

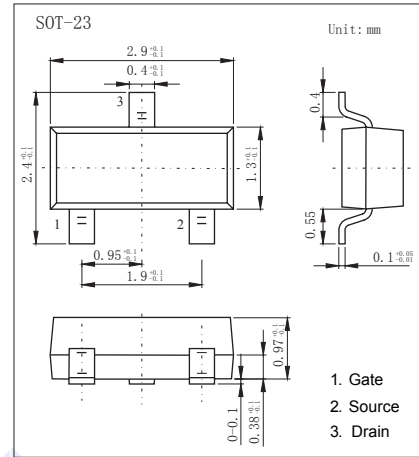
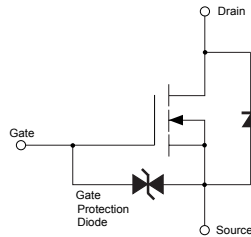
## N-Channel MOSFET

### 2SK3018-HF

#### ■ Features

- $V_{DS} (V) = 30V$
- $I_D = 0.1 A$
- $R_{DS(ON)} < 8 \Omega$  ( $V_{GS} = 4V$ )
- $R_{DS(ON)} < 13 \Omega$  ( $V_{GS} = 2.5V$ )
- Pb-Free Package May be Available.

The G-Suffix Denotes a Pb-Free Lead Finish



#### ■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	
Continuous Drain Current	$I_D$	100	mA
Pulsed Drain Current (Note.1)	$I_{DM}$	400	
Power Dissipation	$P_D$	200	mW
Junction Temperature	$T_J$	150	$^\circ C$
Storage Temperature Range	$T_{stg}$	-55 to 150	

Note.1:  $PW \leq 10\mu s$ , Duty Cycle  $\leq 1\%$

#### ■ Electrical Characteristics $T_a = 25^\circ C$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{DSS}$	$I_D=250 \mu A$ , $V_{GS}=0V$	30			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=30V$ , $V_{GS}=0V$			1	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{DS}=0V$ , $V_{GS}=\pm 20V$			$\pm 1$	$\mu A$
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=3V$ , $I_D=0.1mA$	0.8		1.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=4V$ , $I_D=10mA$			8	$\Omega$
		$V_{GS}=2.5V$ , $I_D=1mA$			13	
Forward Transconductance	$g_{FS}$	$V_{DS}=3V$ , $I_D=10mA$	20			mS
Input Capacitance	$C_{iss}$	$V_{GS}=0V$ , $V_{DS}=5V$ , $f=1MHz$		13		$\mu F$
Output Capacitance	$C_{oss}$			9		
Reverse Transfer Capacitance	$C_{rss}$			4		
Turn-On DelayTime	$t_{d(on)}$	$V_{GS}=5V$ , $V_{DS}=5V$ , $I_D=10mA$ , $R_L=500 \Omega$ , $R_G=10 \Omega$		15		ns
Turn-On Rise Time	$t_r$			35		
Turn-Off DelayTime	$t_{d(off)}$			80		
Turn-Off Fall Time	$t_f$			80		

#### ■ Marking

Marking	KN F
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### Typical Characteristics

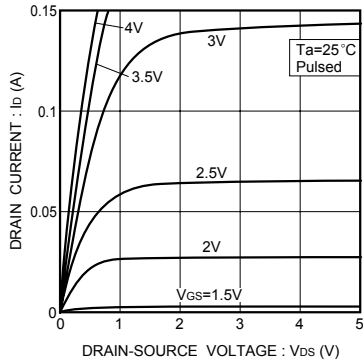


Fig.1 Typical output characteristics

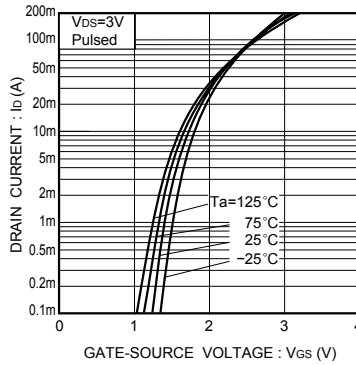


Fig.2 Typical transfer characteristics

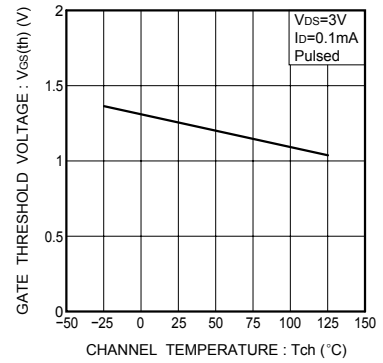


Fig.3 Gate threshold voltage vs. channel temperature

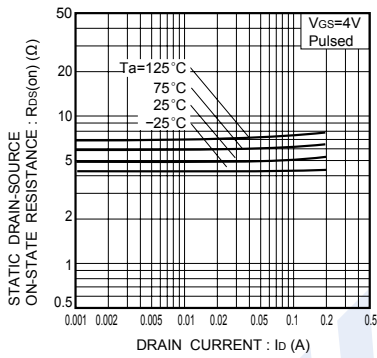


Fig.4 Static drain-source on-state resistance vs. drain current ( I )

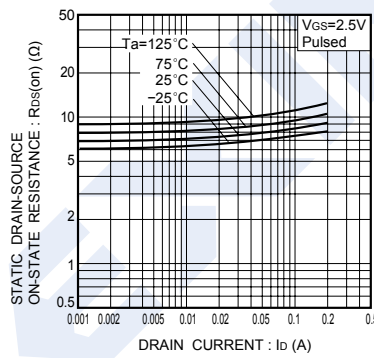


Fig.5 Static drain-source on-state resistance vs. drain current (II)

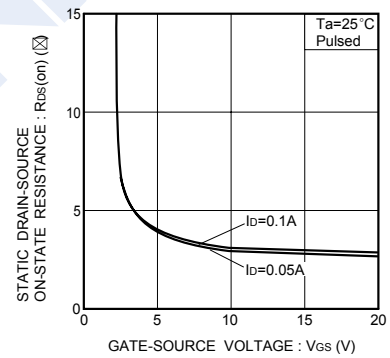


Fig.6 Static drain-source on-state resistance vs. gate-source voltage

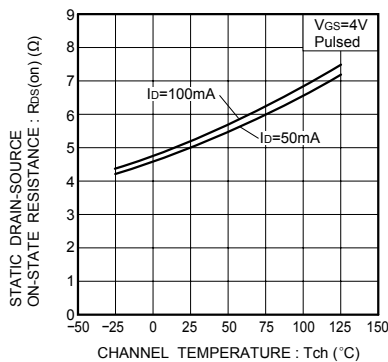


Fig.7 Static drain-source on-state resistance vs. channel temperature

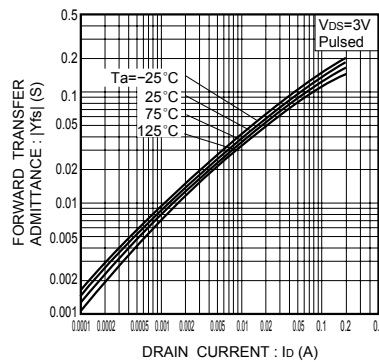


Fig.8 Forward transfer admittance vs. drain current

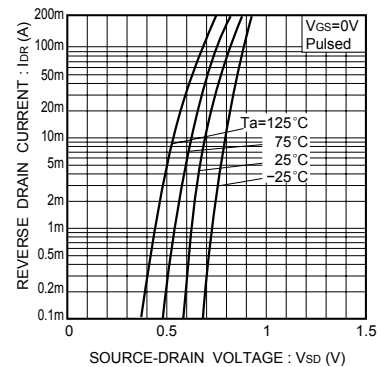


Fig.9 Reverse drain current vs. source-drain voltage ( I )

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■ Typical Characteristics

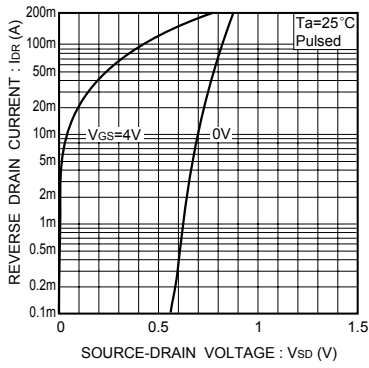


Fig.10 Reverse drain current vs. source-drain voltage ( II )

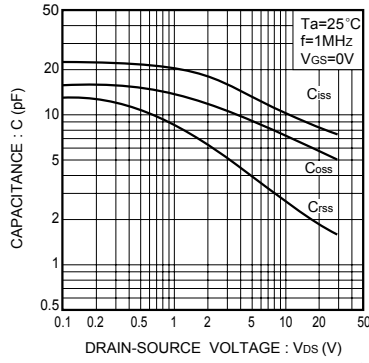


Fig.11 Typical capacitance vs. drain-source voltage

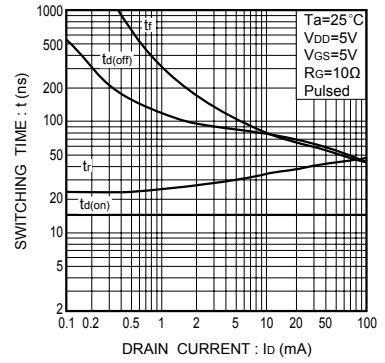


Fig.12 Switching characteristics (See Figures 13 and 14 for the measurement circuit and resultant waveforms)

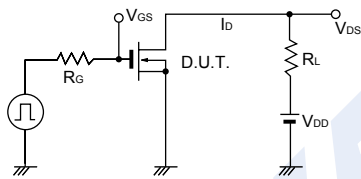


Fig.13 Switching time measurement circuit

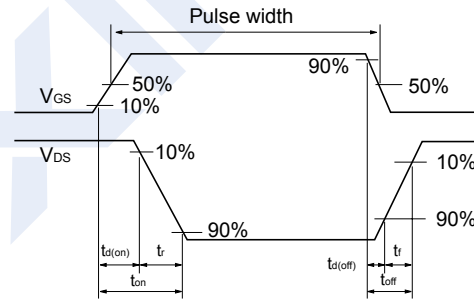


Fig.14 Switching time waveforms