

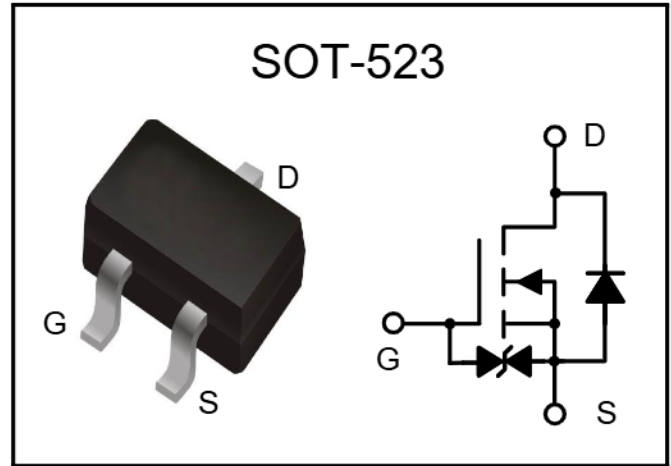
# 2SK3019

N-Channel MOSFET

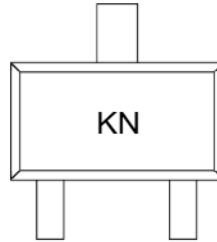
## Features

- Low on-resistance
- Fast switching speed
- Low voltage drive makes this device ideal for portable equipment
- Easily designed drive circuits
- Easy to parallel

## Package



## Marking



## Ordering information

| Order code | Package | Marking | Base qty | Delivery mode |
|------------|---------|---------|----------|---------------|
| 2SK3019    | SOT-523 | KN      | 3K       | Tape and reel |

## Absolute Maximum Ratings (@T<sub>A</sub>=25°C unless otherwise noted)

| Symbol           | Parameter                                   | Value       | Unit |
|------------------|---------------------------------------------|-------------|------|
| V <sub>DS</sub>  | Drain-Source Voltage                        | 30          | V    |
| V <sub>GSS</sub> | Gate-Source Voltage                         | ±20         | V    |
| I <sub>D</sub>   | Continuous Drain Current                    | 0.1         | A    |
| P <sub>D</sub>   | Maximum Power Dissipation                   | 0.15        | W    |
| T <sub>J</sub>   | Operating Junction Temperature              | 150         | °C   |
| T <sub>stg</sub> | Storage Temperature Range                   | -55 to +150 | °C   |
| R <sub>θJA</sub> | Thermal Resistance from Junction to Ambient | 833         | °C/W |



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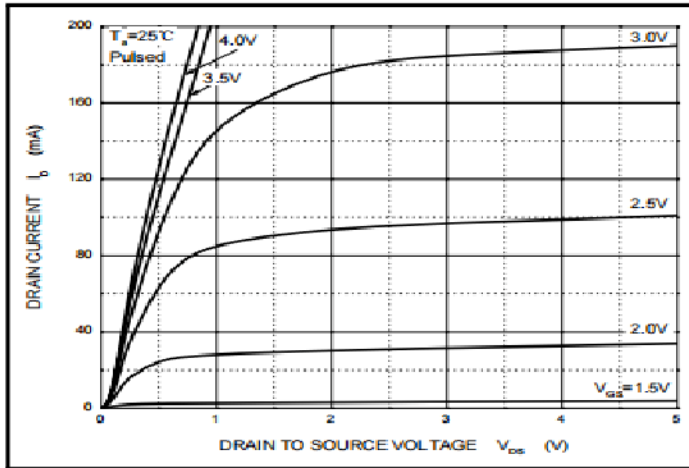
Electrical Characteristics @ $T_A=25^{\circ}\text{C}$  unless otherwise noted

| Symbol                    | Parameter                        | Test Condition                                                                                            | Min. | Typ. | Max. | Unit |
|---------------------------|----------------------------------|-----------------------------------------------------------------------------------------------------------|------|------|------|------|
| Off Characteristics       |                                  |                                                                                                           |      |      |      |      |
| V <sub>DS</sub>           | Drain-Source Breakdown Voltage   | V <sub>GS</sub> = 0V, I <sub>D</sub> = 10uA                                                               | 30   | —    | —    | V    |
| I <sub>DSS</sub>          | Zero Gate Voltage Drain Current  | V <sub>DS</sub> = 30V, V <sub>GS</sub> = 0V                                                               | —    | —    | 1    | uA   |
| I <sub>GSS</sub>          | Gate Body Leakage Current        | V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V                                                              | —    | —    | ±1   | uA   |
| V <sub>GS(th)</sub>       | Gate Threshold Voltage           | V <sub>DS</sub> =3V, I <sub>D</sub> = 0.1mA                                                               | 0.8  | —    | 1.5  | V    |
| R <sub>DS(on)</sub>       | Drain-Source On-State Resistance | V <sub>GS</sub> = 4V, I <sub>D</sub> = 10mA                                                               | —    | —    | 8    | Ω    |
|                           |                                  | V <sub>GS</sub> =2.5V, I <sub>D</sub> = 1mA                                                               | —    | —    | 13   |      |
| g <sub>fs</sub>           | Forward Transconductance         | V <sub>DS</sub> = 3V, I <sub>D</sub> = 10mA                                                               | 20   | —    | —    | mS   |
| Dynamic Characteristics   |                                  |                                                                                                           |      |      |      |      |
| C <sub>iss</sub>          | Input Capacitance                | V <sub>GS</sub> =0V,V <sub>DS</sub> =5V,f=1MHz                                                            | —    | 13   | —    | pF   |
| C <sub>Oss</sub>          | Output Capacitance               |                                                                                                           | —    | 9    | —    |      |
| C <sub>rss</sub>          | Reverse Transfer Capacitance     |                                                                                                           | —    | 4    | —    |      |
| Switching Characteristics |                                  |                                                                                                           |      |      |      |      |
| t <sub>d(on)</sub>        | Turn-On Delay Time               | V <sub>GS</sub> =5V,V <sub>DD</sub> =5V,I <sub>D</sub> =10mA,<br>R <sub>L</sub> =500Ω,R <sub>G</sub> =10Ω | —    | 15   | —    | ns   |
| t <sub>r</sub>            | Turn-On Rise Time                |                                                                                                           | —    | 35   | —    |      |
| t <sub>d(off)</sub>       | Turn-Off Delay Time              |                                                                                                           | —    | 80   | —    |      |
| t <sub>f</sub>            | Turn-Off Fall Time               |                                                                                                           | —    | 80   | —    |      |

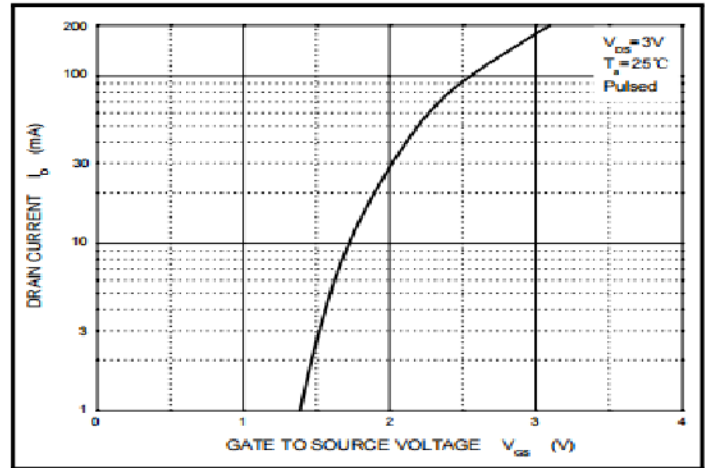


Typical Performance Characteristics ( $T_J = 25^\circ\text{C}$ , unless otherwise noted)

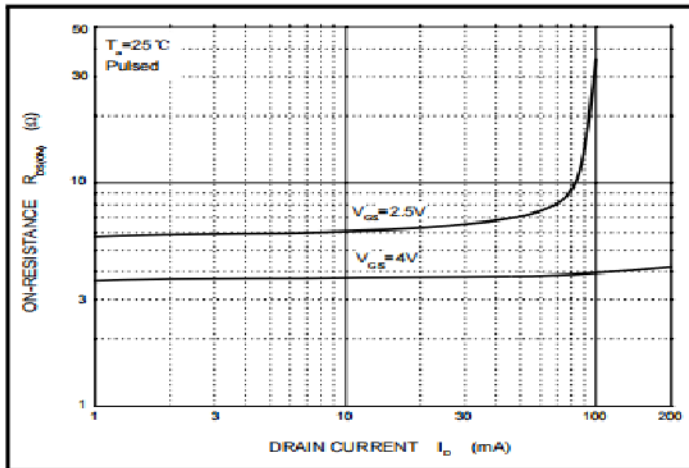
**Figure 1 : Output Characteristics**



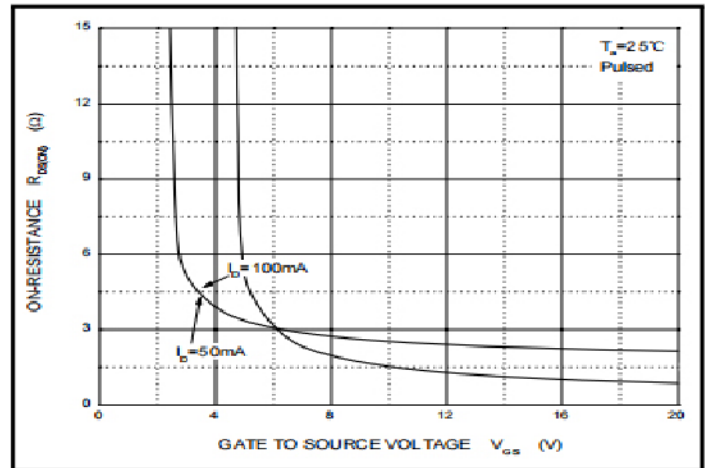
**Figure 2 : Transfer Characteristics**



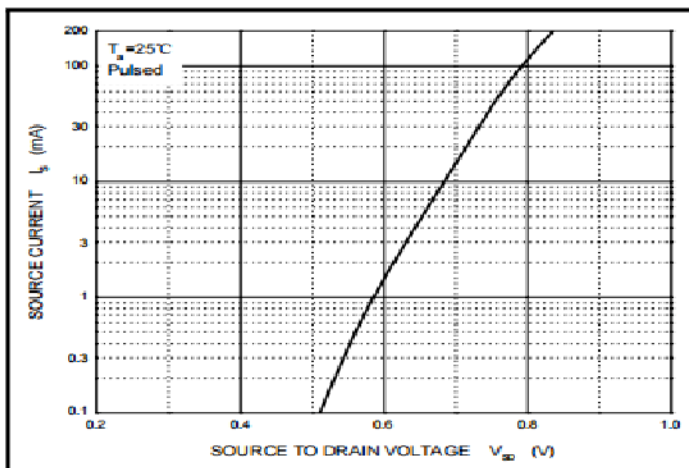
**Figure 3 :  $R_{DS(ON)} - I_D$**



**Figure 4 :  $R_{DS(ON)} - V_{GS}$**



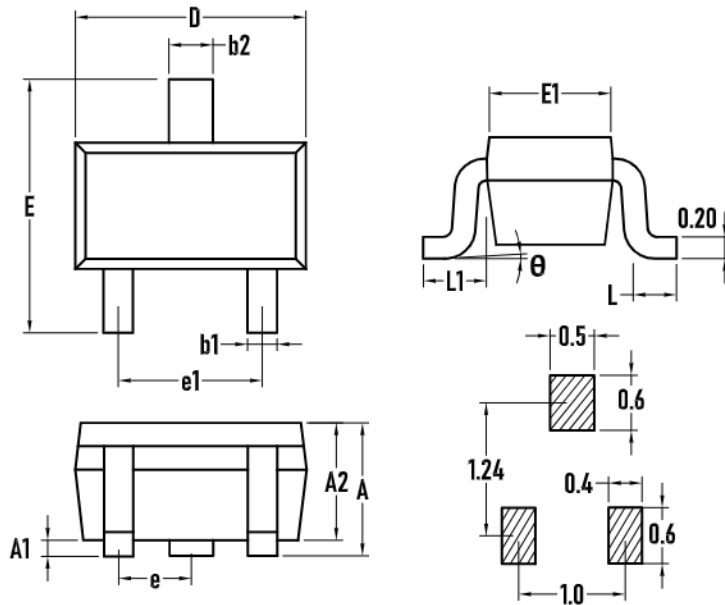
**Figure 5 :  $I_S - V_{SD}$**



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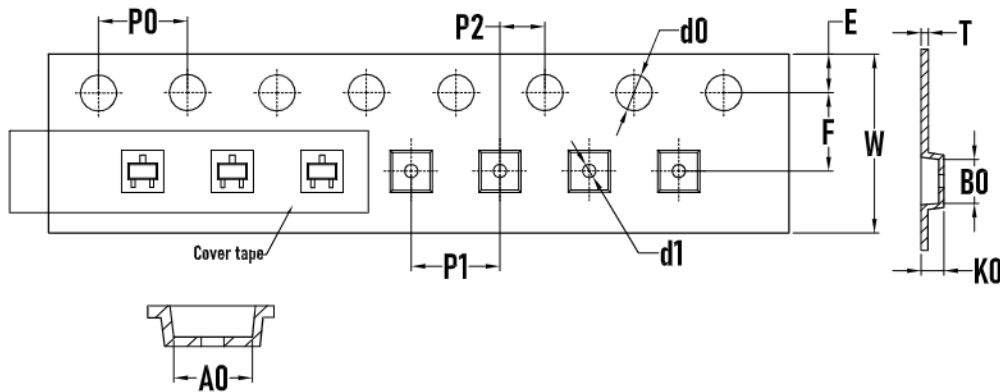
N-Channel MOSFET

## Outline Drawing – SOT-523



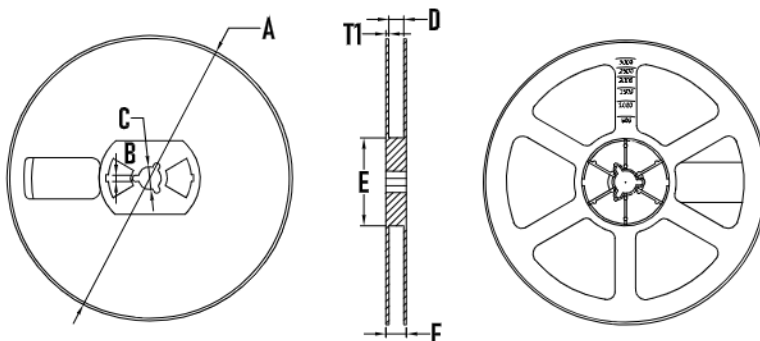
| SYMBOL | MILLIMETER |      |      |
|--------|------------|------|------|
|        | MIN        | TYP  | MAX  |
| A      | 0.70       | 0.80 | 0.90 |
| A1     | 0.00       | 0.05 | 0.10 |
| A2     | 0.70       | 0.75 | 0.80 |
| b1     | 0.15       | 0.22 | 0.29 |
| b2     | 0.25       | 0.32 | 0.39 |
| D      | 1.50       | 1.60 | 1.70 |
| E      | 1.45       | 1.60 | 1.75 |
| E1     | 0.70       | 0.80 | 0.90 |
| e      | 0.50(TPY.) |      |      |
| e1     | 0.90       | 1.00 | 1.10 |
| L      | 0.26       | 0.36 | 0.46 |
| L1     | 0.40(REF)  |      |      |
| θ      | 0°         | 4°   | 8°   |

## Packaging Tape - SOT-523



| SYMBOL | MILLIMETER |
|--------|------------|
| A0     | 1.78±0.05  |
| B0     | 1.78±0.05  |
| d0     | 1.50±0.10  |
| d1     | 0.50±0.10  |
| E      | 1.75±0.10  |
| F      | 3.50±0.05  |
| K0     | 0.69±0.05  |
| P0     | 4.00±0.10  |
| P1     | 4.00±0.10  |
| P2     | 2.00±0.10  |
| W      | 8.00±0.20  |
| T      | 0.20±0.02  |

## Packaging Reel



| SYMBOL   | MILLIMETER |
|----------|------------|
| A        | 177.8±0.2  |
| B        | 2.7±0.2    |
| C        | 13.5±0.2   |
| D        | 9.6±0.3    |
| E        | 54.5±0.2   |
| F        | 12.3±0.3   |
| T1       | 1.0±0.2    |
| Quantity | 3000PCS    |

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Specifications are subject to change without notice.

Please refer to <http://www.born-tw.com> for current information.

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