

SOT-23 Plastic-Encapsulate MOSFETS

KRNSK3018 N-channel MOSFET

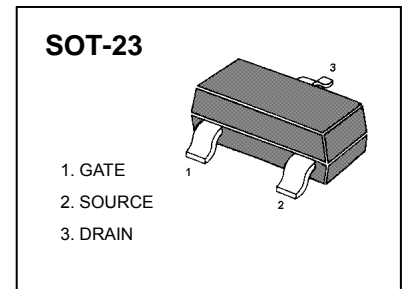
FEATURES

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

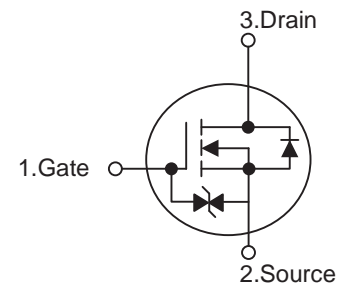
Marking Code: KN

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

| Symbol | Parameter | Value | Units |
|------------------|---|----------|-------|
| V _{DS} | Drain-Source Voltage | 30 | V |
| V _{GSS} | Gate-Source Voltage | ±20 | V |
| | | -12 | V |
| I _D | Continuous Drain Current | 0.1 | A |
| P _D | Power Dissipation | 0.35 | W |
| T _J | Junction Temperature | 150 | °C |
| T _{stg} | Storage Temperature | -55~+150 | °C |
| R _{θJA} | Thermal Resistance, Junction-to-Ambient | 357 | °C /W |



Equivalent circuit



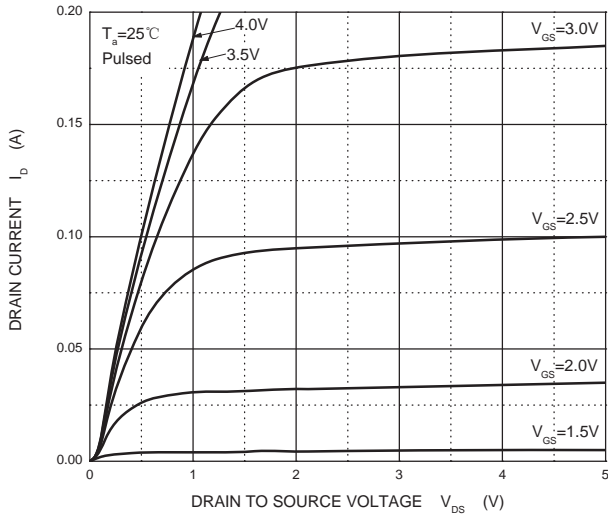
MOSFET ELECTRICAL CHARACTERISTICS(T_a=25°C unless otherwise noted)

| Parameter | Symbol | Test Condition | Min | Typ | Max | Units |
|-----------------------------------|---------------------|--|-----|-----|-----|-------|
| Off Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | V _{DS} | V _{GS} = 0V, I _D = 10μA | 30 | | | V |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} = 30V, V _{GS} = 0V | | | 0.2 | μA |
| Gate –Source leakage current | I _{GSS} | V _{GS} = +20V, V _{DS} = 0V | | | 1 | μA |
| | | V _{GS} = -12V, V _{DS} = 0V | | | -1 | μA |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} = 3V, I _D = 100μA | 0.8 | | 1.5 | V |
| Drain-Source On-Resistance | R _{DS(on)} | V _{GS} = 4V, I _D = 10mA | | | 8 | Ω |
| | | V _{GS} = 2.5V, I _D = 1mA | | | 13 | Ω |
| Forward Transconductance | g _{FS} | V _{DS} = 3V, I _D = 10mA | 20 | | | mS |
| Dynamic Characteristics* | | | | | | |
| Input Capacitance | C _{iss} | V _{DS} = 5V, V _{GS} = 0V, f = 1MHz | | 13 | | pF |
| Output Capacitance | C _{oss} | | | 9 | | pF |
| Reverse Transfer Capacitance | C _{rss} | | | 4 | | pF |
| Switching Characteristics* | | | | | | |
| Turn-On Delay Time | t _{d(on)} | V _{GS} = 5V, V _{DD} = 5V, I _D = 10mA, R _g = 10Ω, R _L = 500Ω, | | 15 | | ns |
| Rise Time | t _r | | | 35 | | ns |
| Turn-Off Delay Time | t _{d(off)} | | | 80 | | ns |
| Fall Time | t _f | | | 80 | | ns |

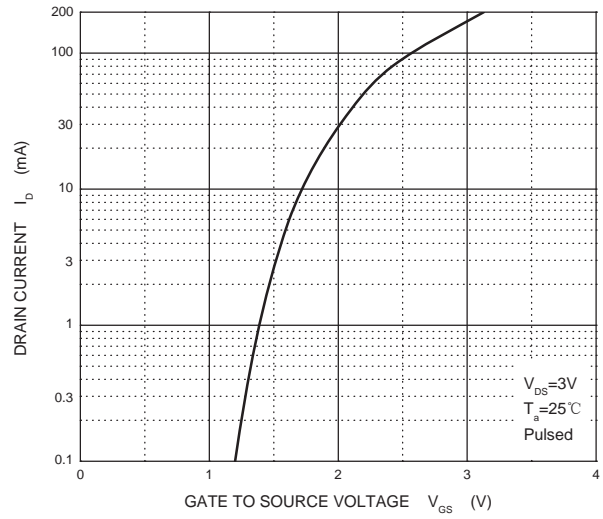
* These parameters have no way to verify.

Typical Characteristics

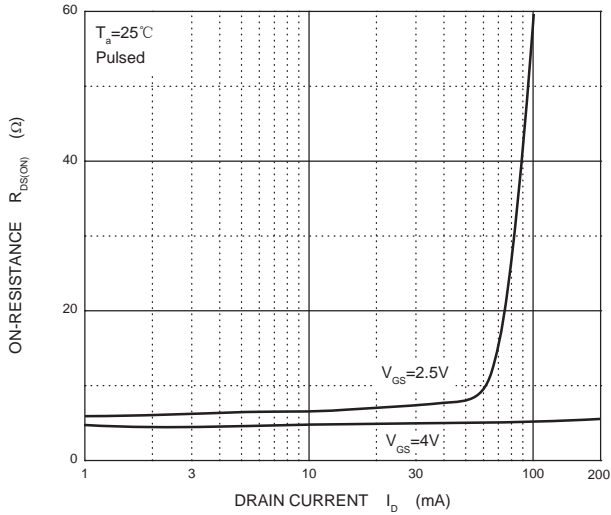
Output Characteristics



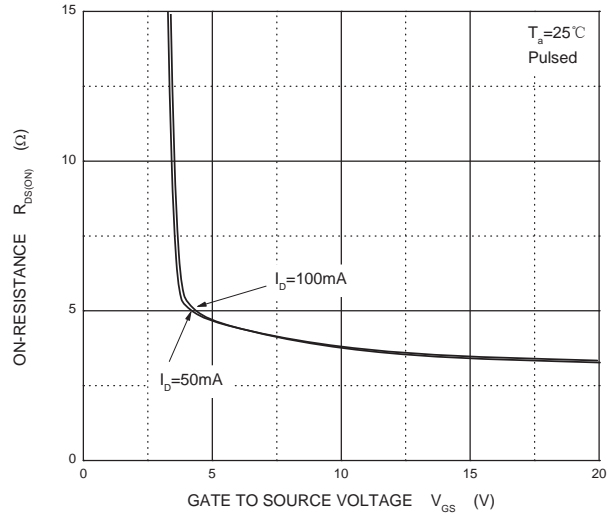
Transfer Characteristics



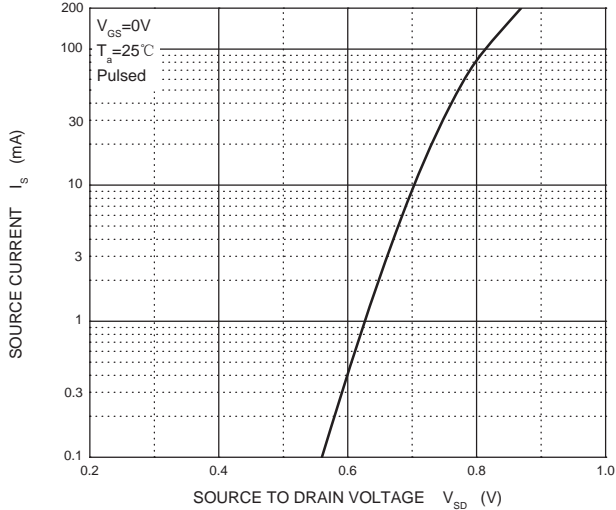
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}



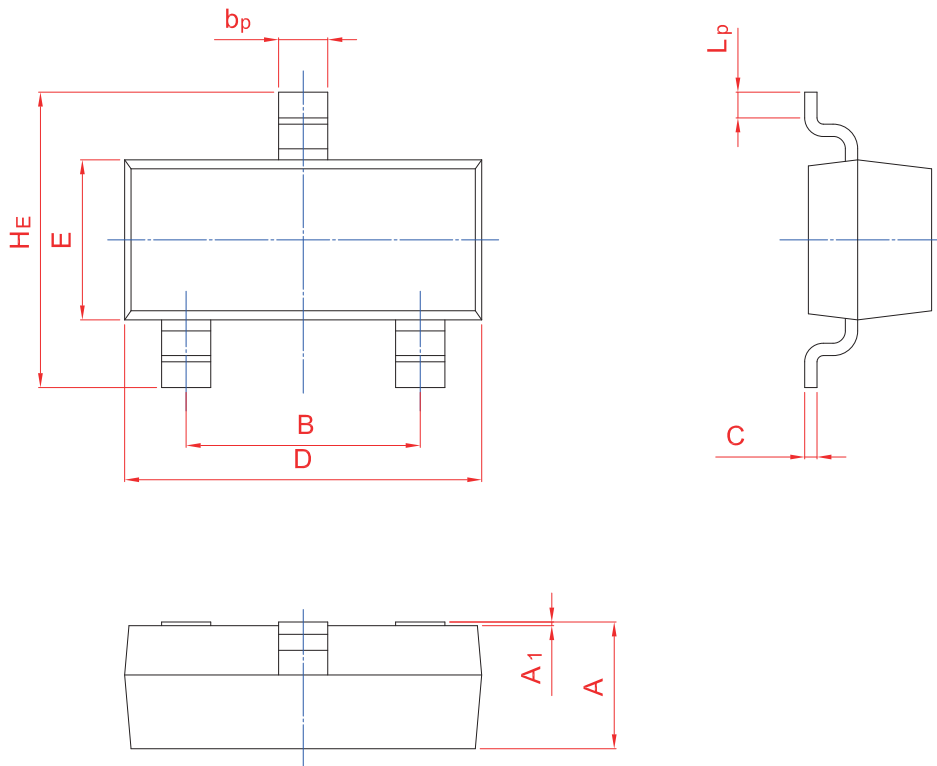
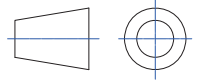
I_S — V_{SD}



PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



| UNIT | A | B | b_p | C | D | E | H_E | A_1 | L_p |
|------|------|------|-------|------|------|------|-------|-------|-------|
| mm | 1.40 | 2.04 | 0.50 | 0.19 | 3.10 | 1.65 | 3.00 | 0.100 | 0.50 |
| | 0.95 | 1.78 | 0.35 | 0.08 | 2.70 | 1.20 | 2.20 | 0.013 | 0.20 |