

### Features

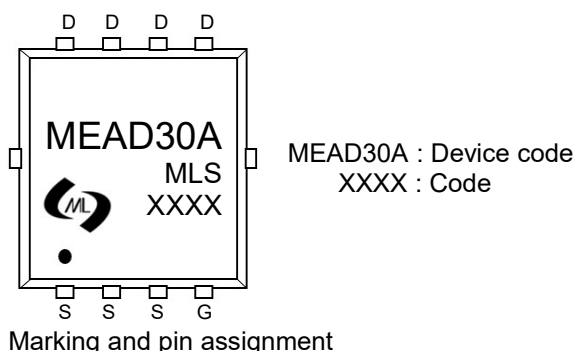
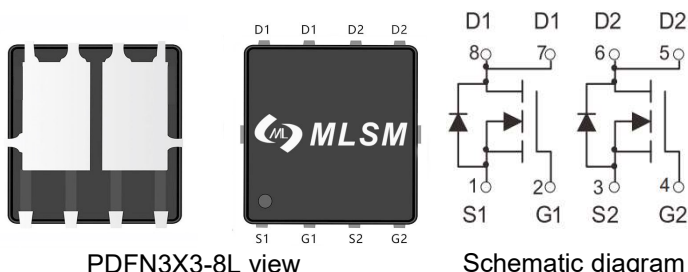
- Advanced high cell density Trench technology
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- Green Device Available

### Application

- High Frequency Point-of-Load Synchronous Buck Converter for MB/NB/UMPC/VGA
- Networking DC-DC Power System
- Load Switch

### Product Summary

| $V_{DS}$ | $R_{DS(ON)}$ MAX | $I_D$ MAX |
|----------|------------------|-----------|
| 30V      | 9mΩ@10V          | 30A       |
|          | 15mΩ@4.5V        |           |



Halogen-Free

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

| Symbol | Parameter | Rating | Unit |
|--------|-----------|--------|------|
|--------|-----------|--------|------|

### Common Ratings (TC=25°C Unless Otherwise Noted)

|           |                                  |                              |    |
|-----------|----------------------------------|------------------------------|----|
| $V_{DS}$  | Drain-Source Breakdown Voltage   | 30                           | 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 | $T_c=25^\circ\text{C}$<br>30 | A  |

### Mounted on Large Heat Sink

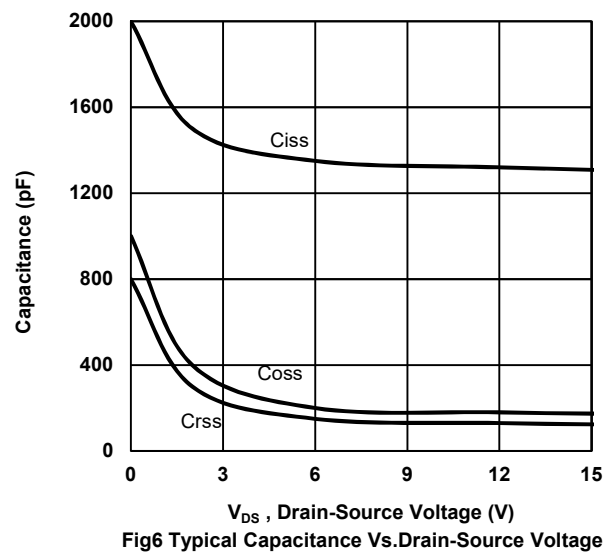
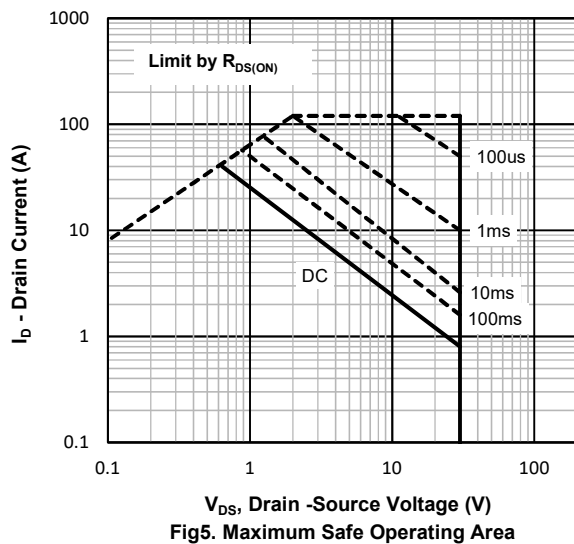
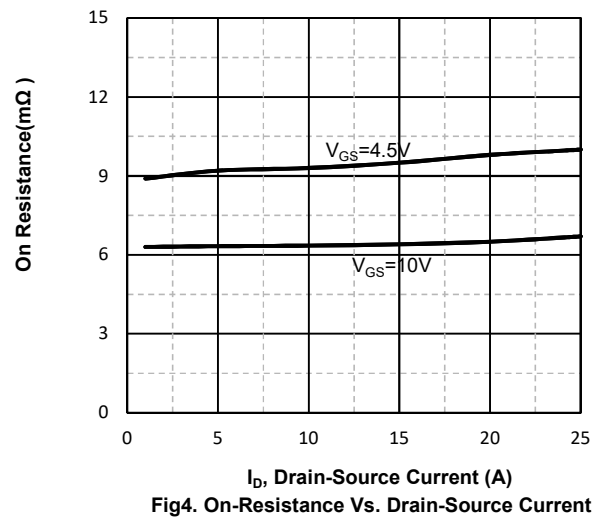
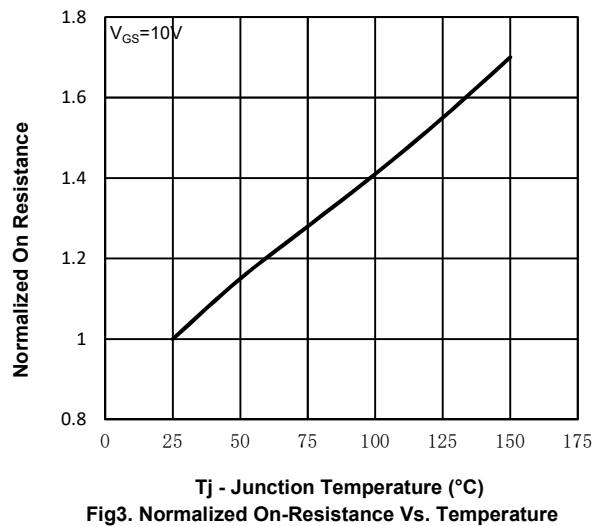
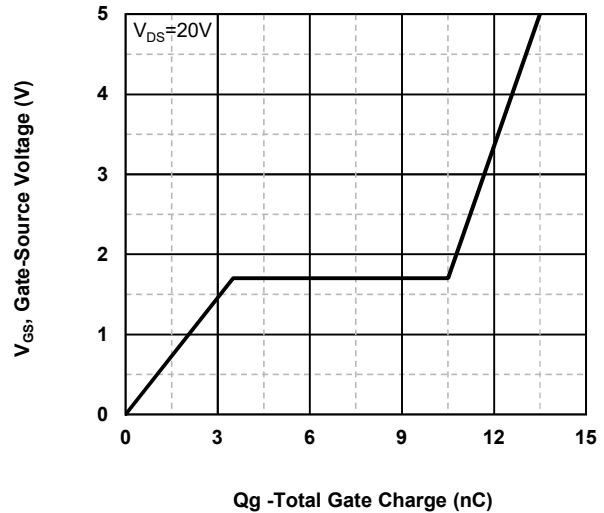
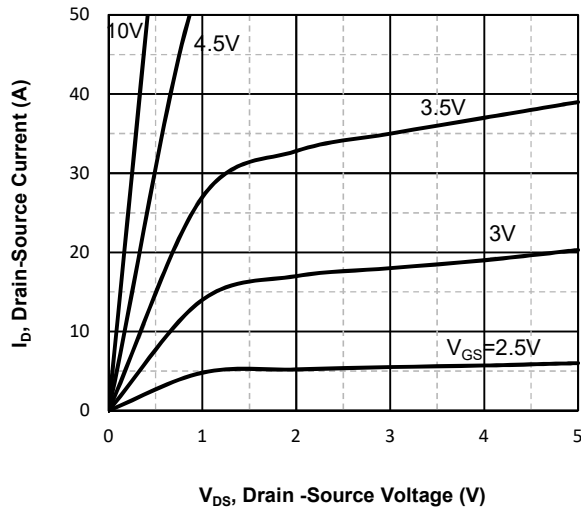
|                 |                                     |                               |      |
|-----------------|-------------------------------------|-------------------------------|------|
| $I_{DM}$        | Pulse Drain Current Tested          | $T_c=25^\circ\text{C}$<br>120 | A    |
| $I_D$           | Continuous Drain Current            | $T_c=25^\circ\text{C}$<br>30  | A    |
| $P_D$           | Maximum Power Dissipation           | $T_c=25^\circ\text{C}$<br>42  | W    |
| $R_{\theta JA}$ | Thermal Resistance Junction-Ambient | 60                            | °C/W |

### Ordering Information (Example)

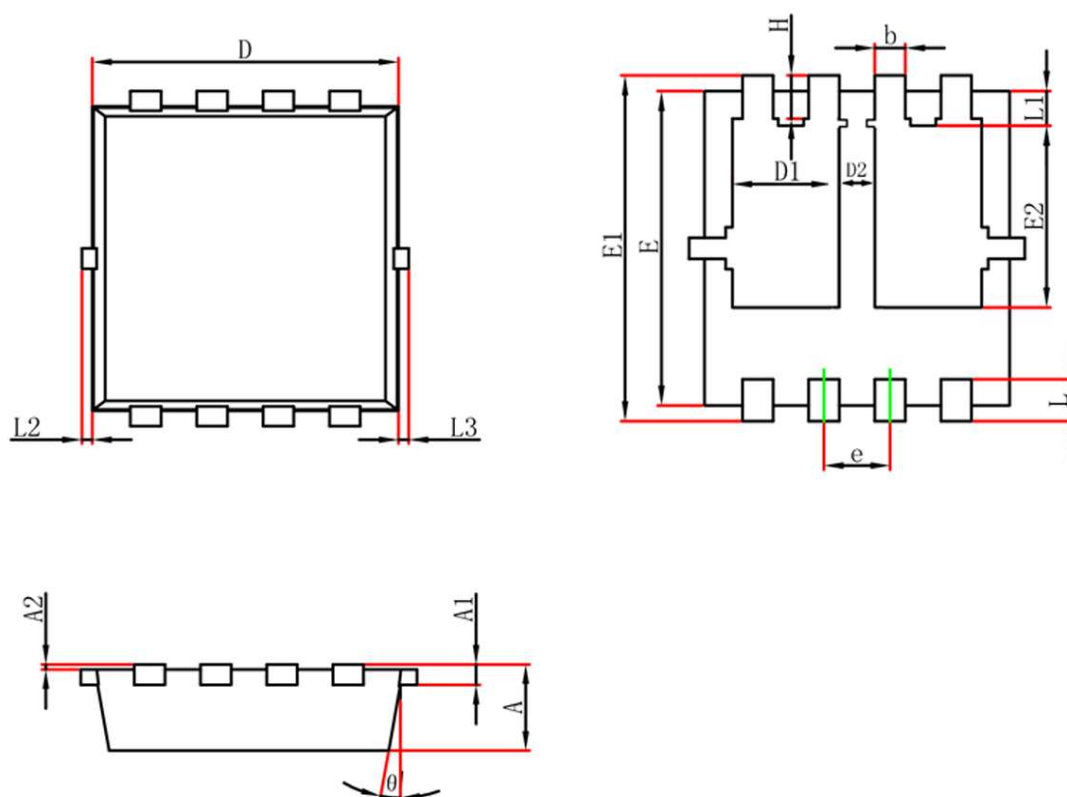
| Type    | Package    | Marking | Minimum Package(pcs) | Inner Box Quantity(pcs) | Outer Carton Quantity(pcs) | Delivery Mode |
|---------|------------|---------|----------------------|-------------------------|----------------------------|---------------|
| MEAD30A | PDFN3X3-8L | MEAD30A | 5,000                | 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 <sub>(BR)DSS</sub>                                                    | Drain-Source Breakdown Voltage   | V <sub>GS</sub> =0V, I <sub>D</sub> =250μA                                            | 30  | --   | --   | V    |
| I <sub>DSS</sub>                                                         | Zero Gate Voltage Drain Current  | V <sub>DS</sub> =30V, V <sub>GS</sub> =0V                                             | --  | --   | 1.0  | μA   |
| I <sub>GSS</sub>                                                         | Gate-Body Leakage Current        | V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V                                            | --  | --   | ±100 | nA   |
| V <sub>GS(th)</sub>                                                      | Gate Threshold Voltage           | V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA                              | 1.0 | 1.5  | 2.5  | V    |
| R <sub>DS(on)</sub>                                                      | Drain-Source On-State Resistance | V <sub>GS</sub> =10V, I <sub>D</sub> =15A                                             | --  | 7.5  | 9    | mΩ   |
|                                                                          |                                  | V <sub>GS</sub> =4.5V, I <sub>D</sub> =15A                                            | --  | 10   | 15   | mΩ   |
| Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated) |                                  |                                                                                       |     |      |      |      |
| C <sub>ISS</sub>                                                         | Input Capacitance                | V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f=1MHz                                     | --  | 1300 | --   | pF   |
| C <sub>OSS</sub>                                                         | Output Capacitance               |                                                                                       | --  | 180  | --   | pF   |
| C <sub>RSS</sub>                                                         | Reverse Transfer Capacitance     |                                                                                       | --  | 110  | --   | pF   |
| Switching Characteristics                                                |                                  |                                                                                       |     |      |      |      |
| Q <sub>g</sub>                                                           | Total Gate Charge                | V <sub>DS</sub> =20V, I <sub>D</sub> =15A, V <sub>GS</sub> =4.5V                      | --  | 14   | --   | nC   |
| Q <sub>gs</sub>                                                          | Gate Source Charge               |                                                                                       | --  | 3.5  | --   | nC   |
| Q <sub>gd</sub>                                                          | Gate Drain Charge                |                                                                                       | --  | 7    | --   | nC   |
| t <sub>d(on)</sub>                                                       | Turn-on Delay Time               | V <sub>DD</sub> =12V, I <sub>D</sub> =15A, V <sub>GS</sub> =10V, R <sub>G</sub> =3.3Ω | --  | 5    | --   | nS   |
| t <sub>r</sub>                                                           | Turn-on Rise Time                |                                                                                       | --  | 12   | --   | nS   |
| t <sub>d(off)</sub>                                                      | Turn-Off Delay Time              |                                                                                       | --  | 27   | --   | nS   |
| t <sub>f</sub>                                                           | Turn-Off Fall Time               |                                                                                       | --  | 10   | --   | nS   |
| Source- Drain Diode Characteristics                                      |                                  |                                                                                       |     |      |      |      |
| V <sub>SD</sub>                                                          | Forward on voltage               | Tj=25°C, Is=15A                                                                       | --  | --   | 1.2  | V    |

## Typical Operating Characteristics



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°   |