

### FEATURES

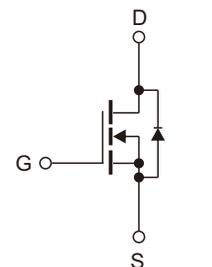
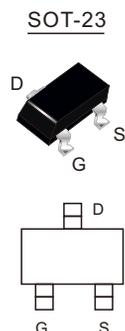
- $R_{DS(ON)} < 5.0\Omega @ V_{GS} = 10V$
- $R_{DS(ON)} < 5.5\Omega @ V_{GS} = 4.5V$
- TrenchFET Power MOSFET



| Product Summary |                               |            |             |
|-----------------|-------------------------------|------------|-------------|
| $V_{DS}$        | $R_{DS(on)}$ ( $\Omega$ ) Typ | $I_D$ (mA) | $Q_g$ (Typ) |
| 100V            | 3.0 @ 10V                     | 200        | 1.8nc       |
|                 | 3.5 @ 4.5V                    | 175        |             |

### MECHANICAL DATA

- Case: SOT-23(TO-236)
- Terminals: Plated solderable per MIL-STD-750, method 2026
- Mounting Position: Any



N-channel MOSFET

### Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| Parameters   |  | Symbol         | Value       | Unit             |
|--|--|----------------|-------------|------------------|
| Drain-Source voltage                                 |  | $V_{DS}$       | 100         | V                |
| Gate-Source Voltage                                  |  | $V_{GS}$       | $\pm 20$    | V                |
| Continuous Drain Current                             | $T_A = 25^\circ\text{C}$ @Steady State | $I_D$          | 200         | mA               |
|  | $T_A = 70^\circ\text{C}$ @Steady State |                | 160         |                  |
| Maximum Power Dissipation @ $T_A = 25^\circ\text{C}$ |  | $P_D$          | 350         | mW               |
| Junction and Storage Temperature Range               |  | $T_J, T_{STG}$ | -55 to +150 | $^\circ\text{C}$ |

### Thermal Resistance Ratings

| Parameters                                      | Symbol          | Typ | Max | Unit                      |
|---|-----------------|-----|-----|---------------------------|
| Junction to Ambient, Steady State <sup>2)</sup> | $R_{\theta JA}$ | -   | 357 | $^\circ\text{C}/\text{W}$ |

2. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

### Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise noted)

| Parameters                              | Symbol              | Conditions   | Min | Typ | Max  | Unit |
|---|---------------------|--|-----|-----|------|------|
| Static                                  |                     |  |     |     |      |      |
| Drain-Source Breakdown Voltage          | BV <sub>DSS</sub>   | V <sub>GS</sub> =0V, I <sub>D</sub> =250μA   | 100 | -   | -    | V    |
| Zero Gate Voltage Drain Current         | I <sub>DSS</sub>    | V <sub>DS</sub> =100V, V <sub>GS</sub> =0V, T <sub>c</sub> =25°C                       | -   | -   | 1    | μA   |
| Gate-Source Leakage Current             | I <sub>GSS</sub>    | V <sub>GS</sub> = ±20V, V <sub>DS</sub> =0V  | -   | -   | ±100 | nA   |
| Gate-Source Threshold Voltage           | V <sub>GS(th)</sub> | V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA                               | 1.0 | 1.8 | 2.5  | V    |
| Drain-Source On-State Resistance        | R <sub>DS(on)</sub> | V <sub>GS</sub> =4.5V, I <sub>D</sub> =175mA   | -   | 3.5 | 5.5  | Ω    |
|   |                     | V <sub>GS</sub> =10V, I <sub>D</sub> =200mA  | -   | 3.0 | 5.0  |      |
| Dynamic                                 |                     |  |     |     |      |      |
| Input Capacitance                       | C <sub>iss</sub>    | V <sub>DS</sub> =50V, V <sub>GS</sub> =0V, f=1MHz                                      | -   | 14  | -    | pF   |
| Output Capacitance                      | C <sub>oss</sub>    |  | -   | 10  | -    |      |
| Reverse Transfer Capacitance            | C <sub>rss</sub>    |  | -   | 5   | -    |      |
| Total Gate Charge                       | Q <sub>g</sub>      | V <sub>DS</sub> =50V, V <sub>GS</sub> =10V, I <sub>D</sub> =0.2A                       | -   | 1.8 | 2.5  | nC   |
| Gate-Source Charge                      | Q <sub>gs</sub>     |  | -   | -   | -    |      |
| Gate-Drain Charge                       | Q <sub>gd</sub>     |  | -   | -   | -    |      |
| Turn-on Delay Time                      | t <sub>d(on)</sub>  | V <sub>GS</sub> =10V, V <sub>DD</sub> =50V, I <sub>D</sub> =0.2A, R <sub>GEN</sub> =6Ω | -   | 1.7 | -    | ns   |
| Turn-On Rise Time                       | t <sub>r</sub>      |  | -   | 9   | -    |      |
| Turn-off Delay Time                     | t <sub>d(off)</sub> |  | -   | 17  | -    |      |
| Turn-Off Fall Time                      | t <sub>f</sub>      |  | -   | 7   | -    |      |
| Drain-Source Body Diode Characteristics |                     |  |     |     |      |      |
| Maximum Body-Diode Continuous Current   | I <sub>S</sub>      |  | -   | -   | 0.2  | A    |
| Diode Forward Voltage                   | V <sub>SD</sub>     | I <sub>S</sub> =0.2A, V <sub>GS</sub> =0V  | -   | -   | 1.2  | V    |

### Typical Performance Characteristics

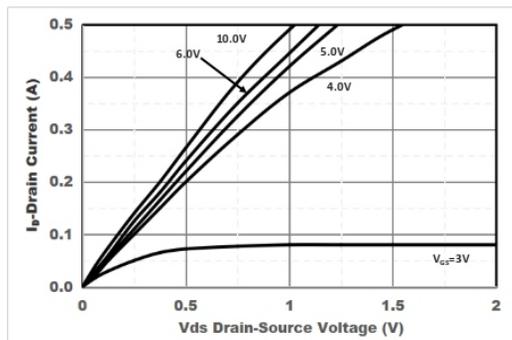


Figure1. Output Characteristics

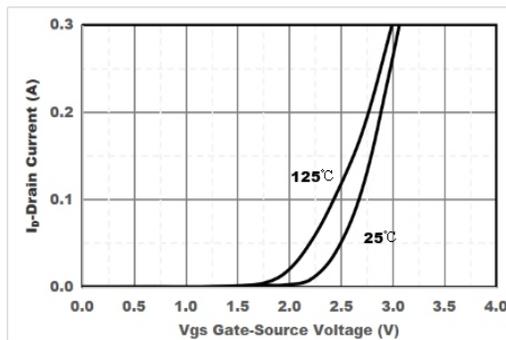


Figure2. Transfer Characteristics

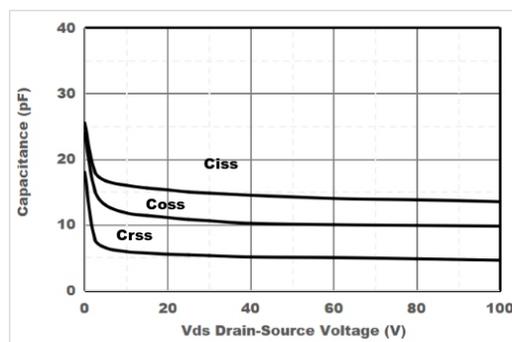


Figure3. Capacitance Characteristics

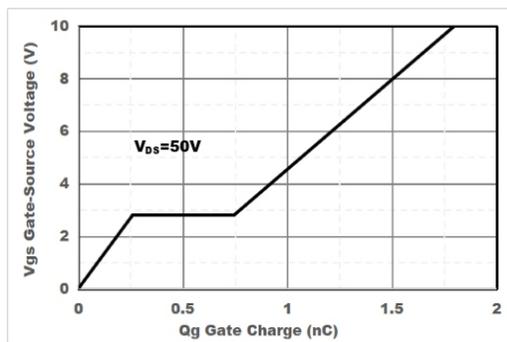


Figure4. Gate Charge

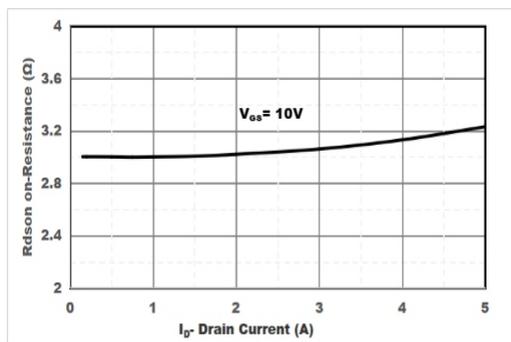


Figure5. Drain-Source on Resistance

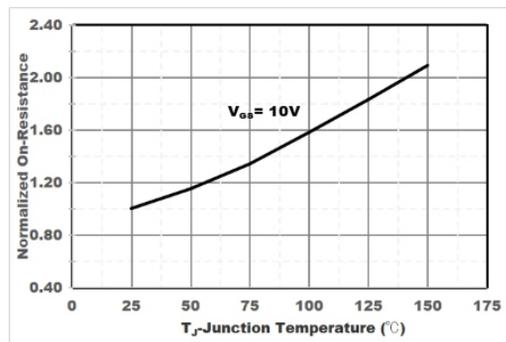


Figure6. Drain-Source on Resistance

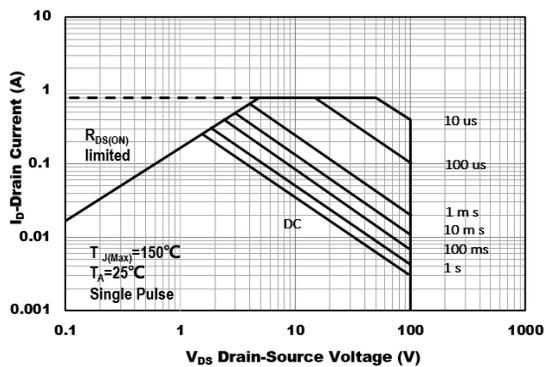


Figure7. Safe Operation Area

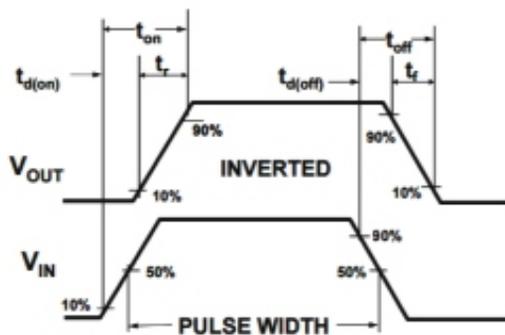
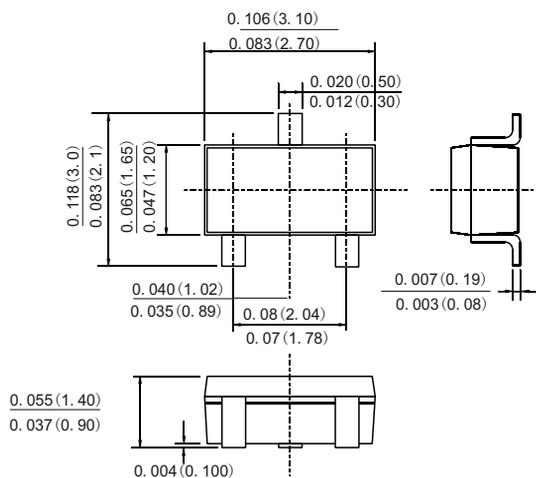


Figure8. Switching wave

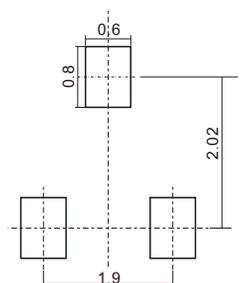
### PACKAGE OUTLINE DIMENSIONS

#### SOT-23



Dimensions in inches and (millimeters)

#### Suggested Pad Layout



Dimensions in millimeters

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