



鑫沃科技  
XIN WO TECHNOLOGY



# 产品规格手册

PRODUCT SPECIFICATION MANUAL

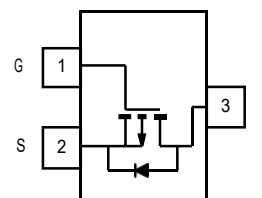
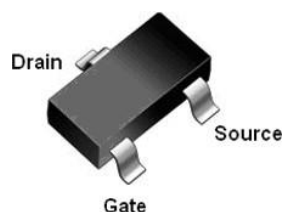
SI2319

P-Channel Enhancement MOSFET  
SOT23-3/-40V/-5A

深圳东为电子科技有限公司  
DONGWEI ELECTRONIC TECHNOLOGY CO., LTD

## ■ Features

- $V_{DS} (V) = -40V$
- $I_D = -5.0A$  ( $V_{GS} = -10V$ )
- $R_{DS(ON)} < 70m\Omega$  ( $V_{GS} = -10V$ )
- $R_{DS(ON)} < 130m\Omega$  ( $V_{GS} = -4.5V$ )



SOT23-3

## Order Information

| Product | Package | Marking | Packing      | Min Unit Quantity |
|---------|---------|---------|--------------|-------------------|
| SI2319  | SOT23-3 | 2319    | 3000PCS/Reel | 3000PCS           |

## ■ Absolute Maximum Ratings $T_a = 25^\circ C$

| Parameter                                  | Symbol            | 5 sec      | Steady State | Unit |
|--------------------------------------------|-------------------|------------|--------------|------|
| Drain-Source Voltage                       | V <sub>DS</sub>   | -40        |              | V    |
| Gate-Source Voltage                        | V <sub>GS</sub>   | ±20        |              |      |
| Continuous Drain Current *1<br>Ta = 25℃    | I <sub>D</sub>    | -5.0       | -2.3         | A    |
| Ta = 70℃                                   |                   | -2.4       | -1.85        |      |
| Pulsed Drain Current                       | I <sub>DM</sub>   | -12        |              |      |
| Power Dissipation *1<br>Ta = 25℃           | P <sub>D</sub>    | 1.25       | 0.75         | W    |
| Ta = 70℃                                   |                   | 0.8        | 0.48         |      |
| Thermal Resistance.Junction- to-Ambient *1 | R <sub>thJA</sub> | 100        |              | ℃/W  |
| Thermal Resistance.Junction- to-Ambient *2 |                   | 166        |              |      |
| Thermal Resistance.Junction- to-Foot       | R <sub>thJF</sub> | 50         |              |      |
| Junction Temperature                       | T <sub>J</sub>    | 150        |              | ℃    |
| Storage Temperature Range                  | T <sub>stg</sub>  | -55 to 150 |              |      |

\*1 Surface Mounted on FR4 Board,  $t \leq 5$  sec.

\*2 Surface Mounted on FR4 Board.

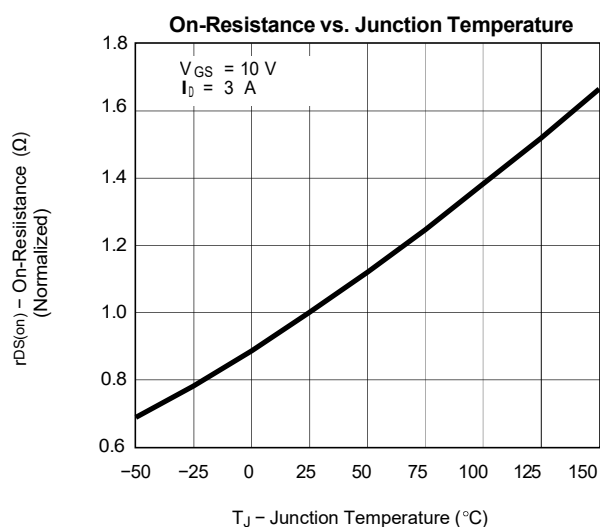
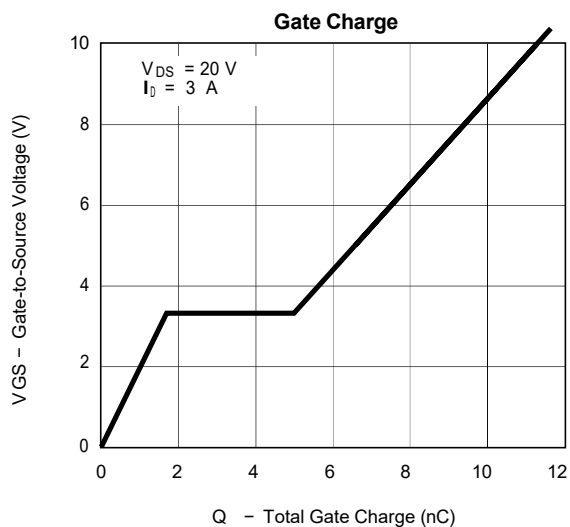
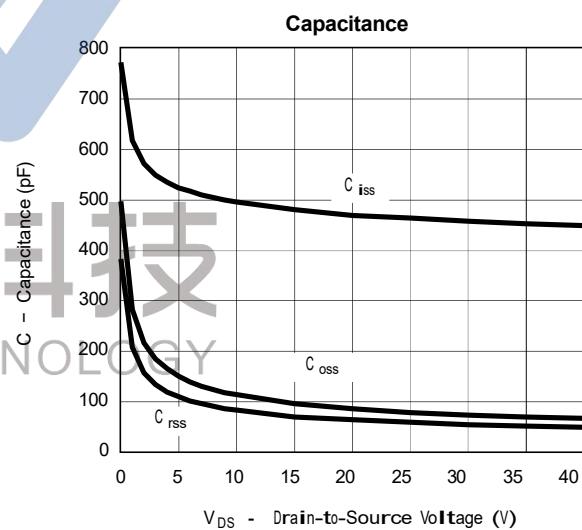
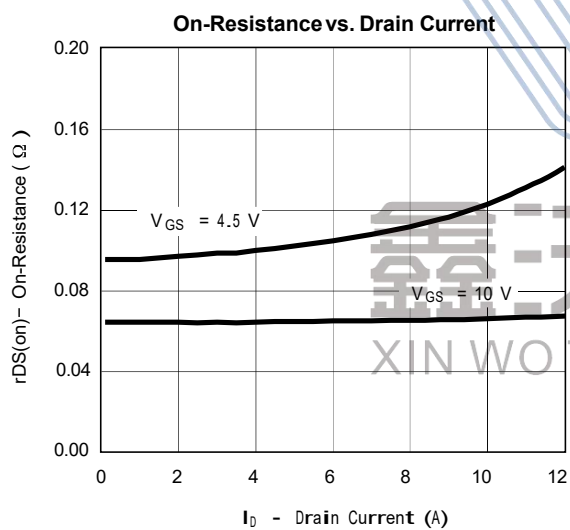
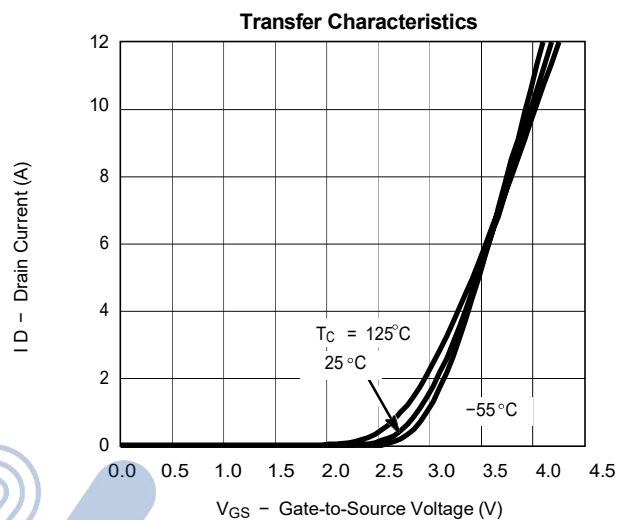
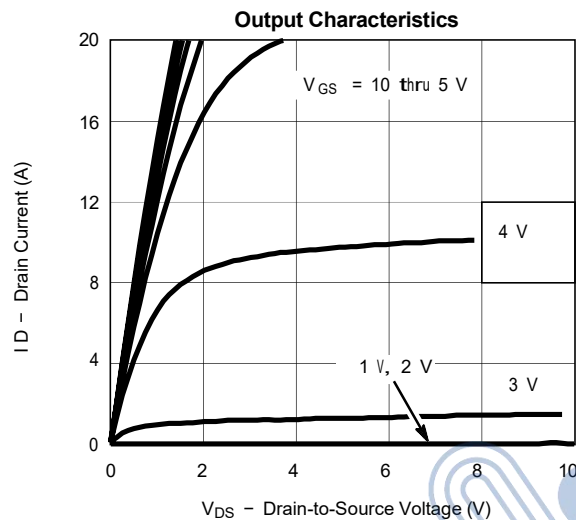
# ■ Electrical Characteristics Ta = 25℃

| Parameter                             | Symbol  | Test Conditions                                  | Min | Typ  | Max   | Unit |
|---------------------------------------|---------|--------------------------------------------------|-----|------|-------|------|
| Drain-Source Breakdown Voltage        | VDSS    | ID=-250 μA, VGS=0V                               | -40 |      |       | V    |
| Zero Gate Voltage Drain Current       | IDSS    | VDS=-40V, VGS=0V                                 |     |      | -1    | μA   |
|                                       |         | VDS=-40V, VGS=0V, TJ=55℃                         |     |      | -10   |      |
| Gate-Body leakage current             | IGSS    | VDS=0V, VGS=±20V                                 |     |      | ±100  | nA   |
| Gate Threshold Voltage                | VGS(th) | VDS=VGS ID=-250 μA                               | -1  |      | -3    | V    |
| Static Drain-Source On-Resistance *1  | RDS(on) | VGS=-10V, ID=-3.0A                               |     | 70   | 82    | mΩ   |
|                                       |         | VGS=-4.5V, ID=-2.4A                              |     | 100  | 130   |      |
| On state drain current *1             | ID(ON)  | VGS=-10V, VDS=-5V                                | -6  |      |       | A    |
| Forward Transconductance *1           | gFS     | VDS=-5V, ID=-3.0A                                |     | 7    |       | S    |
| Input Capacitance                     | Ciss    | VGS=0V, VDS=-20V, f=1MHz                         |     | 470  |       | pF   |
| Output Capacitance                    | Coss    |                                                  |     | 85   |       |      |
| Reverse Transfer Capacitance          | Crss    |                                                  |     | 65   |       |      |
| Total Gate Charge                     | Qg      | VGS=-10V, VDS=-20V, ID=-3A                       |     | 11.3 | 17    | nC   |
| Gate Source Charge                    | Qgs     |                                                  |     | 1.7  |       |      |
| Gate Drain Charge                     | Qgd     |                                                  |     | 3.3  |       |      |
| Turn-On DelayTime                     | td(on)  | VGS=-4.5V, VDS=-20V, RL=20Ω, RGEN=6Ω<br>ID=-1.0A |     | 7    | 15    | ns   |
| Turn-On Rise Time                     | tr      |                                                  |     | 15   | 25    |      |
| Turn-Off DelayTime                    | td(off) |                                                  |     | 25   | 40    |      |
| Turn-Off Fall Time                    | tf      |                                                  |     | 25   | 40    |      |
| Maximum Body-Diode Continuous Current | IS      |                                                  |     |      | -1.25 | A    |
| Diode Forward Voltage                 | VSD     | IS=-1.25 A, VGS=0V                               |     | -0.8 | -1.2  | V    |

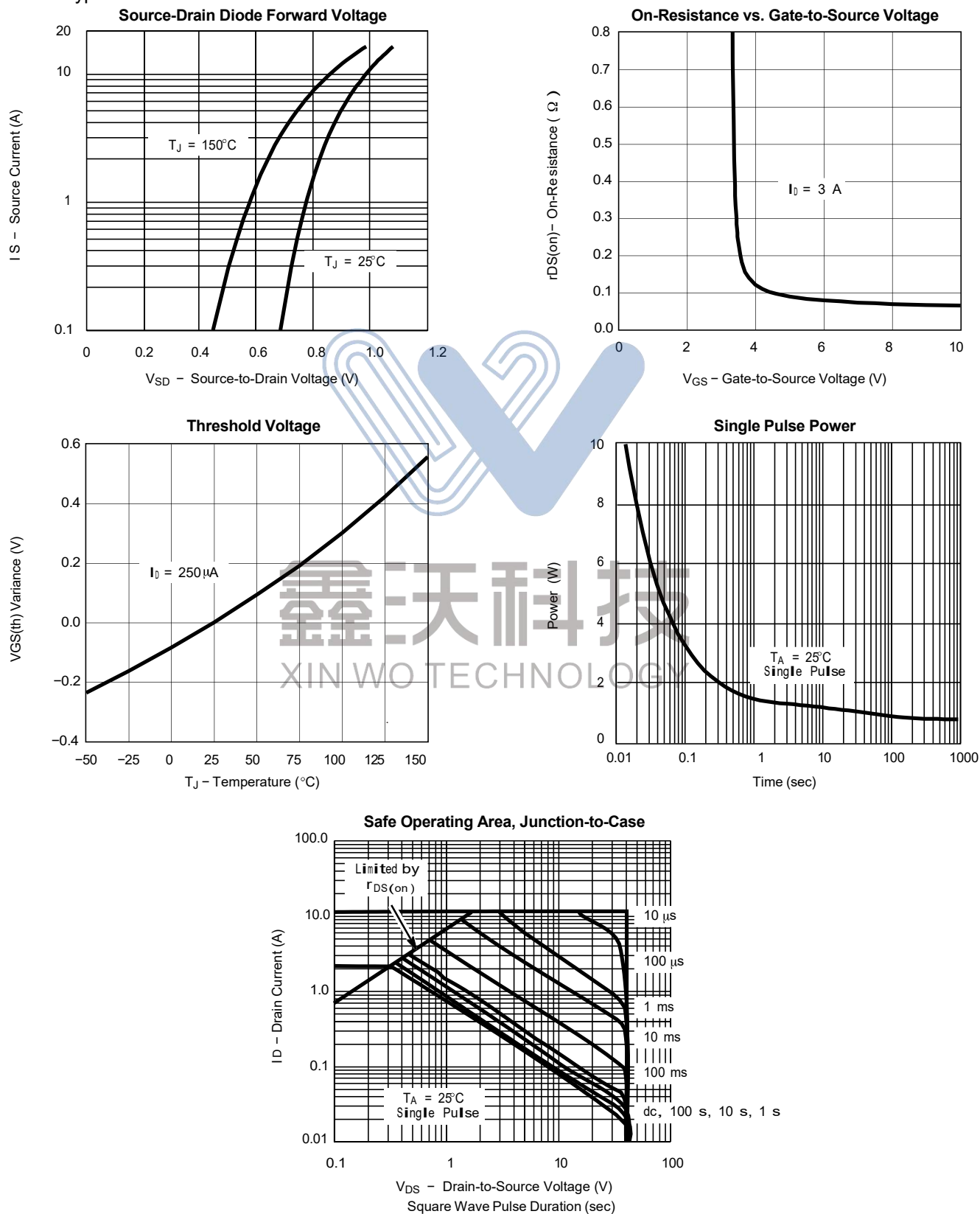
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\*1Pulse test: PW ≤ 300 s duty cycle ≤ 2%.

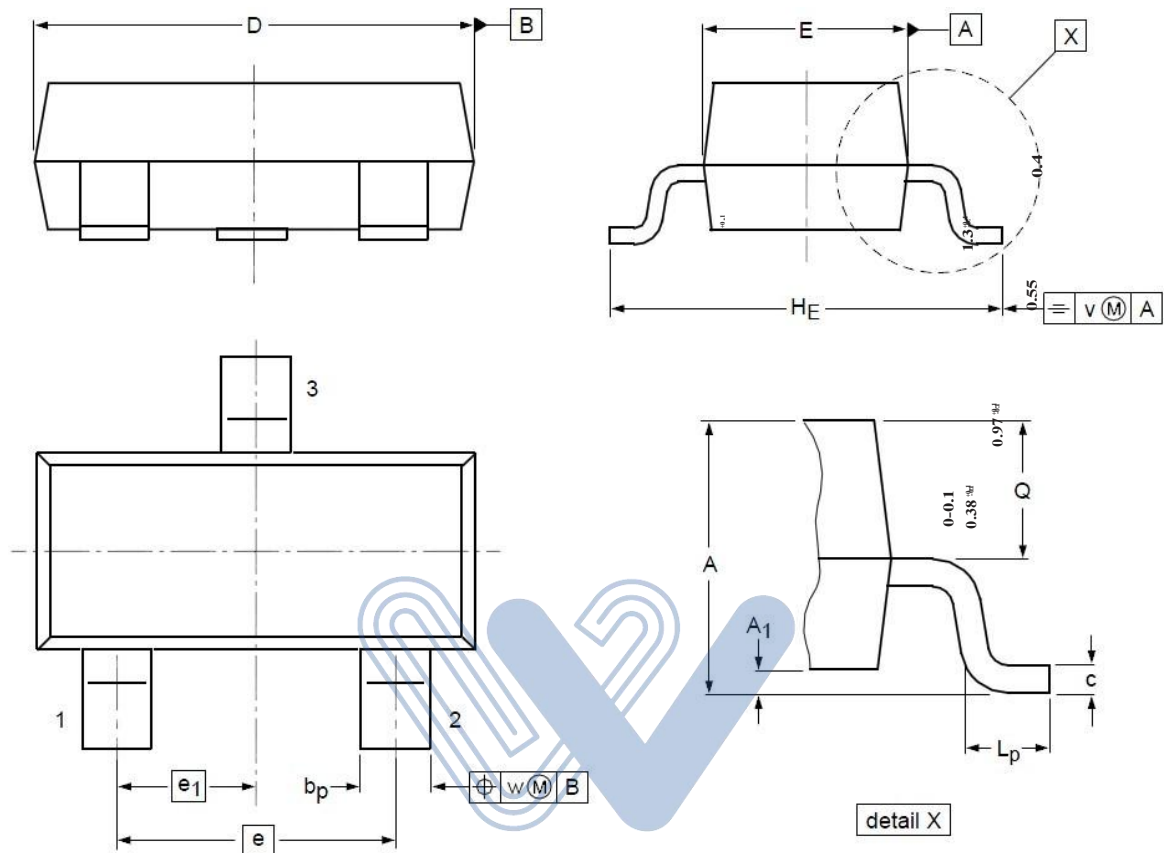
## Typical Characteristics



## Typical Characteristics



## SOT23 Mechanical Data



### DIMENSIONS ( unit : mm )

| Symbol         | Min  | Typ  | Max  | Symbol         | Min  | Typ  | Max  |
|----------------|------|------|------|----------------|------|------|------|
| A              | 0.90 | 1.01 | 1.15 | A <sub>1</sub> | 0.01 | 0.05 | 0.10 |
| b <sub>p</sub> | 0.30 | 0.42 | 0.50 | c              | 0.08 | 0.13 | 0.15 |
| D              | 2.80 | 2.92 | 3.00 | E              | 1.20 | 1.33 | 1.40 |
| e              | --   | 1.90 | --   | e <sub>1</sub> | --   | 0.95 | --   |
| H <sub>E</sub> | 2.25 | 2.40 | 2.55 | L <sub>p</sub> | 0.30 | 0.42 | 0.50 |
| Q              | 0.45 | 0.49 | 0.55 | v              | --   | 0.20 | --   |
| w              | --   | 0.10 | --   |                |      |      |      |