

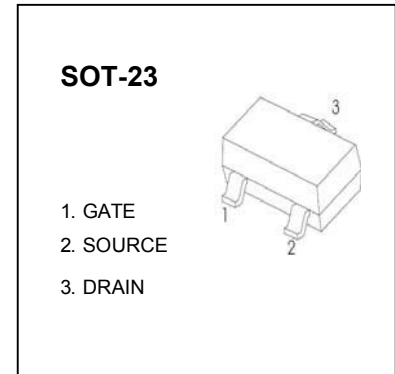
## Plastic-Encapsulate MOSFETS

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

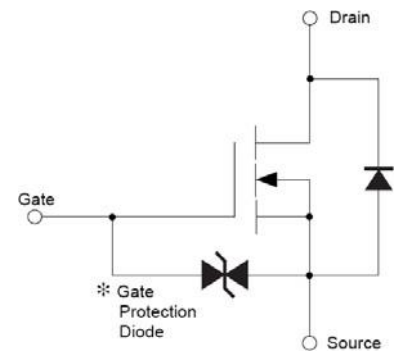
Marking: KN



### MOSFET MAXIMUM RATINGS (T<sub>a</sub> = 25°C unless otherwise noted)

Symbol	Parameter	Value	Units
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>	Power Dissipation	0.35	W
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55~+150	°C
R <sub>θJA</sub>	Thermal Resistance, Junction-to-Ambient	357	°C /W

### Equivalent circuit



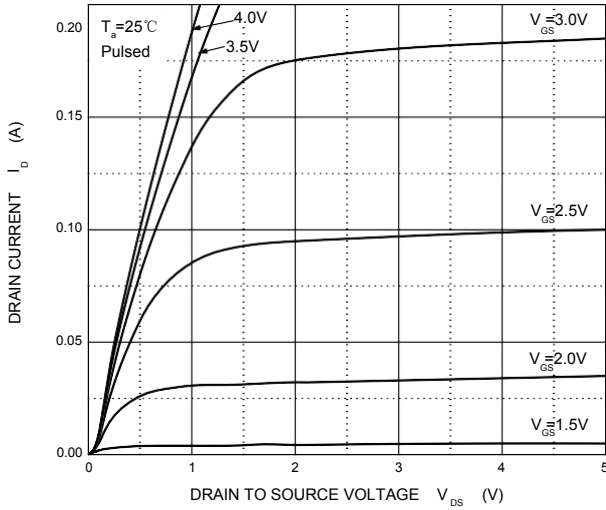
### MOSFET ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units	
<b>Off Characteristics</b>							
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			±10	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	
<b>Dynamic Characteristics*</b>							
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
<b>Switching Characteristics*</b>							
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>GS</sub> = 5V, V <sub>DD</sub> = 5V, 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

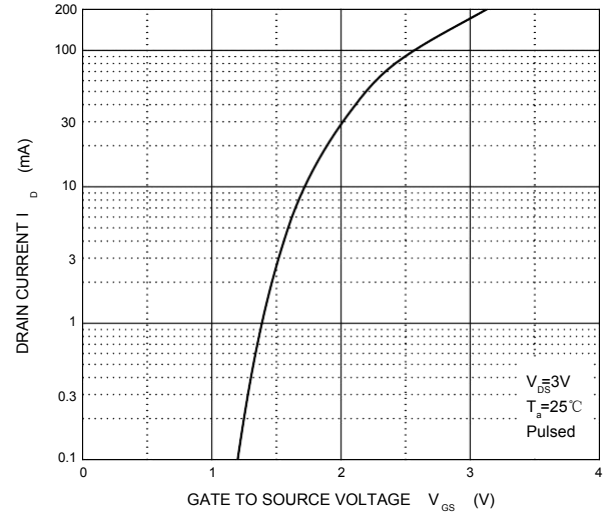
\* These parameters have no way to verify.

## Typical Characteristics

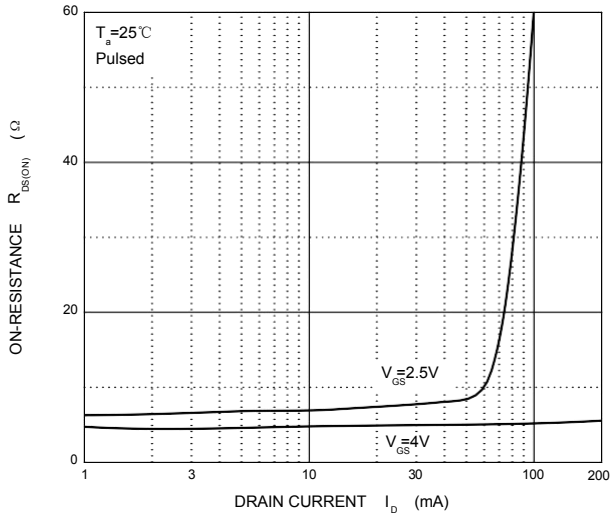
Output Characteristics



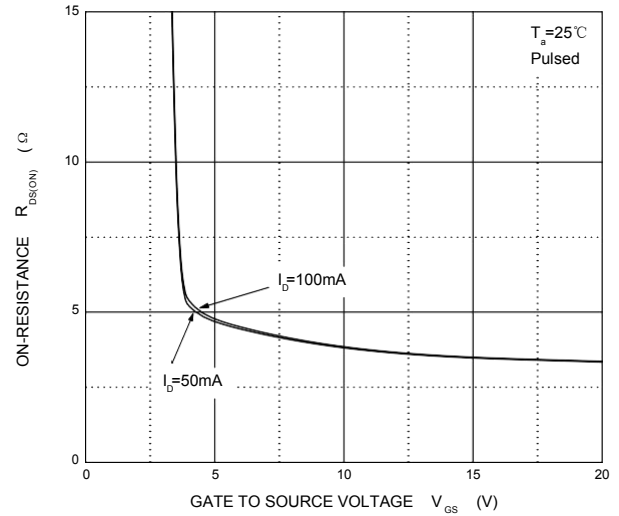
Transfer Characteristics



$R_{DS(ON)}$  —  $I_D$



$R_{DS(ON)}$  —  $V_{GS}$



$I_S$  —  $V_{SD}$

