

# SOT-23 Plastic-Encapsulate MOSFETS

## 2SK3018 N-channel MOSFET

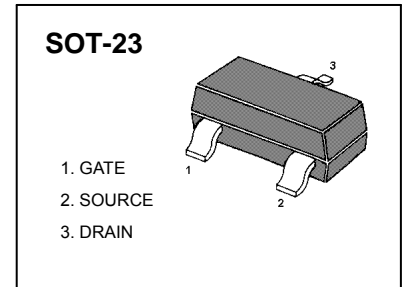
### FEATURES

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

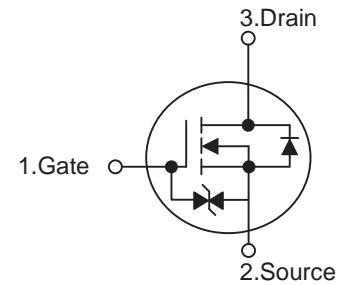
**Marking Code: KN**

### MOSFET MAXIMUM RATINGS (Ta = 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
		-12	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



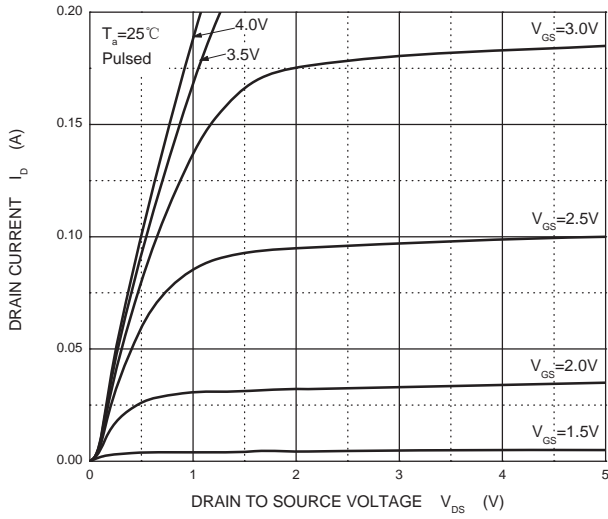
### MOSFET ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise noted)

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			1	μA
		V <sub>GS</sub> = -12V, V <sub>DS</sub> = 0V			-1	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

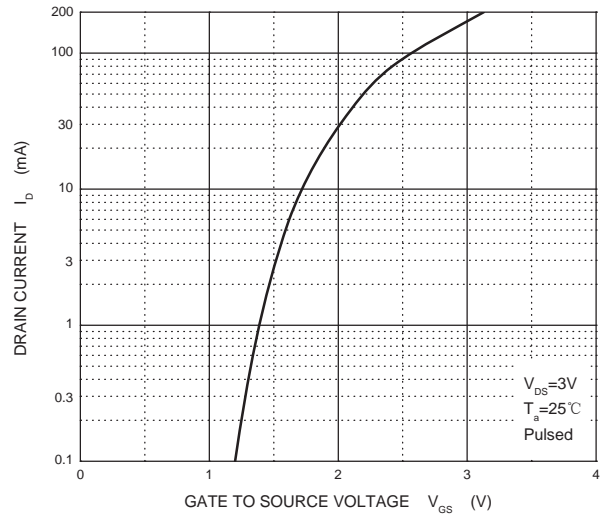
\* These parameters have no way to verify.

# Typical Characteristics

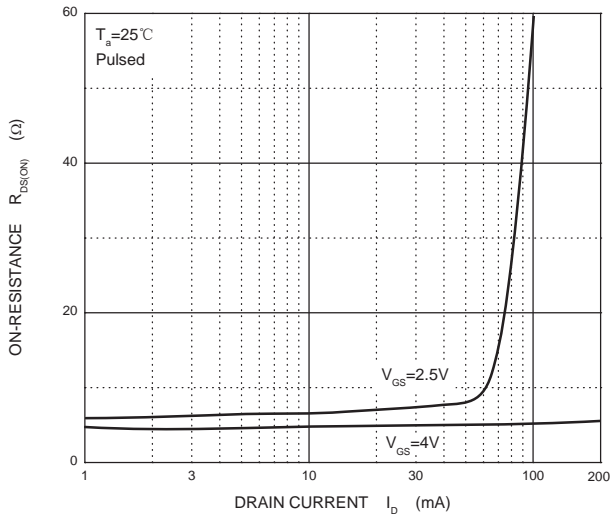
Output Characteristics



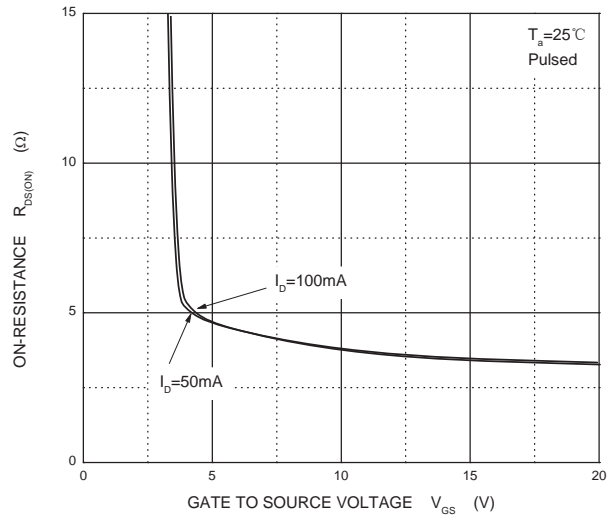
Transfer Characteristics



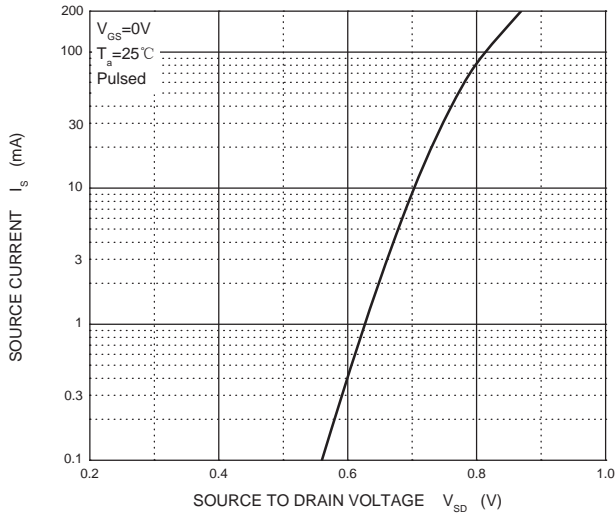
$R_{DS(ON)}$  —  $I_D$



$R_{DS(ON)}$  —  $V_{GS}$



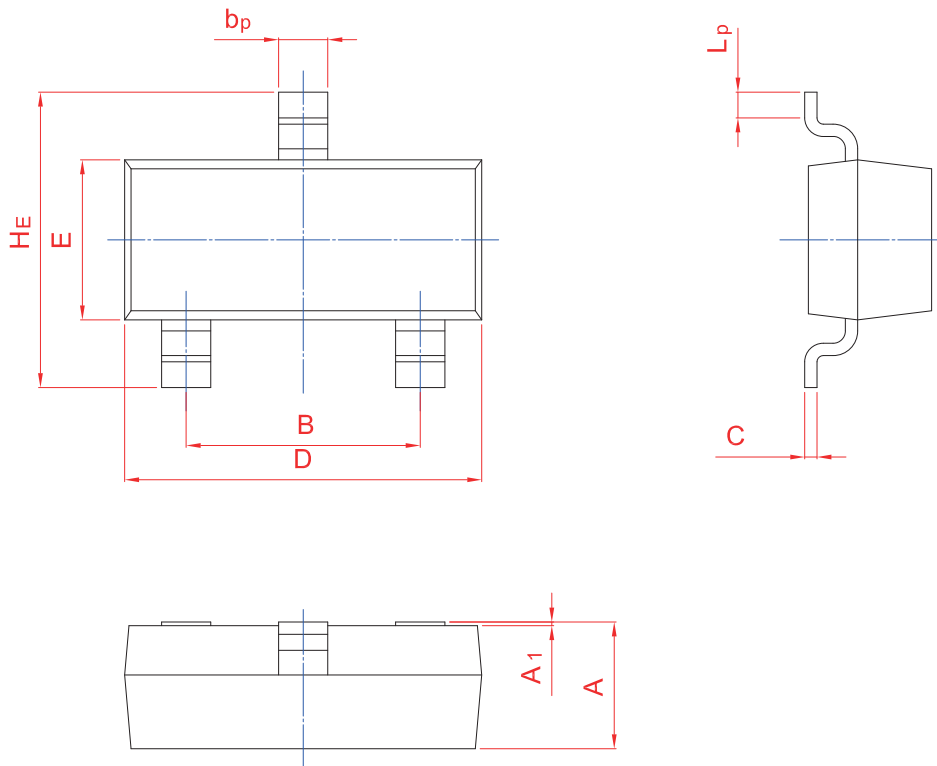
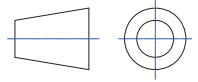
$I_S$  —  $V_{SD}$



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