

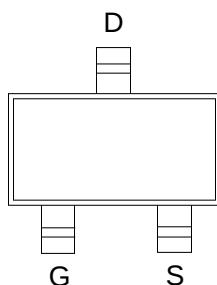
## -100V/-5A P-Channel MOSFET

### Features

- Split gate trench MOSFET technology
- Low  $R_{DS(on)}$  & FOM
- Extremely low switching loss
- Excellent stability and uniformity

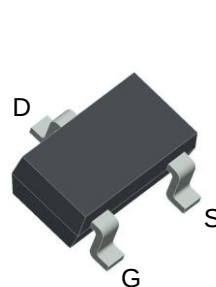
### Application

- Power management
- Portable equipment

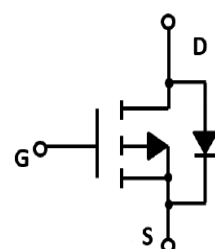


### Product Summary

| $V_{DS}$ | $R_{DS(ON)}$ MAX | $I_D$ MAX |
|----------|------------------|-----------|
| -100V    | 200mΩ@-10V       | -5A       |
|          | 250mΩ@-4.5V      |           |



SOT-23-3L top view



Schematic diagram

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

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

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

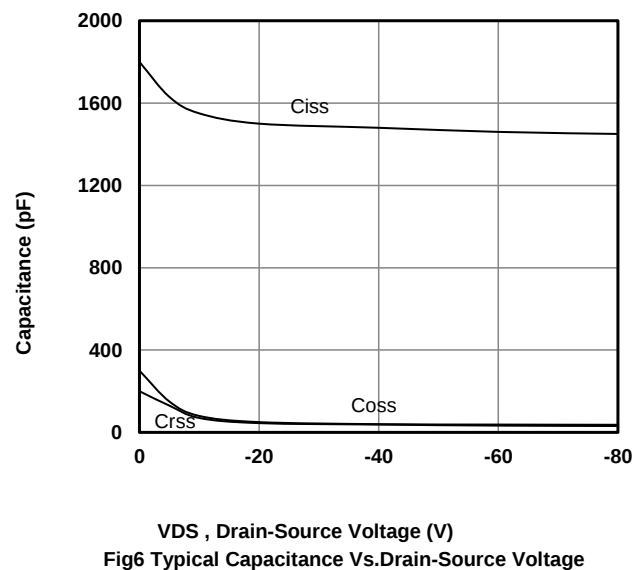
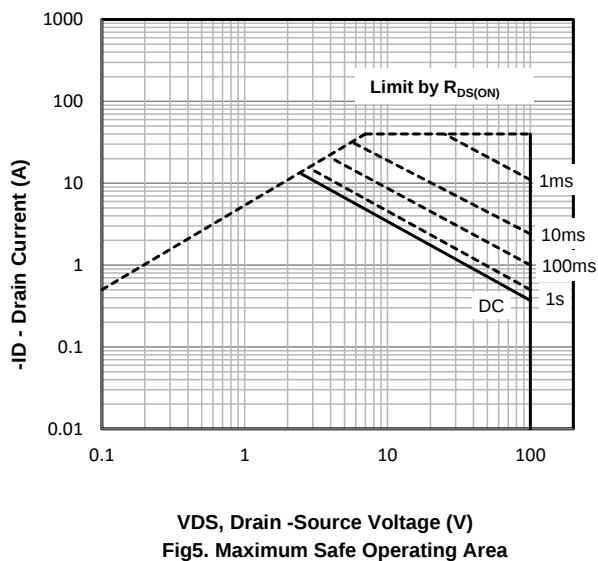
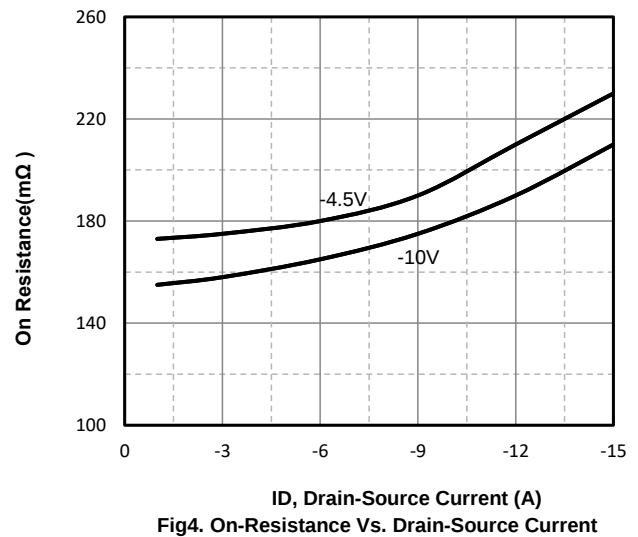
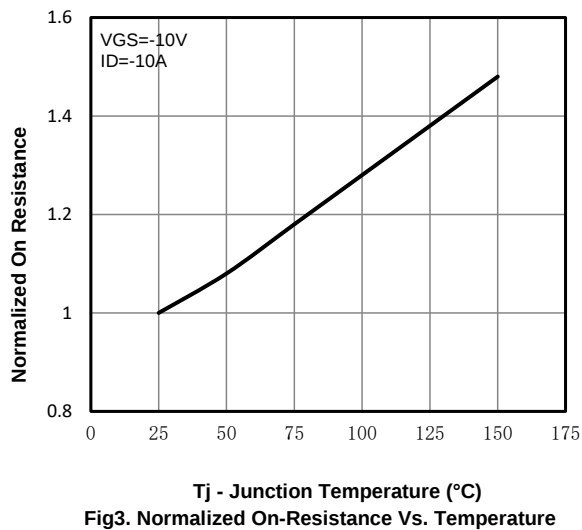
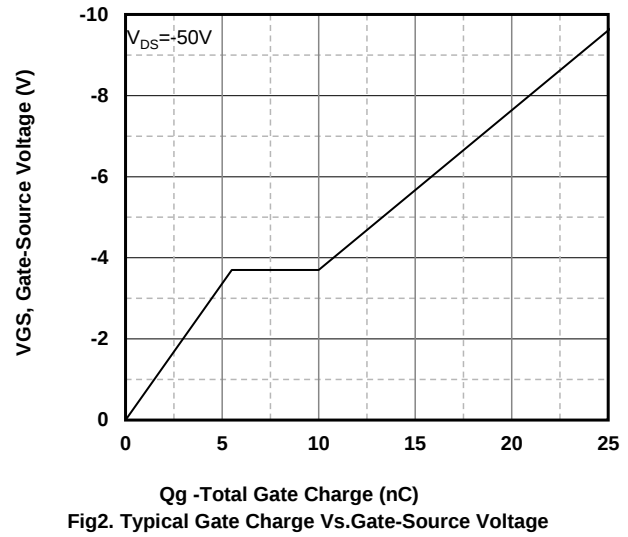
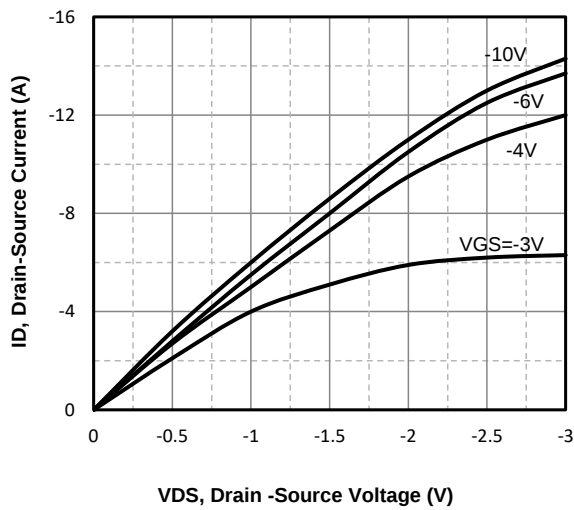
|           |                                  |                              |    |
|-----------|----------------------------------|------------------------------|----|
| $V_{DS}$  | Drain-Source Breakdown Voltage   | -100                         | V  |
| $V_{GS}$  | Gate-Source Voltage              | ±20                          | V  |
| $T_J$     | Maximum Junction Temperature     | 150                          | °C |
| $T_{STG}$ | Storage Temperature Range        | -50 to 155                   | °C |
| $I_S$     | Diode Continuous Forward Current | $T_C=25^\circ\text{C}$<br>-5 | A  |

### Mounted on Large Heat Sink

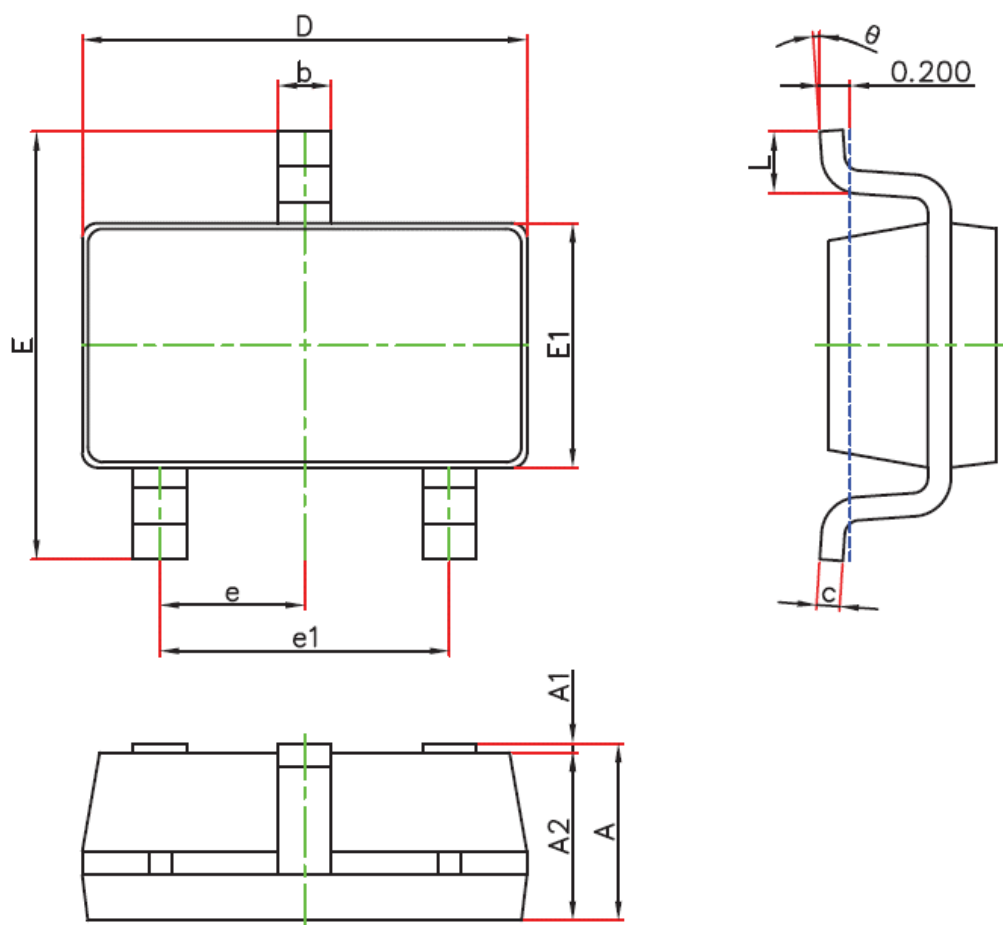
|                 |                                     |                               |      |
|-----------------|-------------------------------------|-------------------------------|------|
| $I_{DM}$        | Pulse Drain Current Tested          | $T_C=25^\circ\text{C}$<br>-28 | A    |
| $I_D$           | Continuous Drain Current            | $T_C=25^\circ\text{C}$<br>-5  | A    |
| $P_D$           | Maximum Power Dissipation           | $T_C=25^\circ\text{C}$<br>1.8 | W    |
| $R_{\theta JA}$ | Thermal Resistance Junction-Ambient | 315                           | °C/W |

| Electrical Characteristics (TJ=25℃ unless otherwise noted)              |                                  |                                     |      |      |      |      |
|-------------------------------------------------------------------------|----------------------------------|-------------------------------------|------|------|------|------|
| Symbol                                                                  | Parameter                        | Condition                           | Min  | Typ  | Max  | Unit |
| Static Electrical Characteristics @ TJ = 25℃ (unless otherwise stated)  |                                  |                                     |      |      |      |      |
| BV <sub>(BR)DSS</sub>                                                   | Drain-Source Breakdown Voltage   | VGS=0V, ID=-250μA                   | -100 | --   | --   | V    |
| I <sub>DSS</sub>                                                        | Zero Gate Voltage Drain Current  | VDS=-100V, VGS=0V                   | --   | --   | -1.0 | uA   |
| I <sub>GSS</sub>                                                        | Gate-Body Leakage Current        | VGS=±20V, VDS=0V                    | --   | --   | ±100 | nA   |
| V <sub>GS(th)</sub>                                                     | Gate Threshold Voltage           | VDS=VGS, ID=-250μA                  | -1.0 | -1.8 | -3.0 | V    |
| R <sub>DS(on)</sub>                                                     | Drain-Source On-State Resistance | VGS=-10V, ID=-8A                    | --   | 155  | 200  | mΩ   |
|                                                                         |                                  | VGS=-4.5V, ID=-6A                   | --   | 170  | 250  | mΩ   |
| Dynamic Electrical Characteristics @ TJ = 25℃ (unless otherwise stated) |                                  |                                     |      |      |      |      |
| C <sub>ISS</sub>                                                        | Input Capacitance                | VDS=-50V, VGS=0V, f=1MHz            | --   | 1488 | --   | pF   |
| C <sub>OSS</sub>                                                        | Output Capacitance               |                                     | --   | 39   | --   | pF   |
| C <sub>RSS</sub>                                                        | Reverse Transfer Capacitance     |                                     | --   | 30   | --   | pF   |
| Switching Characteristics                                               |                                  |                                     |      |      |      |      |
| Q <sub>g</sub>                                                          | Total Gate Charge                | VDS=-50V, ID=-6A, VGS=-10V          | --   | 26.5 | --   | nC   |
| Q <sub>gs</sub>                                                         | Gate Source Charge               |                                     | --   | 6    | --   | nC   |
| Q <sub>gd</sub>                                                         | Gate Drain Charge                |                                     | --   | 4    | --   | nC   |
| t <sub>d(on)</sub>                                                      | Turn-on Delay Time               | VDS=-50V, ID=-6A, VGS=-10V, RG=4.5Ω | --   | 14   | --   | nS   |
| t <sub>r</sub>                                                          | Turn-on Rise Time                |                                     | --   | 45   | --   | nS   |
| t <sub>d(off)</sub>                                                     | Turn-Off Delay Time              |                                     | --   | 227  | --   | nS   |
| t <sub>f</sub>                                                          | Turn-Off Fall Time               |                                     | --   | 93   | --   | nS   |
| Source- Drain Diode Characteristics                                     |                                  |                                     |      |      |      |      |
| V <sub>SD</sub>                                                         | Forward on voltage               | Tj=25℃, Is=-8A,                     | --   | -0.8 | -1.2 | V    |

## Typical Operating Characteristics



## SOT-23-3L Package information



| Symbol   | Dimensions in Millimeters(mm) |       | Dimensions In Inches |       |
|----------|-------------------------------|-------|----------------------|-------|
|          | Min                           | Max   | Min                  | Max   |
| A        | 1.050                         | 1.250 | 0.041                | 0.049 |
| A1       | 0.000                         | 0.100 | 0.000                | 0.004 |
| A2       | 1.050                         | 1.150 | 0.041                | 0.045 |
| b        | 0.300                         | 0.500 | 0.012                | 0.020 |
| c        | 0.100                         | 0.200 | 0.004                | 0.008 |
| D        | 2.820                         | 3.020 | 0.111                | 0.119 |
| E1       | 1.500                         | 1.700 | 0.059                | 0.067 |
| E        | 2.650                         | 2.950 | 0.104                | 0.116 |
| e        | 0.950TYP                      |       | 0.037TYP             |       |
| e1       | 1.800                         | 2.000 | 0.071                | 0.079 |
| L        | 0.300                         | 0.600 | 0.012                | 0.024 |
| $\theta$ | 0°                            | 8°    | 0°                   | 8°    |