



## Description

The 2SK3018W uses advanced trench technology to provide excellent  $R_{DS(ON)}$ , low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

## General Features

$V_{DS} = 30V$   $I_D = 0.1A$

$R_{DS(ON)} < 2.2\Omega @ V_{GS}=10V$

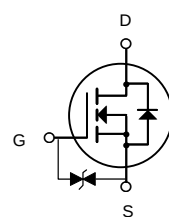
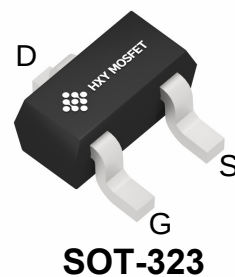
ESD Rating: HBM  $\geq 2000V$

## Application

Battery protection

Load switch

Uninterruptible power supply



N-Channel MOSFET

## Ordering Information

| Product ID | Pack    | Marking | Qty(PCS) |
|------------|---------|---------|----------|
| 2SK3018W   | SOT-323 | KN      | 3000     |

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

| Symbol          | Parameter                                              |                           | Limit      | Unit               |
|-----------------|--------------------------------------------------------|---------------------------|------------|--------------------|
| $V_{DS}$        | Drain-Source Voltage                                   |                           | 30         | V                  |
| $V_{GS}$        | Gate-Source Voltage                                    |                           | $\pm 20$   | V                  |
| $I_D$           | Continuous Drain Current ( $T_J = 150^\circ\text{C}$ ) | $T_A = 25^\circ\text{C}$  | 0.1        | A                  |
|                 |                                                        | $T_A = 100^\circ\text{C}$ | 0.07       |                    |
| $I_{DM}$        | Drain Current-Pulsed (Note 1)                          |                           | 0.65       | A                  |
| $P_D$           | Maximum Power Dissipation                              |                           | 0.35       | W                  |
| $T_J, T_{STG}$  | Operating Junction and Storage Temperature Range       |                           | -55 To 150 | $^\circ\text{C}$   |
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient (Note 2)       |                           | 200        | $^\circ\text{C/W}$ |



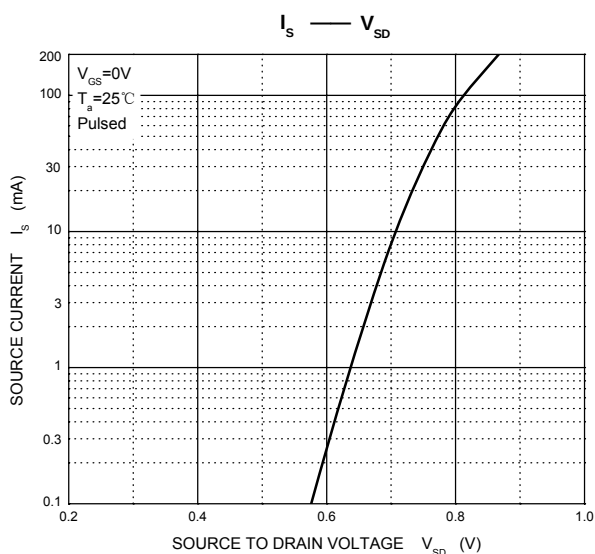
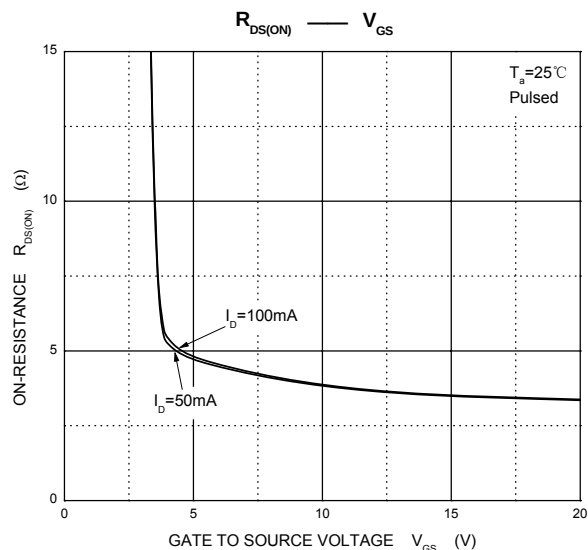
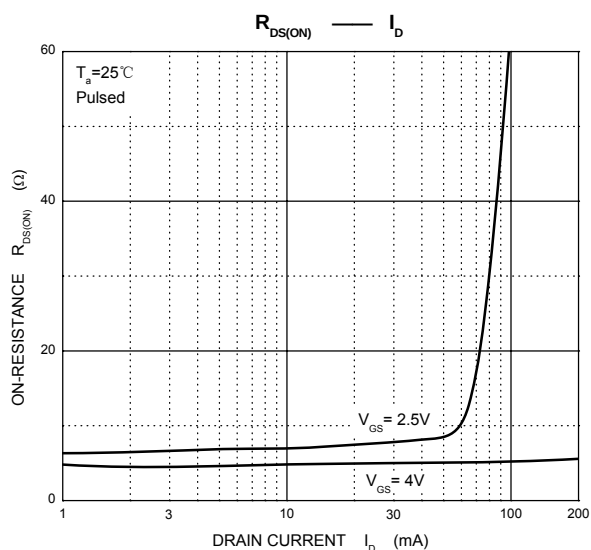
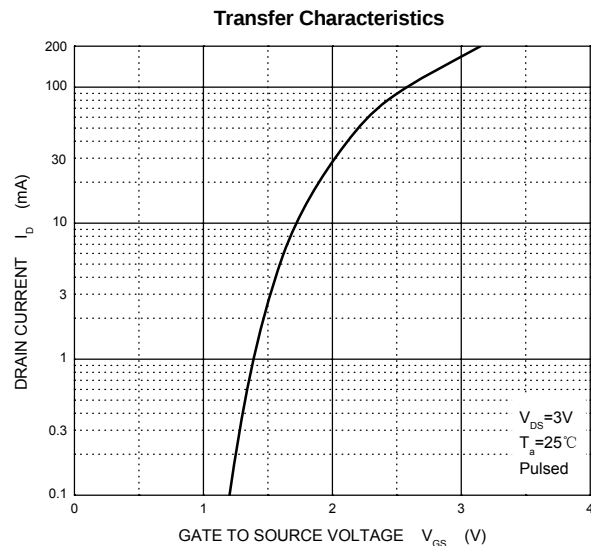
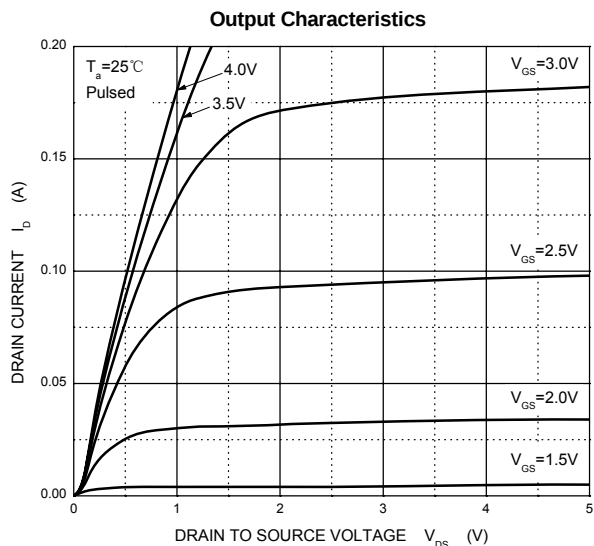
Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

| Parameter                       | Symbol              | Test Condition                                                                                                | Min | Typ | Max | Units |
|---------------------------------|---------------------|---------------------------------------------------------------------------------------------------------------|-----|-----|-----|-------|
| Off Characteristics             |                     |                                                                                                               |     |     |     |       |
| Drain-Source Breakdown Voltage  | V <sub>DS</sub>     | V <sub>GS</sub> = 0V, I <sub>D</sub> = 10μA                                                                   | 30  |     |     | V     |
| Zero Gate Voltage Drain Current | I <sub>DSS</sub>    | V <sub>DS</sub> =30V,V <sub>GS</sub> = 0V                                                                     |     |     | 0.2 | μA    |
| Gate –Source leakage current    | I <sub>GSS</sub>    | V <sub>GS</sub> =±20V, V <sub>DS</sub> = 0V                                                                   |     |     | ±2  | μA    |
| Gate Threshold Voltage          | V <sub>GS(th)</sub> | V <sub>DS</sub> = 3V, I <sub>D</sub> =100μA                                                                   | 0.8 |     | 1.5 | V     |
| Drain-Source On-Resistance      | R <sub>DS(on)</sub> | V <sub>GS</sub> = 10V, I <sub>D</sub> =10mA                                                                   |     | 1.5 | 2.2 | Ω     |
|                                 |                     | V <sub>GS</sub> =4.5V,I <sub>D</sub> =1mA                                                                     |     | 2   | 3   | Ω     |
| Forward Transconductance        | g <sub>FS</sub>     | V <sub>DS</sub> =3V, I <sub>D</sub> = 10mA                                                                    | 20  |     |     | mS    |
| Dynamic Characteristics*        |                     |                                                                                                               |     |     |     |       |
| Input Capacitance               | C <sub>iss</sub>    | V <sub>DS</sub> =5V,V <sub>GS</sub> =0V,f =1MHz                                                               |     | 13  |     | pF    |
| Output Capacitance              | C <sub>oss</sub>    |                                                                                                               |     | 9   |     | pF    |
| Reverse Transfer Capacitance    | C <sub>rss</sub>    |                                                                                                               |     | 4   |     | pF    |
| Switching Characteristics*      |                     |                                                                                                               |     |     |     |       |
| Turn-On Delay Time              | t <sub>d(on)</sub>  | V <sub>GS</sub> =5V, V <sub>DD</sub> =5V,<br>I <sub>D</sub> =10mA, R <sub>g</sub> =10Ω, R <sub>L</sub> =500Ω, |     | 15  |     | ns    |
| Rise Time                       | t <sub>r</sub>      |                                                                                                               |     | 35  |     | ns    |
| Turn-Off Delay Time             | t <sub>d(off)</sub> |                                                                                                               |     | 80  |     | ns    |
| Fall Time                       | t <sub>f</sub>      |                                                                                                               |     | 80  |     | ns    |

\* These parameters have no way to verify.

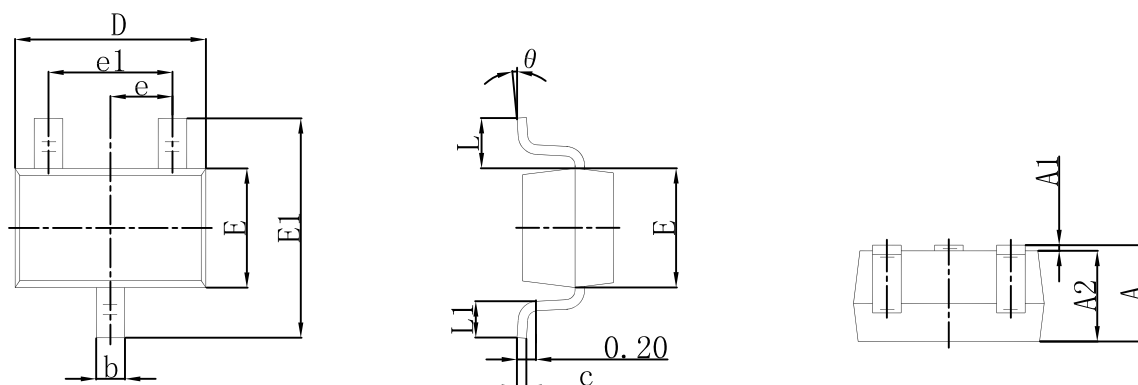


## Typical Characteristics





## SOT-323 Package Outline Dimensions



| Symbol   | Dimensions In Millimeters |       | Dimensions In Inches |       |
|----------|---------------------------|-------|----------------------|-------|
|          | Min                       | Max   | Min                  | Max   |
| A        | 0.900                     | 1.100 | 0.035                | 0.043 |
| A1       | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2       | 0.900                     | 1.000 | 0.035                | 0.039 |
| b        | 0.200                     | 0.400 | 0.008                | 0.016 |
| c        | 0.080                     | 0.150 | 0.003                | 0.006 |
| D        | 2.000                     | 2.200 | 0.079                | 0.087 |
| E        | 1.150                     | 1.350 | 0.045                | 0.053 |
| E1       | 2.150                     | 2.450 | 0.085                | 0.096 |
| e        | 0.650 TYP                 |       | 0.026 TYP            |       |
| e1       | 1.200                     | 1.400 | 0.047                | 0.055 |
| L        | 0.525 REF                 |       | 0.021 REF            |       |
| L1       | 0.260                     | 0.460 | 0.010                | 0.018 |
| $\theta$ | 0°                        | 8°    | 0°                   | 8°    |



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