

## Plastic-Encapsulate MOSFETS

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

Marking: KN

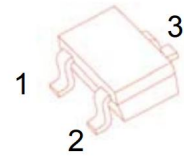
### MOSFET MAXIMUM RATINGS (Ta = 25°C unless otherwise noted)

| Symbol          | Parameter                               | Value    | Units |
|-----------------|-----------------------------------------|----------|-------|
| $V_{DS}$        | Drain-Source Voltage                    | 30       | V     |
| $V_{GS}$        | Gate-Source Voltage                     | $\pm 20$ | V     |
| $I_D$           | Continuous Drain Current                | 0.1      | A     |
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient | 833      | °C /W |
| $P_D$           | Power Dissipation                       | 0.2      | W     |
| $T_J$           | Junction Temperature                    | 150      | °C    |
| $T_{stg}$       | Storage Temperature                     | -55~+150 | °C    |

### MOSFET ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

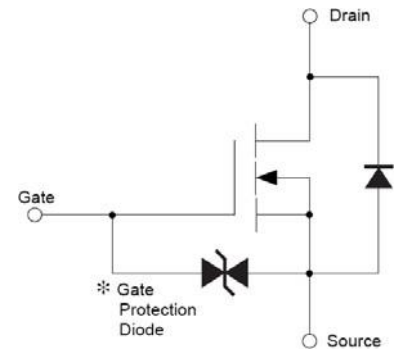
| Parameter                       | Symbol              | Test Condition                                                                                                | Min | Typ | Max | Units |
|---------------------------------|---------------------|---------------------------------------------------------------------------------------------------------------|-----|-----|-----|-------|
| 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                                                                    |     |     | 1   | 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> = 4V, I <sub>D</sub> =10mA                                                                    |     |     | 8   | Ω     |
|                                 |                     | V <sub>GS</sub> =2.5V, I <sub>D</sub> =1mA                                                                    |     |     | 13  | 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.



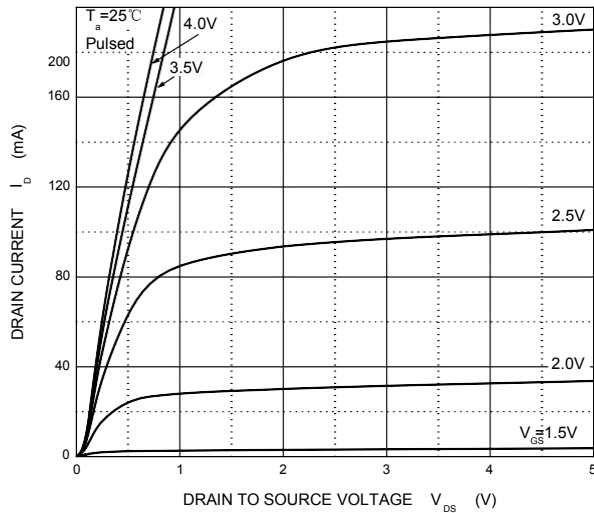
1. Gate 2. Source 3. Drain  
SOT-523 Plastic Package

### Equivalent circuit



## Typical Characteristics

Output Characteristics



Transfer Characteristics

