## Product Summary

| $V_{(BR)DSS}$ | $R_{DS(on)TYP}$ | $I_D$ |
|---|---|---|
| 60V | 2Ω@10V | 100mA |
| | 2.5Ω@4.5V | |

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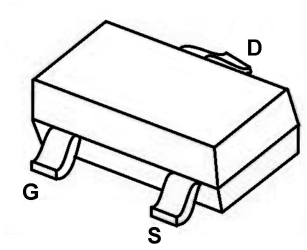
## Feature

- High power and current handing capability
- Surface mount package
- ESD protected 2KV

## Application

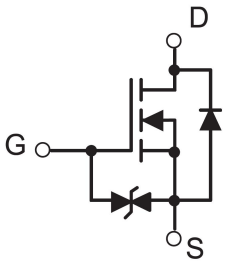
- Battery Switch
- DC/DC Converter

## Package

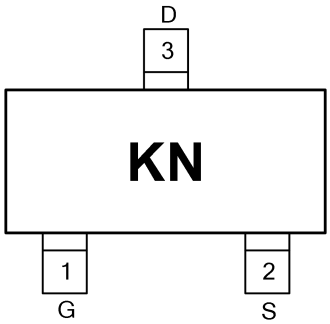



SOT-523

## Circuit diagram




## Marking




KN :Device Code

## Order Information

| Device | Package | Unit/Tape |
|---|---|---|
| 2SK3019 | SOT-523 | 3000 |

## Absolute maximum ratings (Ta=25℃, unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Drain-Source Voltage | $V_{DSS}$ | 60 | V |
| Gate-Source Voltage | $V_{GSS}$ | ±20 | V |
| Continuous Drain Current | $I_D$ | 100 | mA |
| Pulse Drain Current Tested | $I_{DM}$ | 400 | mA |
| Power Dissipation | $P_D$ | 150 | mW |
| Thermal Resistance Junction-to-Ambient | $R_{\theta JA}$ | 833 | °C/W |
| Storage Temperature Range | $T_{STG}$ | -55 to 150 | °C |
| Operating Junction Temperature Range | $T_J$ | -55 to 150 | °C |

## Electrical characteristics (Ta=25℃, unless otherwise noted)

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| **Static Characteristics** | | | | | | |
| Drain-Source Breakdown Voltage | $BV_{DSS}$ | VGS=0V , ID=250μA | 60 | - | - | V |
| Drain-Source Leakage Current | $I_{DSS}$ | VDS=48V , VGS=0V | - | - | 1 | uA |
| Gate-Source Leakage Current | $I_{GSS}$ | VGS=±20V , VDS=0V | - | - | ±10 | uA |
| Gate Threshold Voltage | $V_{GS(th)}$ | VDS=VGS , ID=250μA | 0.7 | 1 | 1.45 | V |
| Static Drain-Source On-Resistance | $R_{DS(ON)}$ | VGS =10V, ID =200mA | - | 2 | 5 | Ω |
| | | VGS =4.5V, ID =100mA | - | 2.5 | 8 | |
| **Dynamic characteristics** | | | | | | |
| Input Capacitance | $C_{iss}$ | VDS=25V , VGS=0V , f=1MHz | - | 12 | - | pF |
| Output Capacitance | $C_{oss}$ | | - | 6 | - | |
| Reverse Transfer Capacitance | $C_{rss}$ | | - | 2.5 | - | |
| Total Gate Charge | $Q_g$ | VDS=15V , VGS=10V , ID=1A | - | 1.34 | - | nC |
| Gate-Source Charge | $Q_{gs}$ | | - | 0.29 | - | |
| Gate-Drain Charge | $Q_{gd}$ | | - | 0.2 | - | |
| **Switching Characteristics** | | | | | | |
| Turn-On Delay Time | $t_{d(on)}$ | VDD=15V VGS=10V , RG=2.3Ω , ID=1A | - | 5 | - | nS |
| Turn-On Rise Time | $t_r$ | | - | 18 | - | |
| Turn-Off Delay Time | $t_{d(off)}$ | | - | 8 | - | |
| Turn-Off Fall Time | $t_f$ | | - | 14 | - | |
| **Source-Drain Diode characteristics** | | | | | | |
| Diode Forward Voltage | $V_{SD}$ | VGS=0V , IS=1A , TJ=25℃ | - | - | 1.2 | V |

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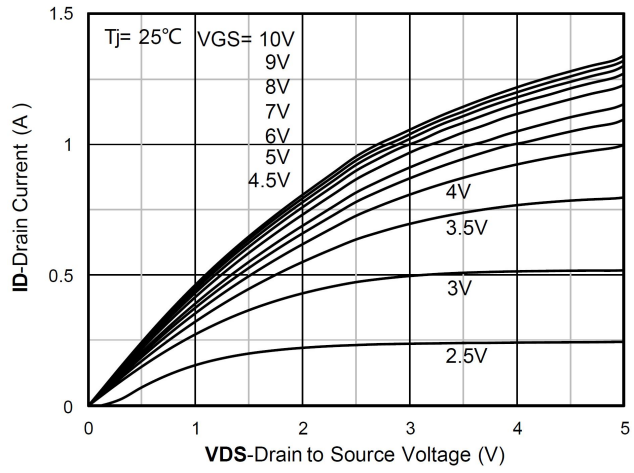
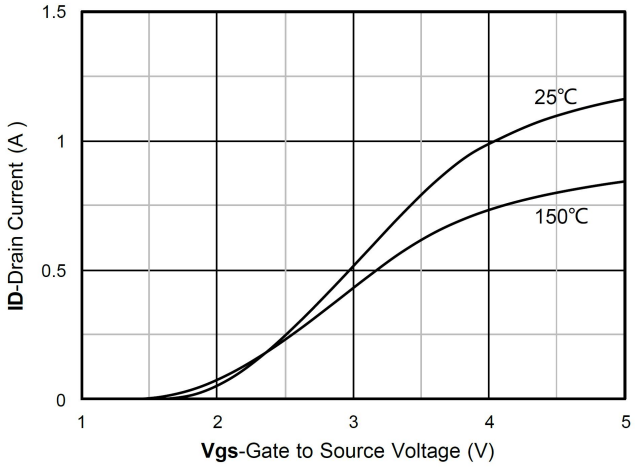
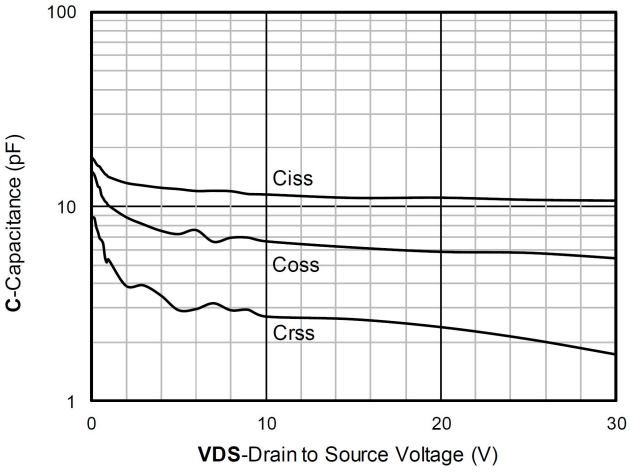
## Typical Characteristics



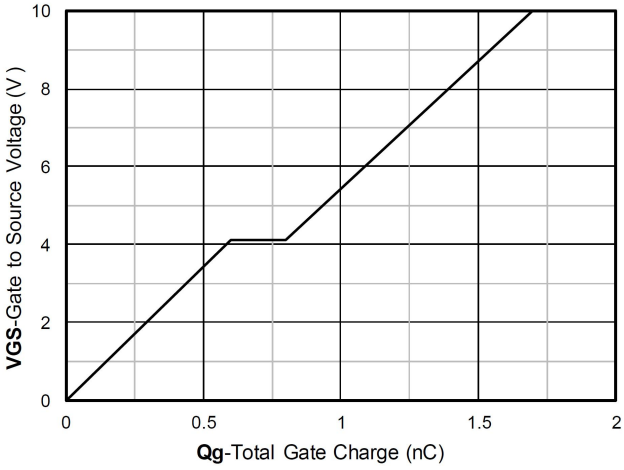

Output Characteristics



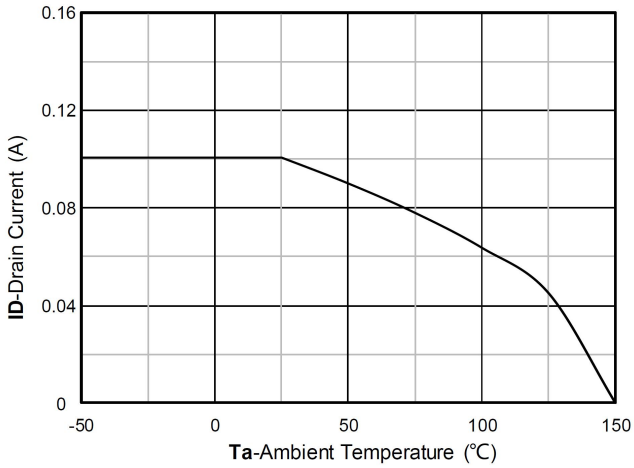

Transfer Characteristics



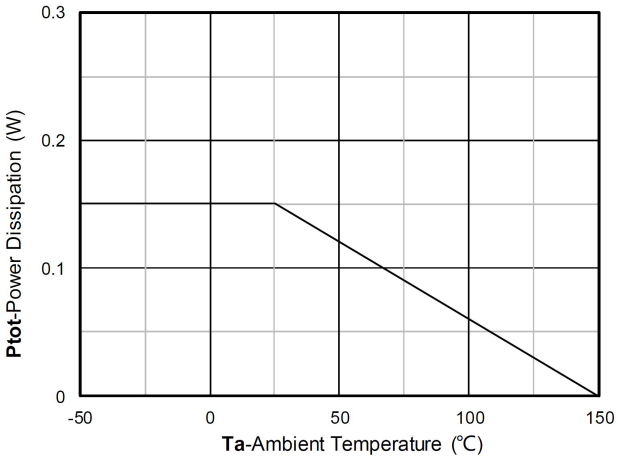

Capacitance Characteristics



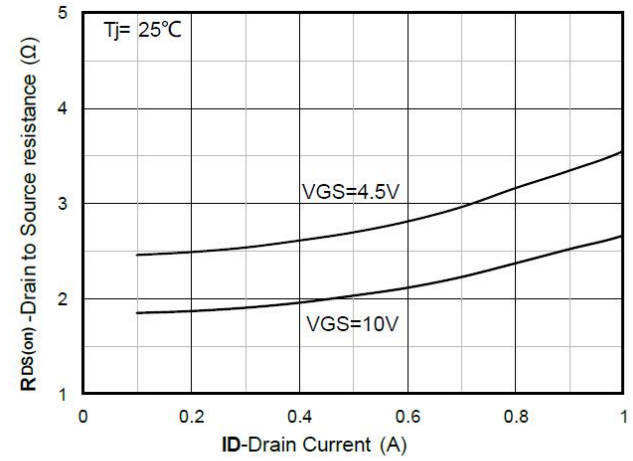

Gate Charge



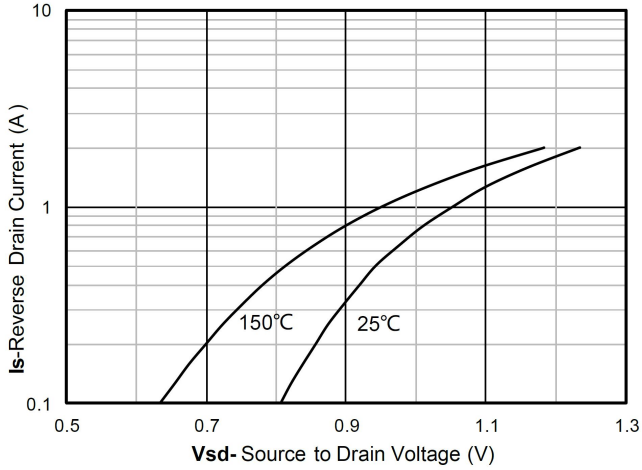

Current dissipation



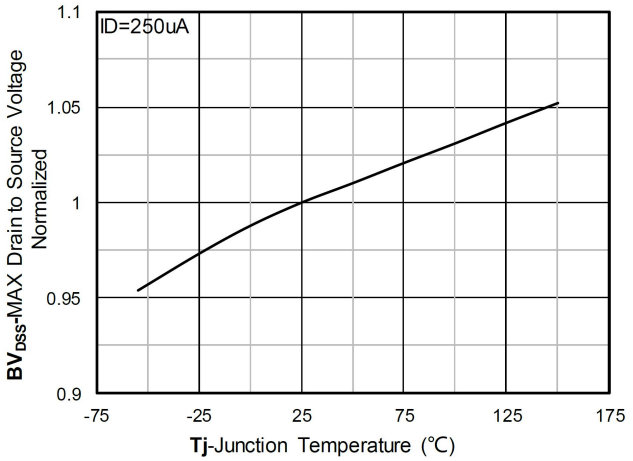

Power dissipation



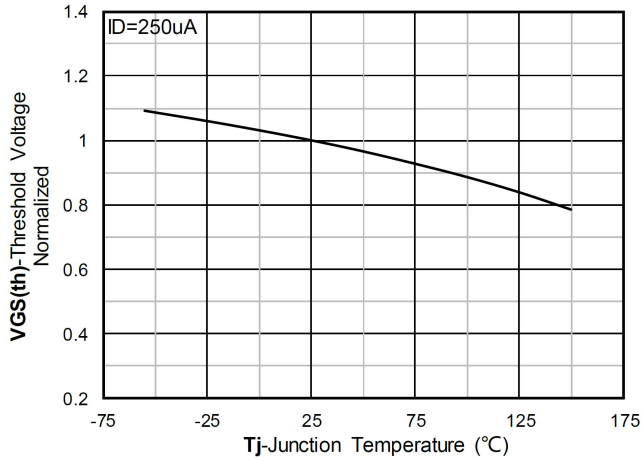

RDS(on) VS Drain Current



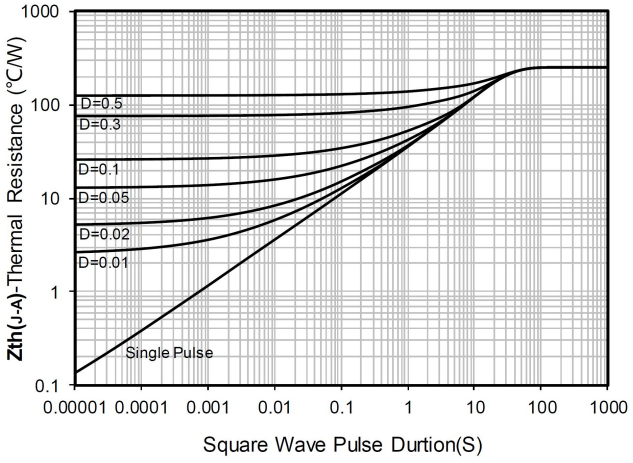

Forward characteristics of reverse diode



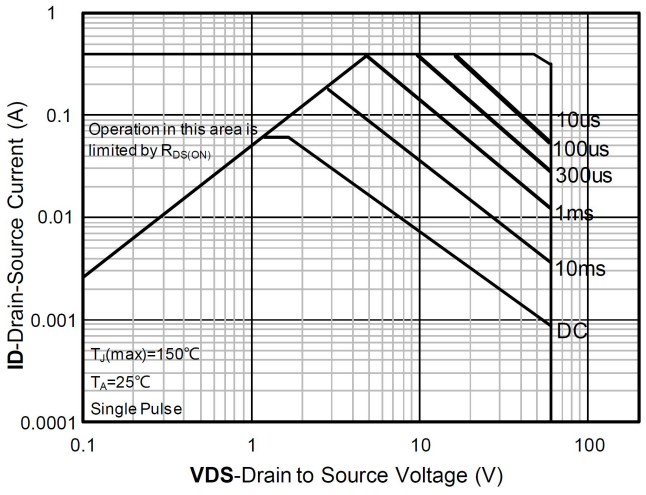

Normalized breakdown voltage




Normalized Threshold voltage

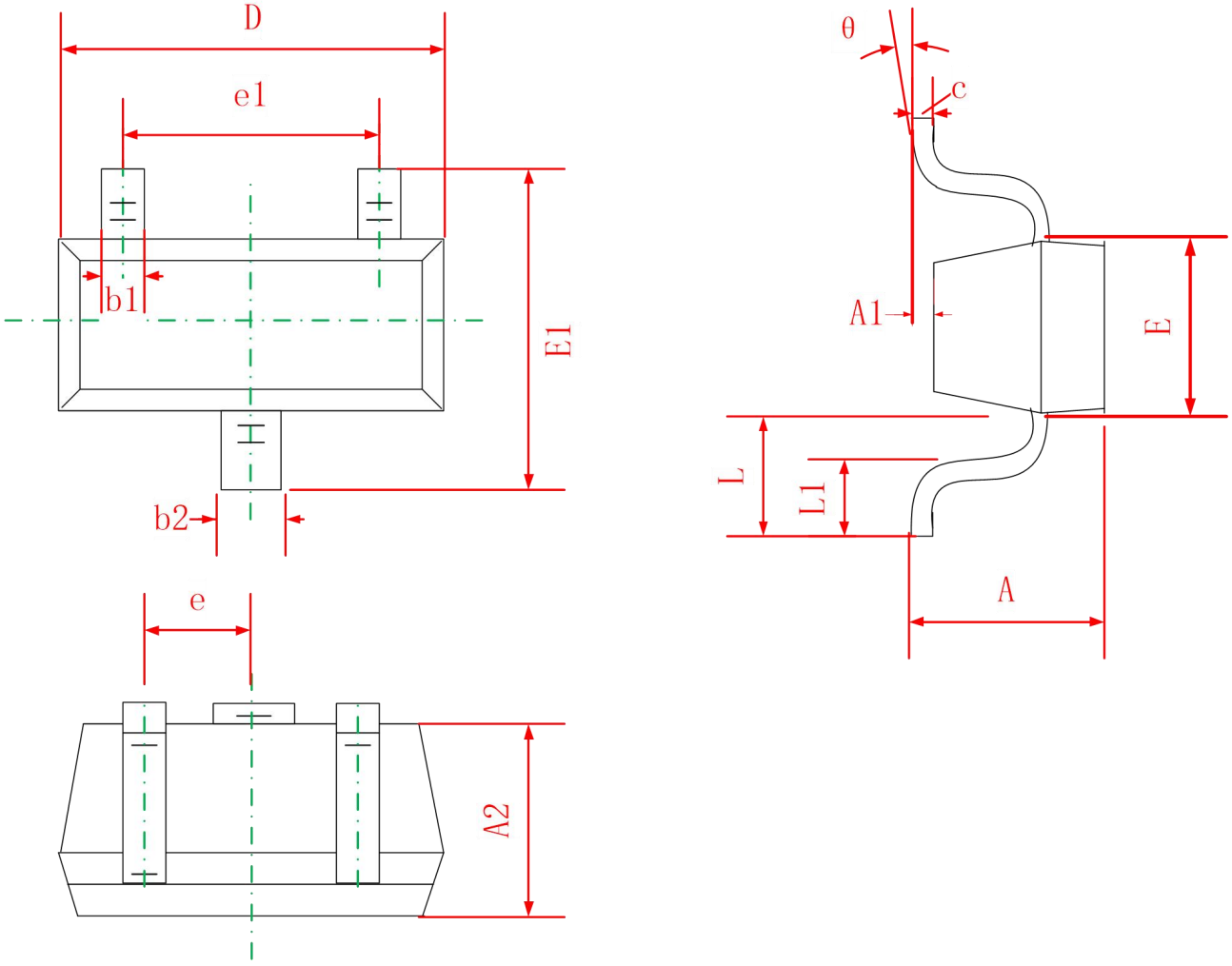



Maximum Transient Thermal Impedance




Safe Operation Area

## SOT-523 Package Information




| Symbol | Dimensions In Millimeters | |
|---|---|---|
| | Min | Max |
| A | 0.700 | 0.900 |
| A1 | 0.000 | 0.100 |
| A2 | 0.700 | 0.800 |
| b1 | 0.150 | 0.250 |
| b2 | 0.250 | 0.350 |
| C | 0.100 | 0.200 |
| D | 1.500 | 1.700 |
| E | 0.700 | 0.900 |
| E1 | 1.450 | 1.750 |
| e | 0.500 TYP | |
| e1 | 0.900 | 1.100 |
| L | 0.400 REF | |
| L1 | 0.260 | 0.460 |
| θ | 0° | 8° |