

SOT-23 Plastic-Encapsulate MOSFETS

2SK3018 N-channel MOSFET

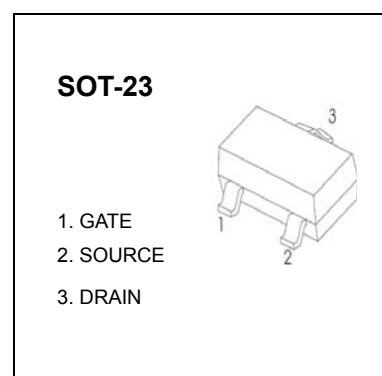
FEATURES

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

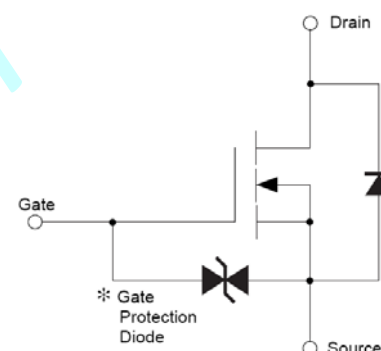
Marking: KN

MOSFET MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current	0.1	A
P_D	Power Dissipation	0.35	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature	-55~+150	$^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	357	$^\circ\text{C}/\text{W}$



Equivalent circuit



MOSFET ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$ unless otherwise noted)

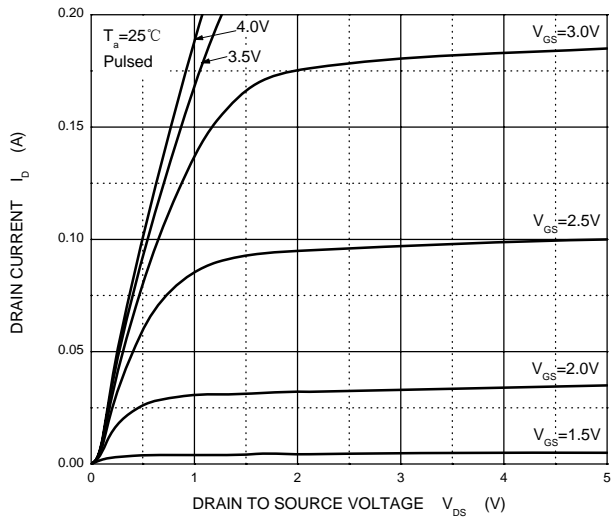
Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Off Characteristics						
Drain-Source Breakdown Voltage	V_{DS}	$V_{GS} = 0V, I_D = 10\mu\text{A}$	30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 30V, V_{GS} = 0V$			0.2	μA
Gate -Source leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 500	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = 3V, I_D = 100\mu\text{A}$	0.8		1.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 4V, I_D = 10\text{mA}$			8	Ω
		$V_{GS} = 2.5V, I_D = 1\text{mA}$			13	Ω
Forward Transconductance	g_{FS}	$V_{DS} = 3V, I_D = 10\text{mA}$	20			mS
Dynamic Characteristics*						
Input Capacitance	C_{iss}	$V_{DS} = 5V, V_{GS} = 0V, f = 1\text{MHz}$		13		pF
Output Capacitance	C_{oss}			9		pF
Reverse Transfer Capacitance	C_{rss}			4		pF
Switching Characteristics*						
Turn-On Delay Time	$t_{d(on)}$	$V_{GS} = 5V, V_{DD} = 5V,$ $I_D = 10\text{mA}, R_g = 10\Omega, R_L = 500\Omega,$		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.

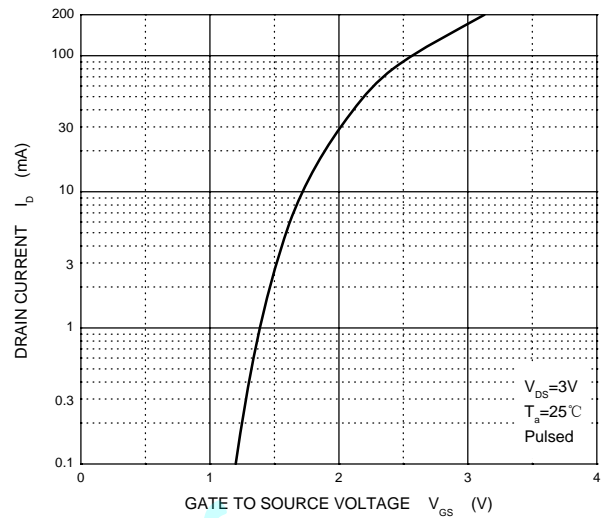
Typical Characteristics

2SK3018

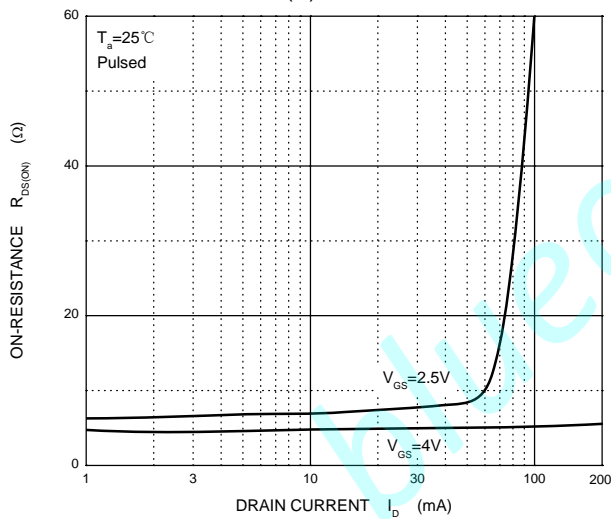
Output Characteristics



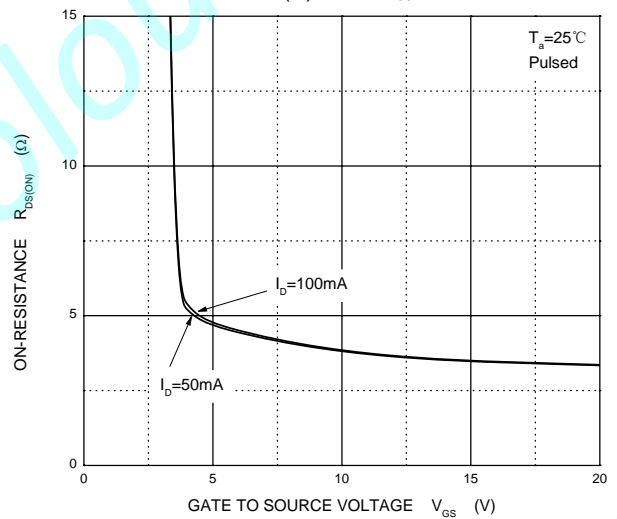
Transfer Characteristics



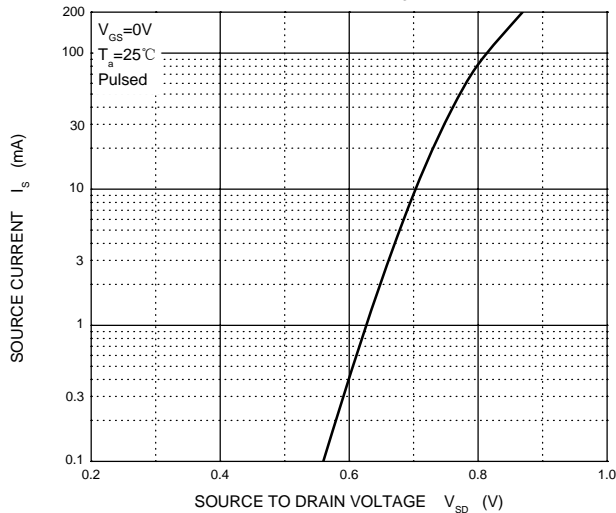
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}



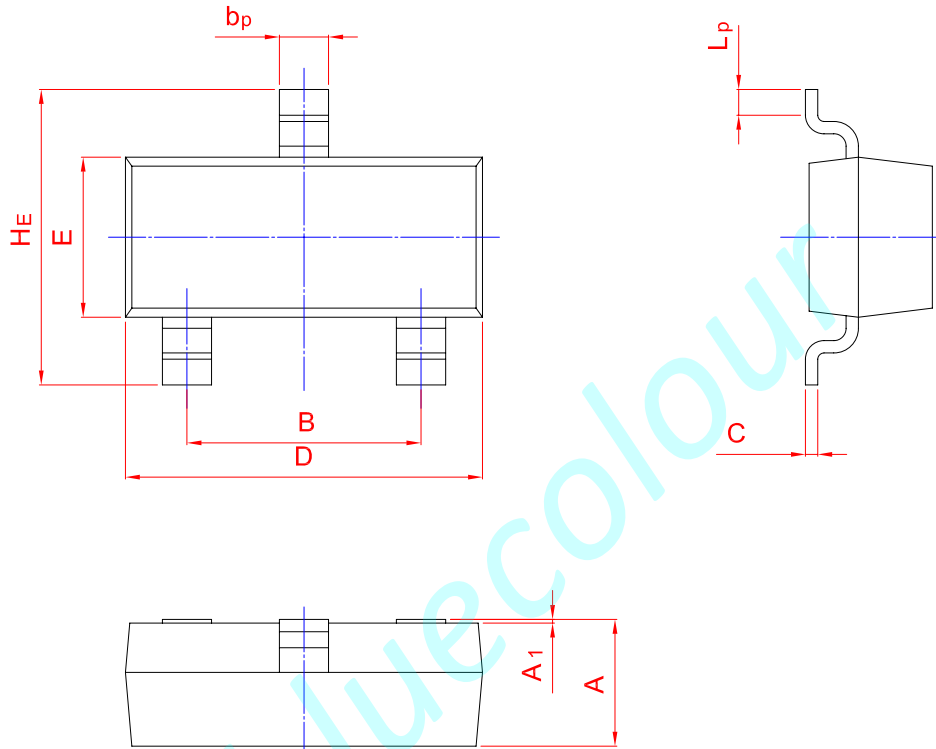
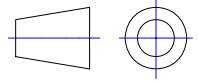
I_S — V_{SD}



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