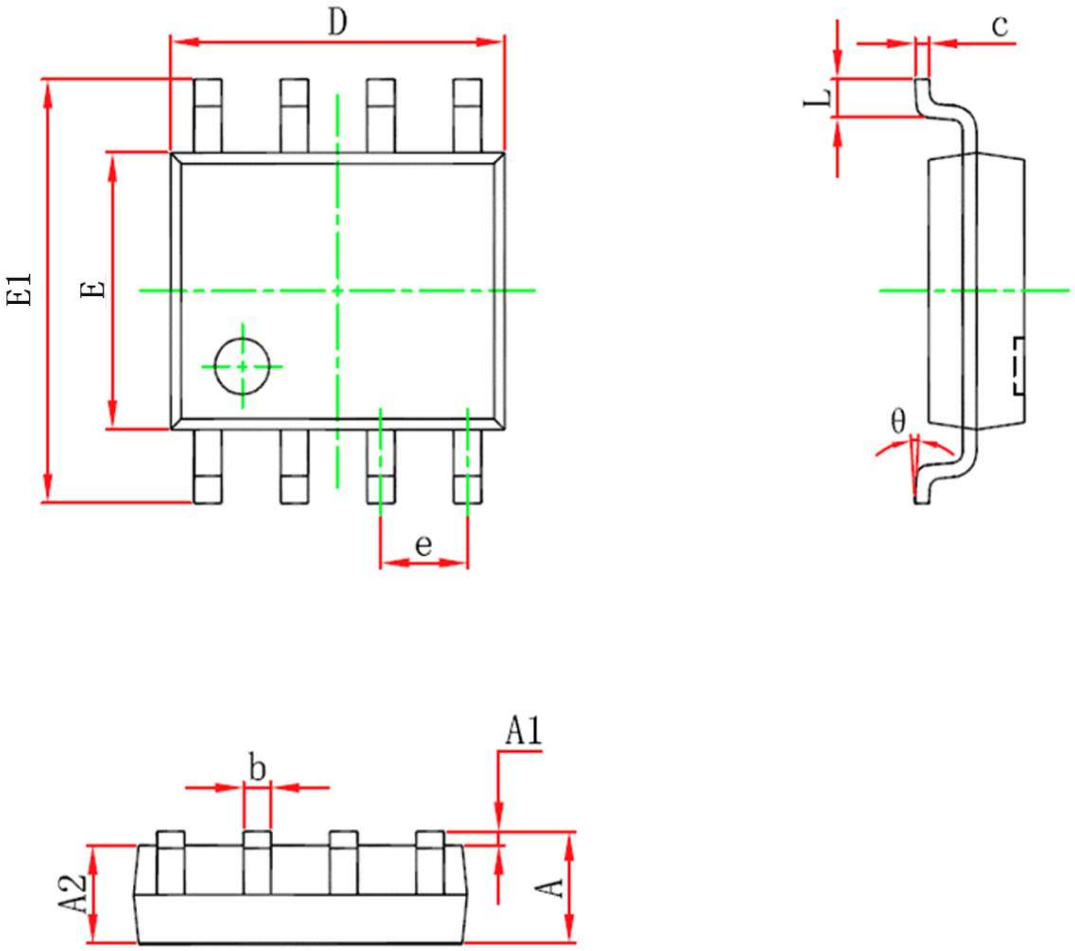



Fig6 Typical Capacitance Vs.Drain-Source Voltage

## SOP-8 Package information




| Symbol | Dimensions in Millimeters(mm) | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 1.450 | 1.750 | 0.057 | 0.068 |
| A1 | 0.100 | 0.250 | 0.003 | 0.009 |
| A2 | 1.350 | 1.550 | 0.053 | 0.061 |
| b | 0.330 | 0.510 | 0.012 | 0.020 |
| c | 0.170 | 0.250 | 0.006 | 0.009 |
| D | 4.700 | 5.100 | 0.185 | 0.200 |
| e | 1.270(BSC) | | 0.050(BSC) | |
| E | 3.800 | 4.000 | 0.149 | 0.157 |
| E1 | 5.800 | 6.200 | 0.228 | 0.244 |
| L | 0.400 | 1.270 | 0.015 | 0.050 |
| θ | 0° | 8° | 0° | 8° |