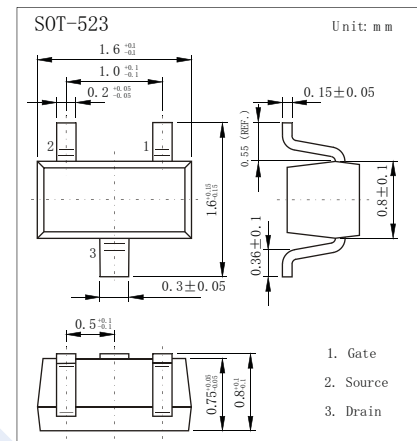
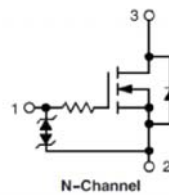


## N-Channel MOSFET

## 2KK5016

### ■ Features

- $V_{DS} = 20\text{ V}$
- $I_D = 238\text{ mA}$
- $R_{dson} = 1.5\Omega @ V_{GS}=4.5\text{V}$  (Typ.)
- Low Gate Charge for Fast Switching
- ESD Protected Gate



### ■ Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ )

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	$V_{DS}$	20	V	
Gate-Source Voltage	$V_{GS}$	$\pm 10$		
Continuous Drain Current (Note 1)	Steady State = $25^\circ\text{C}$	$I_D$	238	mA
Pulsed Drain Current	$t_P \leq 10\mu\text{s}$	$I_{DM}$	714	
Power Dissipation (Note 1)	Steady State = $25^\circ\text{C}$	$P_D$	300	W
Thermal Resistance, Junction- to-Ambient (Note 1)	$R_{\theta JA}$	416	$^\circ\text{C}/\text{W}$	
Junction Temperature	$T_J$	150	$^\circ\text{C}$	
Storage Temperature Range	$T_{stg}$	-55 to 150		

Note 1: Surface-mounted on FR4 board using 1 in sq. pad size (Cu area = 1.127 in sq. [1 oz] including traces).

## N-Channel MOSFET

## 2KK5016

■ Electrical Characteristics ( $T_A = 25^\circ\text{C}$ , unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{DS}$	$I_D=100\mu\text{A}$ , $V_{GS}=0\text{V}$	20			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=20\text{V}$ , $V_{GS}=0\text{V}$			1	$\mu\text{A}$
Gate-Body Leakage Current	$I_{GSS}$	$V_{DS}=0\text{V}$ , $V_{GS}=\pm 10\text{V}$			$\pm 100$	$\mu\text{A}$
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=3\text{V}$ , $I_D=100\mu\text{A}$	0.5		1.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5\text{V}$ , $I_D=10\text{mA}$		1.5	3.0	$\Omega$
		$V_{GS}=2.5\text{V}$ , $I_D=10\text{mA}$		2.0	3.5	
Forward Transconductance	$g_{FS}$	$V_{DS}=3\text{V}$ , $I_D=10\text{mA}$		80		mS
Input Capacitance	$C_{iss}$	$V_{GS}=0\text{V}$ , $V_{DS}=5\text{V}$ , $f=1\text{MHz}$		11.5	20	pF
Output Capacitance	$C_{oss}$			10	15	
Reverse Transfer Capacitance	$C_{rss}$			3.5	6.0	
Turn-On Delay Time	$t_{d(on)}$	$V_{GS} = 4.5\text{V}$ , $V_{DS} = 5\text{V}$ , $I_D = 10\text{mA}$ , $R_G = 10\ \Omega$		13		ns
Turn-On Rise Time	$t_r$			15		
Turn-Off Delay Time	$t_{d(off)}$			98		
Turn-Off Fall Time	$t_f$			60		
Diode Forward Voltage	$V_{SD}$	$I_{SD}=10\text{mA}$ , $V_{GS}=0\text{V}$		0.66	0.80	V

Note 2: Pulse Test: pulse width  $\leq 300\ \mu\text{s}$ , duty cycle  $\leq 2\%$ .

Note 3: Switching characteristics are independent of operating junction temperatures.

# N-Channel MOSFET

## 2KK5016

■ Typical Characteristics

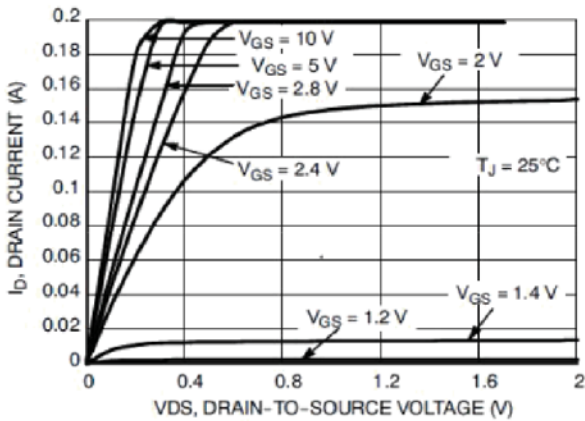


Figure 1. On-region Characteristics

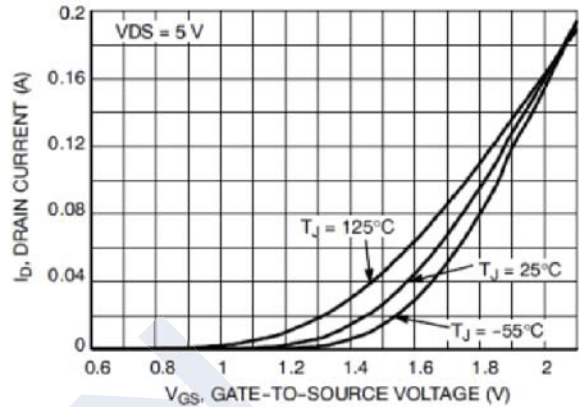


Figure 2. Transfer Characteristics

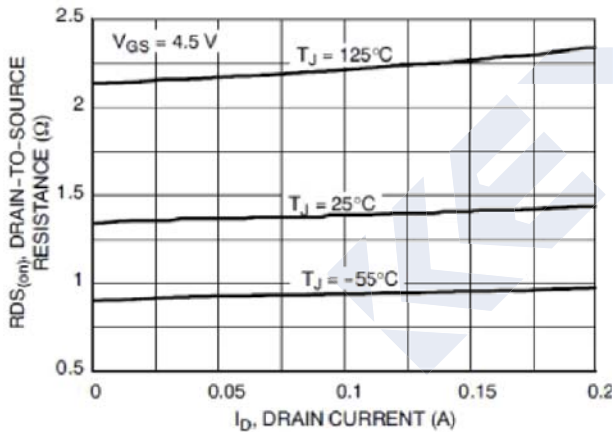


Figure 3. On-resistance versus Drain Current and Temperature

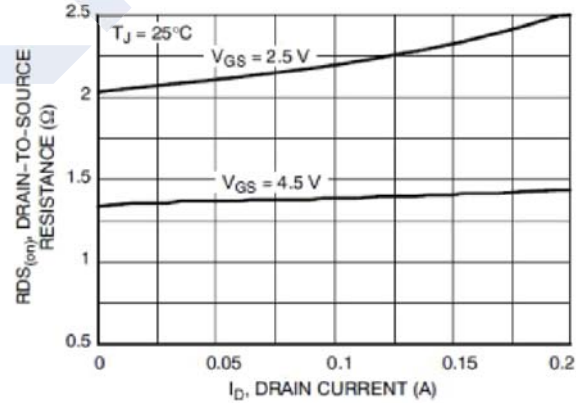


Figure 4. On-resistance versus Drain Current and Gate Voltage

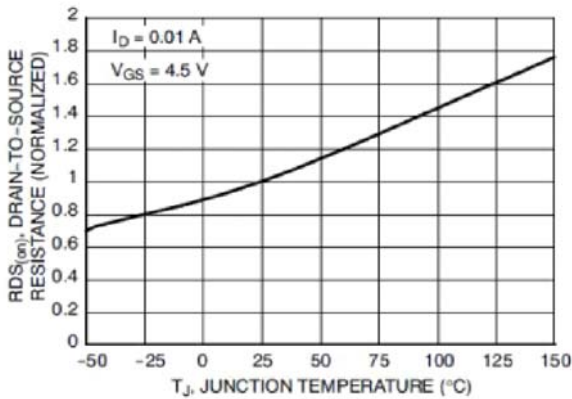


Figure 5. On-resistance Variation with Temperature

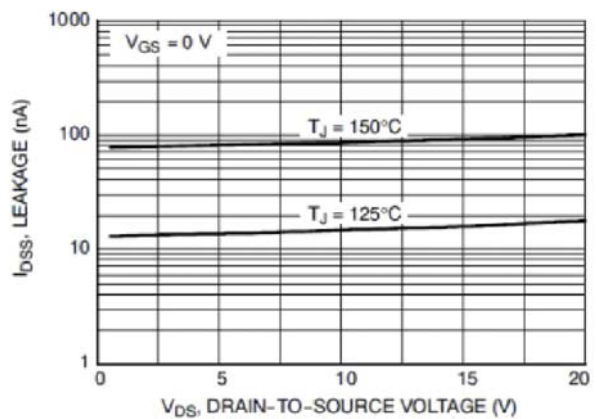
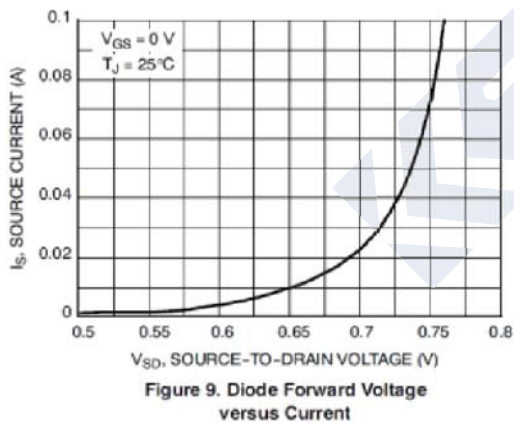
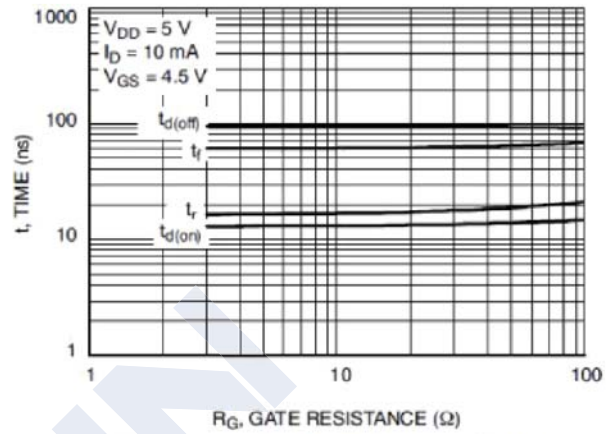
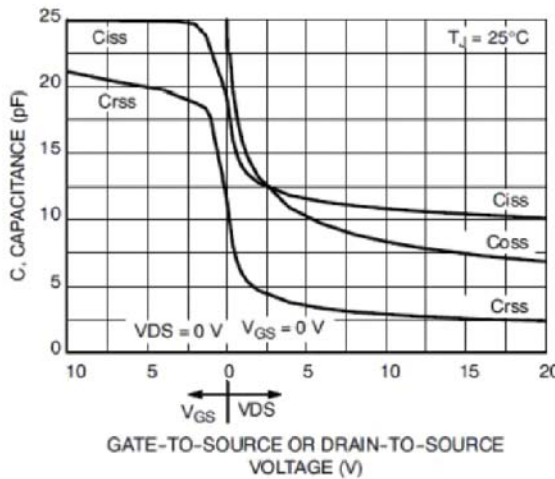


Figure 6. Drain-to-Source Leakage Current versus Voltage

### N-Channel MOSFET

### 2KK5016



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