

## ■ PRODUCT CHARACTERISTICS

|                              |      |
|------------------------------|------|
| VDSS                         | 60V  |
| $R_{DS(on)typ}(V_{GS}=10V)$  | 11mΩ |
| $R_{DS(on)typ}(V_{GS}=4.5V)$ | 14mΩ |
| ID                           | 30A  |

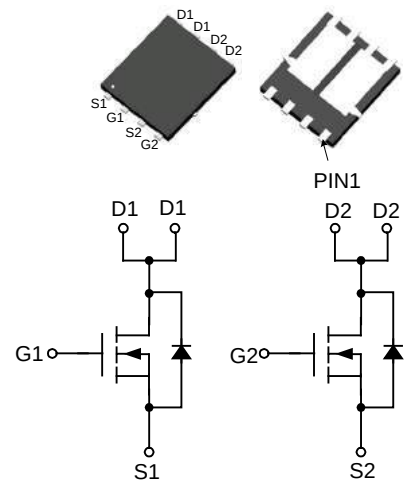
## ■ APPLICATIONS

- \* Switching applications

## ■ FEATURES

- \* Low capacitance
- \* Low gate charge
- \* Fast switching capability
- \* Avalanche energy specified

## Pin description



## ■ ORDER INFORMATION

| Order codes  |          | Package    | Packing           |
|--------------|----------|------------|-------------------|
| Halogen-Free | Halogen  |            |                   |
| N/A          | MOT6915G | PDFN5X6-8L | 5000 pieces /Reel |

## ■ ABSOLUTE MAXIMUM RATINGS (T<sub>C</sub> = 25°C, unless otherwise specified)

| PARAMETER                                        | SYMBOL                 | RATINGS    | UNIT |
|--------------------------------------------------|------------------------|------------|------|
| Drain-Source Voltage                             | V <sub>DSS</sub>       | 60         | V    |
| Gate-Source Voltage                              | V <sub>GSS</sub>       | ±20        | V    |
| Continuous Drain Current                         | I <sub>D</sub>         | 30         | A    |
| Continuous Drain Current (T <sub>C</sub> =100°C) | I <sub>D</sub> (100°C) | 23.2       | A    |
| Pulsed drain current                             | I <sub>DM</sub>        | 120        | A    |
| Power Dissipation                                | P <sub>D</sub>         | 40         | W    |
| Single pulse avalanche energy                    | E <sub>AS</sub>        | 135        | mJ   |
| Junction to Case                                 | θ <sub>JC</sub>        | 3.13       | °C/W |
| Junction Temperature                             | T <sub>J</sub>         | +150       | °C   |
| Storage Temperature                              | T <sub>STG</sub>       | -55 ~ +150 | °C   |

**■ Electrical Characteristics ( $T_C=25^{\circ}\text{C}$  unless otherwise specified)**

| Parameter                          | Symbol              | Condition                                                                               | Min | Typ  | Max  | Unit |
|------------------------------------|---------------------|-----------------------------------------------------------------------------------------|-----|------|------|------|
| Off characteristics                |                     |                                                                                         |     |      |      |      |
| Drain-Source Breakdown Voltage     | BV <sub>DSS</sub>   | V <sub>GS</sub> =0V I <sub>D</sub> =250μA                                               | 60  | -    | -    | V    |
| Zero Gate Voltage Drain Current    | I <sub>DSS</sub>    | V <sub>DS</sub> =60V, V <sub>GS</sub> =0V                                               | -   | -    | 1    | μA   |
| Gate-Body Leakage Current          | I <sub>GSS</sub>    | V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V                                              | -   | -    | ±100 | nA   |
| On characteristics                 |                     |                                                                                         |     |      |      |      |
| Gate Threshold Voltage             | V <sub>GS(th)</sub> | V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA                                | 1   | -    | 2.5  | V    |
| Drain-Source On-State Resistance   | R <sub>DS(ON)</sub> | V <sub>GS</sub> =10V, I <sub>D</sub> =20A                                               | -   | 11   | 15   | mΩ   |
|                                    |                     | V <sub>GS</sub> =4.5V, I <sub>D</sub> =20A                                              | -   | 14   | 19   | mΩ   |
| Forward Transconductance           | g <sub>FS</sub>     | V <sub>DS</sub> =10V, I <sub>D</sub> =5A                                                | 10  | -    | -    | S    |
| Dynamic characteristics            |                     |                                                                                         |     |      |      |      |
| Input Capacitance                  | C <sub>iss</sub>    | V <sub>DS</sub> =20V, V <sub>GS</sub> =0V,<br>F=1.0MHz                                  | -   | 845  | -    | PF   |
| Output Capacitance                 | C <sub>oss</sub>    |                                                                                         | -   | 320  | -    | PF   |
| Reverse Transfer Capacitance       | C <sub>rss</sub>    |                                                                                         | -   | 25   | -    | PF   |
| Switching characteristics          |                     |                                                                                         |     |      |      |      |
| Turn-on Delay Time                 | t <sub>d(on)</sub>  | V <sub>DD</sub> =30V, I <sub>b</sub> =15A<br>V <sub>GS</sub> =10V, R <sub>G</sub> =1.6Ω | -   | 11   | -    | nS   |
| Turn-on Rise Time                  | t <sub>r</sub>      |                                                                                         | -   | 17   | -    | nS   |
| Turn-Off Delay Time                | t <sub>d(off)</sub> |                                                                                         | -   | 18   | -    | nS   |
| Turn-Off Fall Time                 | t <sub>f</sub>      | V <sub>DS</sub> =30V, I <sub>D</sub> =15A,<br>V <sub>GS</sub> =10V                      | -   | 4    | -    | nS   |
| Total Gate Charge                  | Q <sub>g</sub>      |                                                                                         | -   | 21.8 | -    | nC   |
| Gate-Source Charge                 | Q <sub>gs</sub>     |                                                                                         | -   | 4.6  | -    | nC   |
| Gate-Drain Charge                  | Q <sub>gd</sub>     |                                                                                         | -   | 3.5  | -    | nC   |
| Drain-source diode characteristics |                     |                                                                                         |     |      |      |      |
| Diode Forward Voltage              | V <sub>SD</sub>     | V <sub>GS</sub> =0V, I <sub>S</sub> =15A                                                | -   | -    | 1.2  | V    |
| Diode Forward Current              | I <sub>S</sub>      |                                                                                         | -   | -    | 30   | A    |
| Reverse Recovery Time              | t <sub>rr</sub>     | T <sub>J</sub> = 25°C, I <sub>F</sub> =30A<br>di/dt = 100A/μs                           | -   | 30   | -    | nS   |
| Reverse Recovery Charge            | Q <sub>rr</sub>     |                                                                                         | -   | 36   | -    | nC   |

■ TYPICAL CHARACTERISTICS

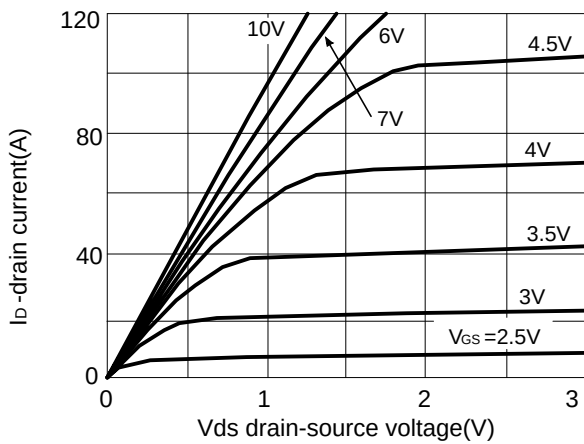


Figure 1: Output characteristics

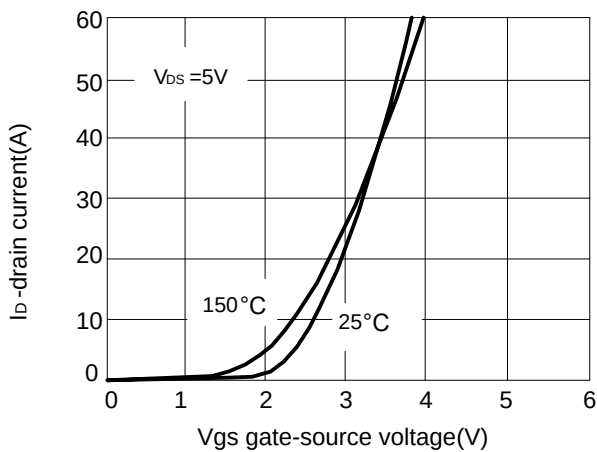


Figure 3: Transfer characteristics

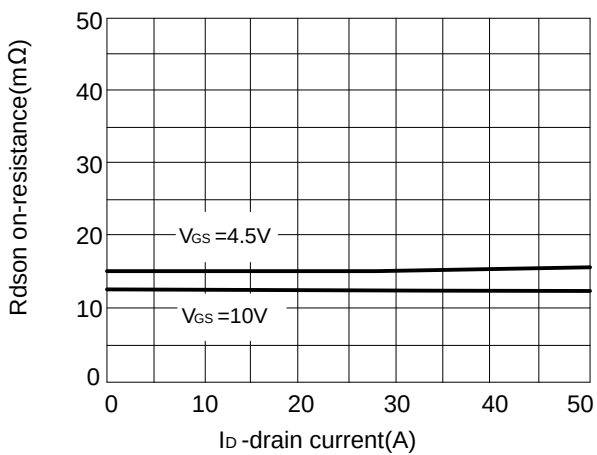


Figure 5: Rdson-drain current

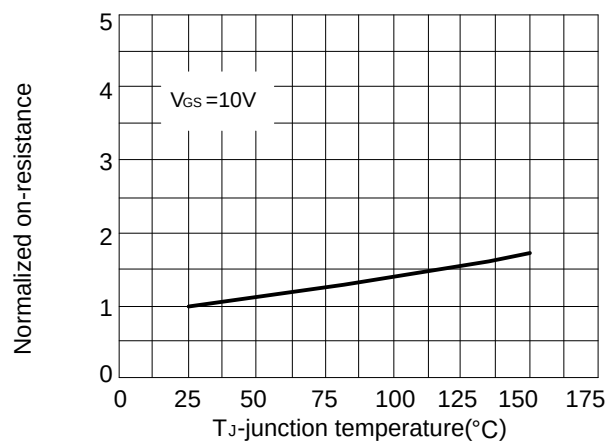


Figure 2: Rdson-junction temperature

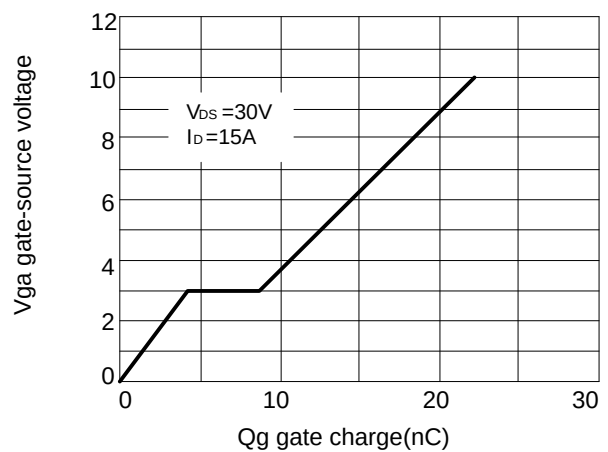


Figure 4: Gate charge

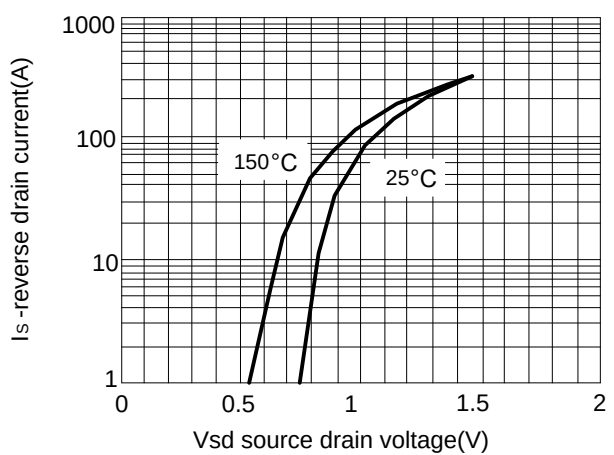
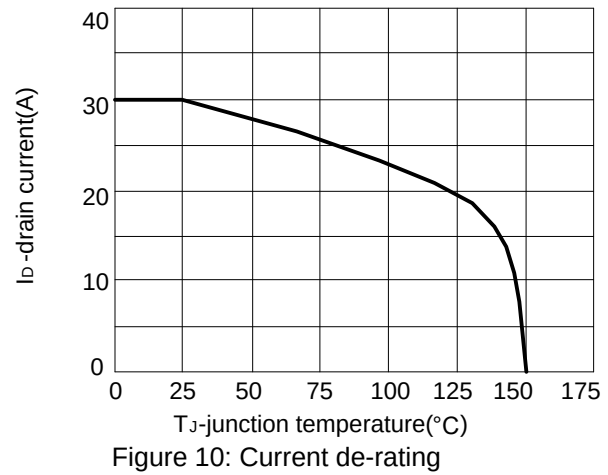
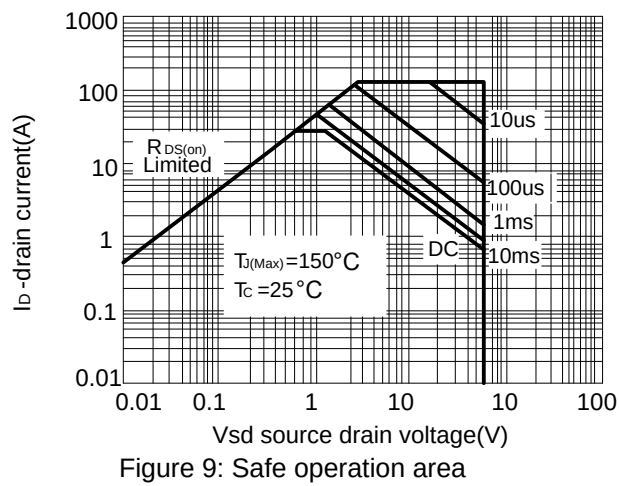
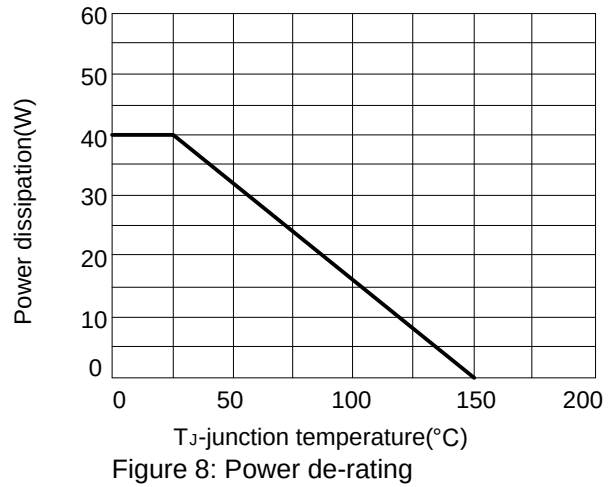
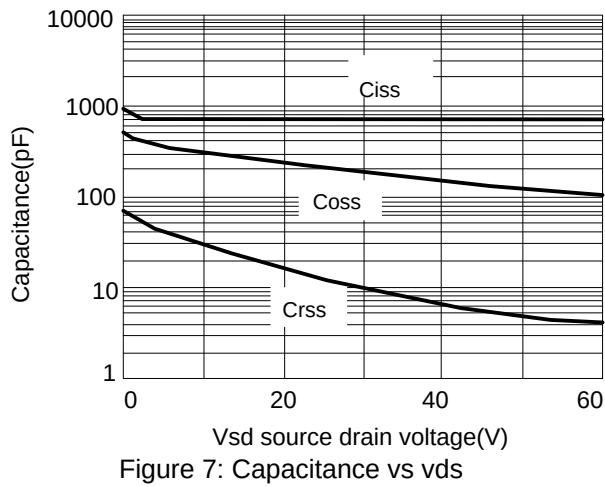
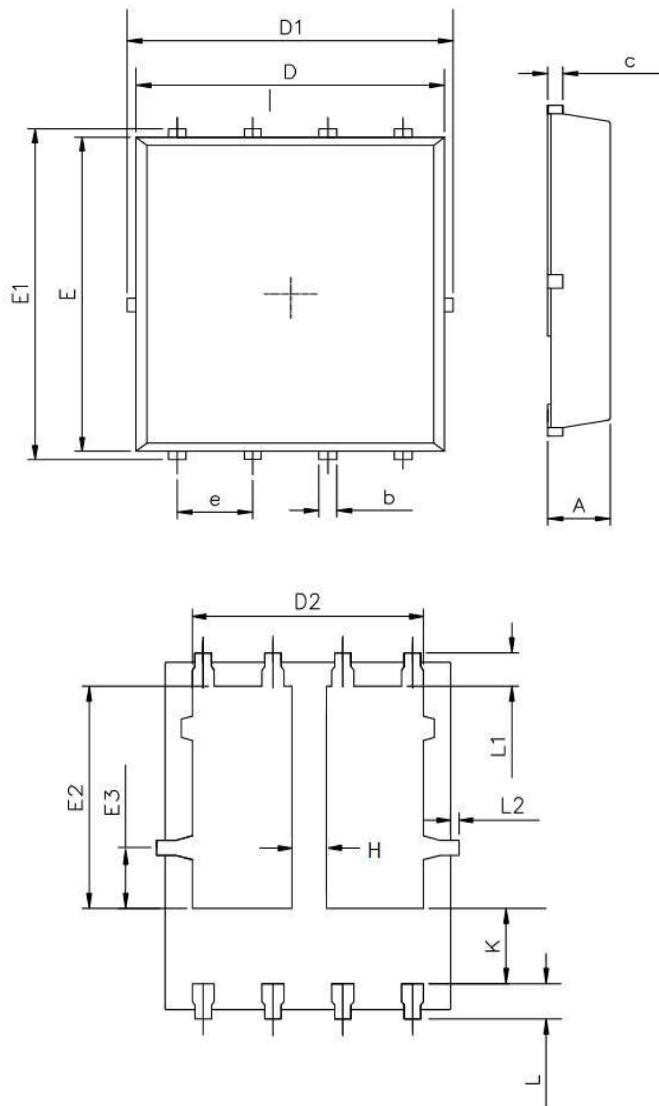


Figure 6: Source-drain diode forward

■ TYPICAL CHARACTERISTICS(Cont.)



■ PDFN5X6-8L PACKAGE MECHANICAL DATA



UNIT:mm

|    | MIN   | NOM   | MAX   |
|----|-------|-------|-------|
| A  | 0.90  | 1.00  | 1.10  |
| b  | 0.25  | 0.35  | 0.50  |
| c  | 0.10  | 0.20  | 0.30  |
| D  | 4.80  | 5.00  | 5.30  |
| D1 | 4.90  | 5.10  | 5.50  |
| D2 | 3.92  | 4.02  | 4.20  |
| E  | 5.65  | 5.75  | 5.85  |
| E1 | 5.90  | 6.05  | 6.20  |
| E2 | 3.325 | 3.525 | 3.775 |
| E3 | 0.80  | 0.90  | 1.00  |
| e  |       | 1.27  |       |
| L  | 0.40  | 0.55  | 0.70  |
| L1 |       | 0.65  |       |
| L2 | 0.00  |       | 0.15  |
| K  | 1.00  | 1.30  | 1.50  |
| H  | 0.5   | 0.6   | 0.7   |