

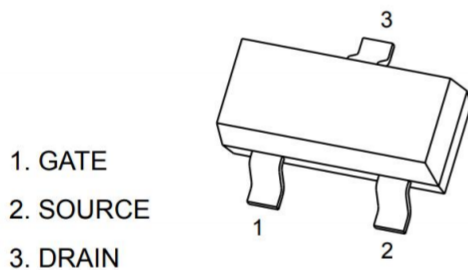
### Product Summary

- $V_{DS}$  25 V
- $I_D$  0.9A
- $R_{DS(ON)}$  ( $V_{GS}=4.5V, I_D=0.3A$ )  $\leq 1.05\Omega$
- ESD protected gate, typical 6kV (HBM)

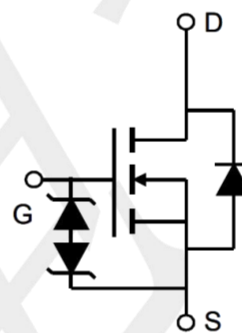
### Application

- Interfacing Switching
- Load Switch
- Portable equipment and battery
- DC/DC Converter

### Package and Pin Configuration



### Circuit diagram



SOT23

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

| PARAMETER                                       | SYMBOL    | LIMIT       | UNIT             |
|-------------------------------------------------|-----------|-------------|------------------|
| Drain-Source Voltage                            | $V_{DS}$  | 25          | V                |
| Gate-Source Voltage                             | $V_{GS}$  | $\pm 12$    | V                |
| Continuous Drain Current                        | $I_D$     | 0.9         | A                |
| Pulsed Drain Current ( $t = 100 \mu\text{s}$ )  | $I_{DM}$  | 2.5         | A                |
| Electrostatic Discharge Rating Human Body Model | ESD       | 6.0         | KV               |
| Maximum Power Dissipation                       | $P_D$     | 0.85        | W                |
| Operating Junction Temperature Range            | $T_J$     | +155        | $^\circ\text{C}$ |
| Storage Temperature Range                       | $T_{stg}$ | -55 to +150 | $^\circ\text{C}$ |

### Thermal Characteristic

| PARAMETER                                                          | Symbol          | Value | Unit               |
|--------------------------------------------------------------------|-----------------|-------|--------------------|
| Thermal Resistance from Junction to Ambient( $t \leq 10\text{s}$ ) | $R_{\theta JA}$ | 357   | $^\circ\text{C/W}$ |

Note : When mounted on 1" square PCB (FR4 material).

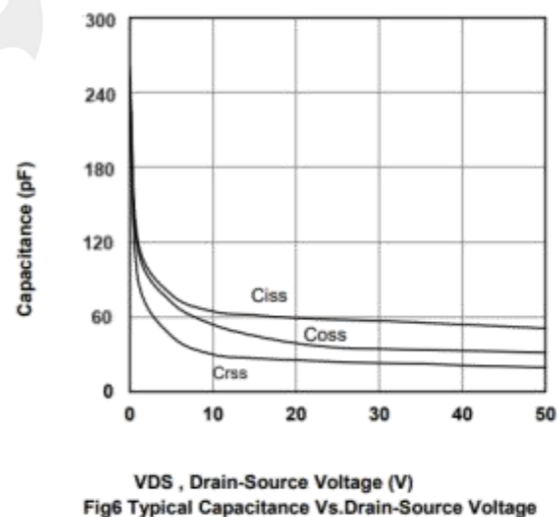
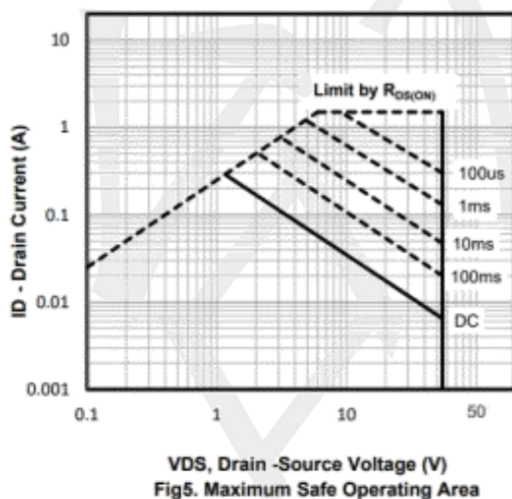
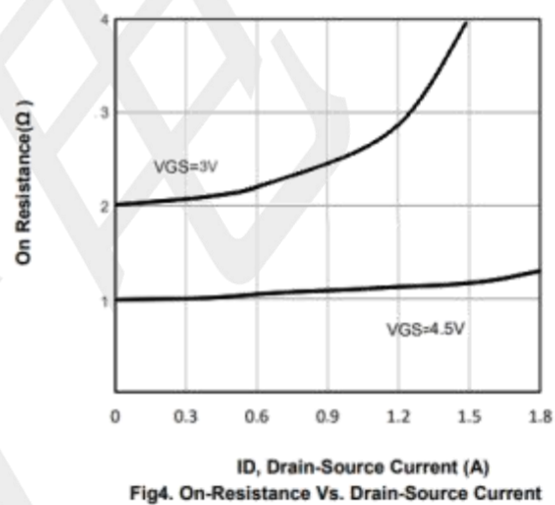
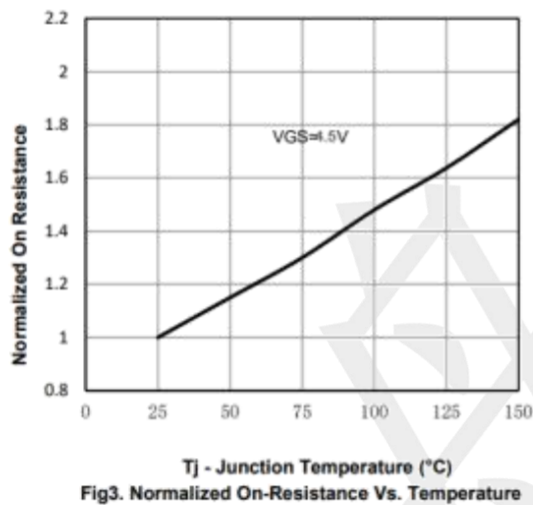
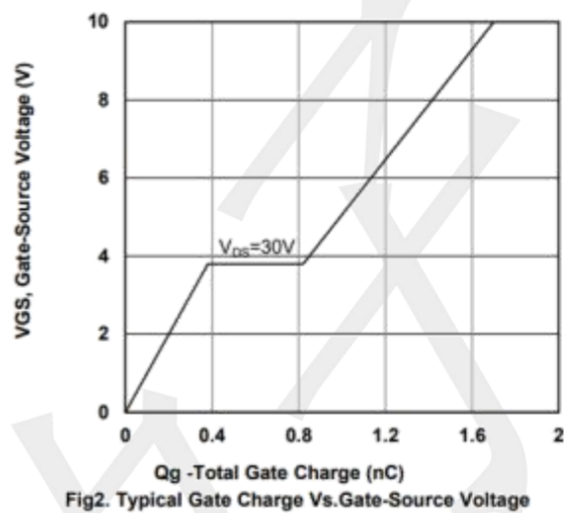
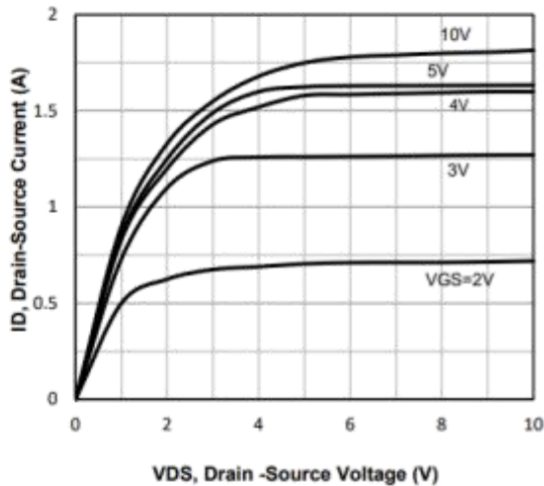
### Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

| PARAMETER                                               | CONDITIONS                                                             | SYMBOL       | MIN | TYP  | MAX       | UNIT     |
|---------------------------------------------------------|------------------------------------------------------------------------|--------------|-----|------|-----------|----------|
| Static                                                  |                                                                        |              |     |      |           |          |
| Drain-Source Breakdown Voltage                          | $V_{GS}=0V, I_D= 10\mu A$                                              | $BV_{DSS}$   | 25  | --   | --        | V        |
| Gate-Source Threshold Voltage                           | $V_{DS}=V_{GS}, I_D= 250\mu A$                                         | $V_{GS(th)}$ | 0.6 | 1.0  | 1.5       | V        |
| Gate-Source Leakage                                     | $V_{DS}=0V, V_{GS}= \pm 12V$                                           | $I_{GSS}$    | --  | --   | $\pm 0.5$ | $\mu A$  |
| Zero Gate Voltage Drain Current                         | $V_{DS}= 25V, V_{GS}=0V$                                               | $I_{DSS}$    | --  | --   | 1.0       | $\mu A$  |
| Drain-Source On-State Resistance<br>(Note 1)            | $V_{GS}= 4.5V, I_D= 0.3A$                                              | $R_{DS(on)}$ | --  | 0.40 | 1.05      | $\Omega$ |
|                                                         | $V_{GS}= 3.0V, I_D= 0.2A$                                              |              | --  | 0.57 | 2.10      |          |
| Forward Transconductance (Note 2)                       | $V_{DS}= 15V, I_D= 0.2A$                                               | $g_{fs}$     | --  | 60   | --        | mS       |
| Dynamic (Note 2)                                        |                                                                        |              |     |      |           |          |
| Input Capacitance                                       | $V_{DS} = 25V, V_{GS} = 0V,$<br>$F = 1.0MHz$                           | $C_{iss}$    | --  | 50   | --        | pF       |
| Output Capacitance                                      |                                                                        | $C_{oss}$    | --  | 16   | --        |          |
| Reverse Transfer Capacitance                            |                                                                        | $C_{rss}$    | --  | 11   | --        |          |
| Switching                                               |                                                                        |              |     |      |           |          |
| Turn-On Delay Time (Note 3)                             | $V_{DS} = 25V,$<br>$I_D= 0.2A,$<br>$V_{GEN}= 10V,$<br>$R_G = 10\Omega$ | $t_{d(on)}$  | --  | 35   | --        | nS       |
| Rise Time (Note 3)                                      |                                                                        | $t_r$        | --  | 61   | --        |          |
| Turn-Off Delay Time (Note 3)                            |                                                                        | $t_{d(off)}$ | --  | 55   | --        |          |
| Fall Time (Note 3)                                      |                                                                        | $t_f$        | --  | 35   | --        |          |
| Total Gate Charge                                       | $V_{DS} = 25V,$<br>$I_D= 0.3A,$<br>$V_{GS}= 10V$                       | $Q_g$        | --  | 2.5  | --        | nC       |
| Gate-Source Charge                                      |                                                                        | $Q_{gs}$     | --  | 1.1  | --        |          |
| Gate-Drain Charge                                       |                                                                        | $Q_{gd}$     | --  | 0.35 | --        |          |
| Source-Drain Diode Ratings and Characteristics (Note 2) |                                                                        |              |     |      |           |          |
| Forward Voltage                                         | $V_{GS} = 0V, I_F = 0.1A$                                              | $V_{SD}$     | --  | 0.85 | 1.2       | V        |
| Continuous Source Current                               | Integral reverse diode<br>in the MOSFET                                | $I_S$        | --  | --   | 0.9       | A        |
| Pulsed Current (Note 1)                                 |                                                                        | $I_{SM}$     | --  | --   | 2.5       | A        |

Notes:

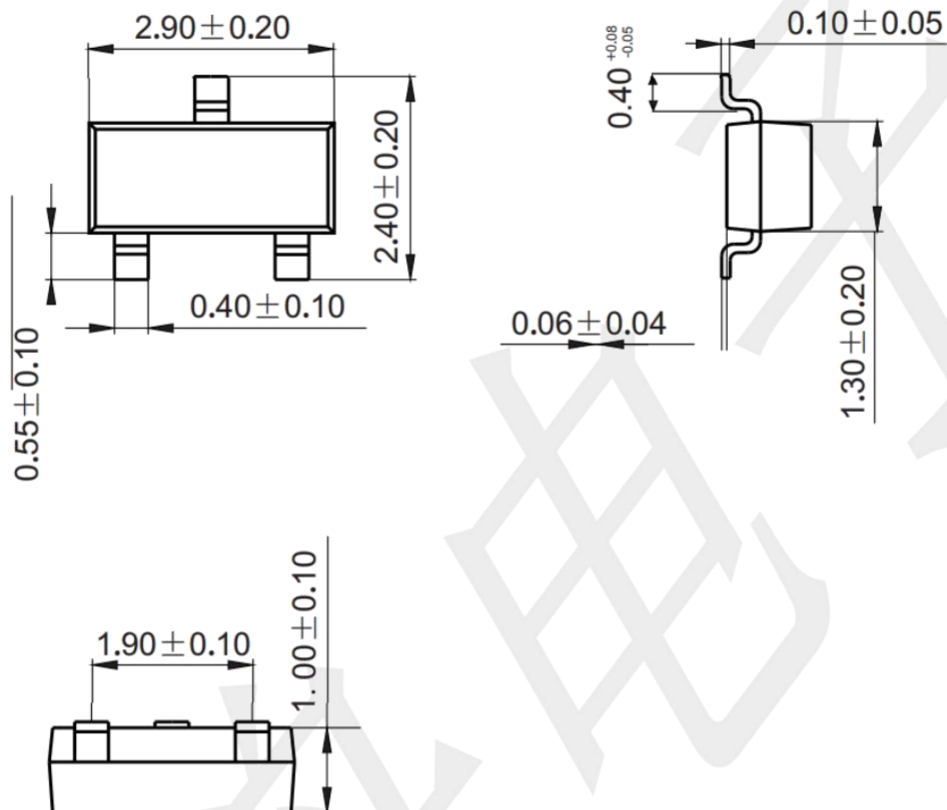
1. Pulse test; pulse width ≤ 300 μS, duty cycle ≤ 2%.
2. Guaranteed by design, not subject to production testing.
3. Independent of operating temperature

**TYPICAL CHARACTERISTICS** (25 °C, unless otherwise noted)



**Package Outline Dimensions (unit: mm)**

**SOT-23**



**Mounting Pad Layout (unit: mm)**

