

## Dual N-Channel MOSFET

### AO4918 (KO4918)

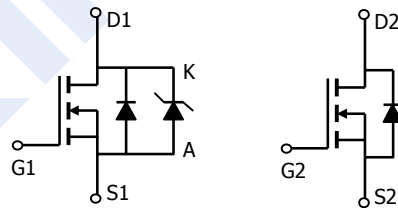
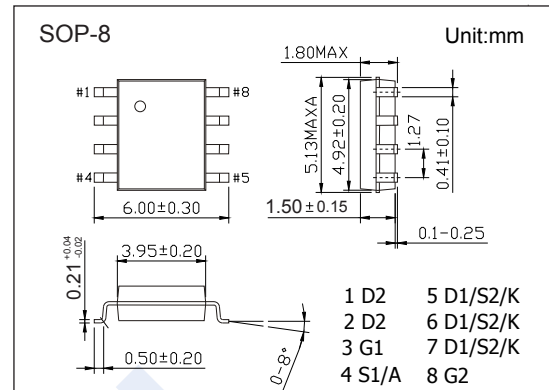
#### ■ Features

N-Channel 1

- $V_{DS} (V) = 30V$
- $I_D = 9.3 A (V_{GS} = 10V)$
- $R_{DS(ON)} < 14.5m\Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 16m\Omega (V_{GS} = 4.5V)$
- $V_{DS} (V) = 30V, I_F = 3A, V_F < 0.5V @ 1A$

N-Channel 2

- $V_{DS} (V) = 30V$
- $I_D = 8.3 A (V_{GS} = 10V)$
- $R_{DS(ON)} < 18m\Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 27m\Omega (V_{GS} = 4.5V)$



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

Parameter	Symbol	N-Channel 1	Schottky	N-Channel 2	Unit
Drain-Source Voltage	$V_{DS}$	30		30	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$		$\pm 20$	
Schottky Reverse Voltage	$V_{KA}$		30		
Continuous Drain Current	$I_D$	$T_A=25^\circ C$	9.3	8.3	A
		$T_A=70^\circ C$	7.4	6.7	
Pulsed Drain Current	$I_{DM}$	40		40	
Continuous Forward Current	$I_F$	$T_A=25^\circ C$		3	A
		$T_A=70^\circ C$		2.2	
Pulsed Diode Forward Current	$I_{FM}$		20		
Power Dissipation	$P_D$	$T_A=25^\circ C$	2		W
		$T_A=70^\circ C$	1.28		
Thermal Resistance.Junction- to-Ambient	$R_{thJA}$	$t \leq 10s$	62.5		$^\circ C/W$
		Steady-State	110		
Thermal Resistance.Junction- to-Lead	$R_{thJL}$	40			
Junction Temperature	$T_J$	150			
Storage Temperature Range	$T_{stg}$	-55 to 150		$^\circ C$	

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#### ■ N-Channel 1 Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V <sub>DSS</sub>	I <sub>D</sub> =250 μA, V <sub>GS</sub> =0V	30			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V			0.05	mA
		V <sub>DS</sub> =30V, V <sub>GS</sub> =0V, T <sub>J</sub> =125°C			10	
		V <sub>DS</sub> =30V, V <sub>GS</sub> =0V, T <sub>J</sub> =150°C			20	
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±12V			±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250 μA	0.6		2	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =9.3A			14.5	mΩ
		V <sub>GS</sub> =10V, I <sub>D</sub> =9.3A, T <sub>J</sub> =125°C			19	
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =8.8A			16	
On State Drain Current	I <sub>D(on)</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =5V	40			A
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =9.3A	30	37		S
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =15V, f=1MHz		3740	4488	pF
Output Capacitance (FET + Schottky)	C <sub>oss</sub>			295		
Reverse Transfer Capacitance	C <sub>rss</sub>			186		
Gate Resistance	R <sub>g</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, f=1MHz		0.86	1.1	Ω
Total Gate Charge	Q <sub>g</sub>	V <sub>GS</sub> =4.5V, V <sub>DS</sub> =15V, I <sub>D</sub> =9.3A		30.5	37	nC
Gate Source Charge	Q <sub>gs</sub>			4.5		
Gate Drain Charge	Q <sub>gd</sub>			8.5		
Turn-On DelayTime	t <sub>d(on)</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =15V, R <sub>L</sub> =1.6Ω, R <sub>GEN</sub> =3Ω		6	9	ns
Turn-On Rise Time	t <sub>r</sub>			8.2	12	
Turn-Off DelayTime	t <sub>d(off)</sub>			54.5	75	
Turn-Off Fall Time	t <sub>f</sub>			10.5	15	
Body Diode Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 9.3A, di/dt= 100A/us		23.5	28	nC
Body Diode Reverse Recovery Charge	Q <sub>rr</sub>			13.3	16	
Body-Diode + Schottky Continuous Current	I <sub>S</sub>				3.5	A
Diode + Schottky Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =1A, V <sub>GS</sub> =0V			0.5	V

Note. The static characteristics in Figures 1 to 6 are obtained using 300 μs pulses, duty cycle 0.5% max.

#### ■ Marking

Marking	4918 KA****
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## Dual N-Channel MOSFET

### AO4918 (K04918)

#### ■ N-Channel 2 Electrical Characteristics Ta = 25°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	$I_{DSS}$	$V_{DS}=24V, V_{GS}=0V$			1	uA
		$V_{DS}=24V, V_{GS}=0V, T_J=55^\circ C$			5	
Gate-Body Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 100$	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1		3	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=8.3A$			18	m $\Omega$
		$V_{GS}=10V, I_D=8.3A, T_J=125^\circ C$			27	
		$V_{GS}=4.5V, I_D=7A$			27	
On State Drain Current	$I_{D(ON)}$	$V_{GS}=4.5V, V_{DS}=5V$	30			A
Forward Transconductance	$g_{FS}$	$V_{DS}=5V, I_D=8.3A$		23		S
Input Capacitance	$C_{iss}$	$V_{GS}=0V, V_{DS}=15V, f=1MHz$		1040	1250	pF
Output Capacitance	$C_{oss}$			180		
Reverse Transfer Capacitance	$C_{rss}$			110		
Gate Resistance	$R_g$	$V_{GS}=0V, V_{DS}=0V, f=1MHz$			0.85	$\Omega$
Total Gate Charge (10V)	$Q_g$	$V_{GS}=10V, V_{DS}=15V, I_D=8.3A$		19.2	24	nC
Total Gate Charge (4.5V)				9.36	12	
Gate Source Charge	$Q_{gs}$			2.6		
Gate Drain Charge	$Q_{gd}$			4.2		
Turn-On DelayTime	$t_{d(on)}$			5.2	7.5	
Turn-On Rise Time	$t_r$	$V_{GS}=10V, V_{DS}=15V, R_L=1.8\Omega, R_{GEN}=3\Omega$		4.4	6.5	ns
Turn-Off DelayTime	$t_{d(off)}$			17.3	25	
Turn-Off Fall Time	$t_f$			3.3	5	
Body Diode Reverse Recovery Time	$t_{rr}$			16.7	21	
Body Diode Reverse Recovery Charge	$Q_{rr}$	$I_F=8.5A, di/dt=100A/us$		6.7	10	nC
Body-Diode Continuous Current	$I_S$				3	A
Diode + Schottky Forward Voltage	$V_{SD}$	$I_S=1A, V_{GS}=0V$			0.5	V

Note. The static characteristics in Figures 1 to 6 are obtained using 300  $\mu s$  pulses, duty cycle 0.5% max.

## Dual N-Channel MOSFET AO4918 (KO4918)

■ N-Channel 1 Typical Characteristics

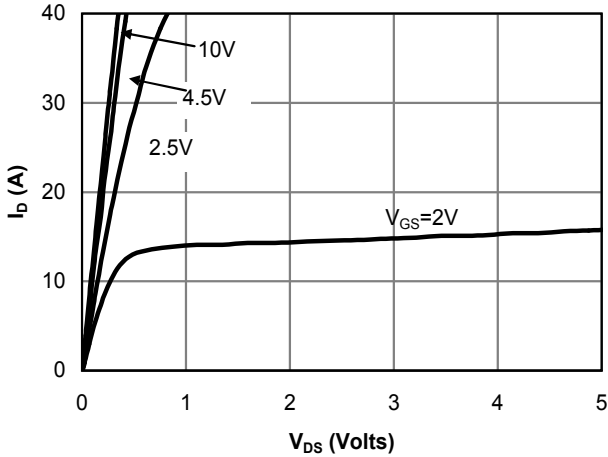


Fig 1: On-Region Characteristics

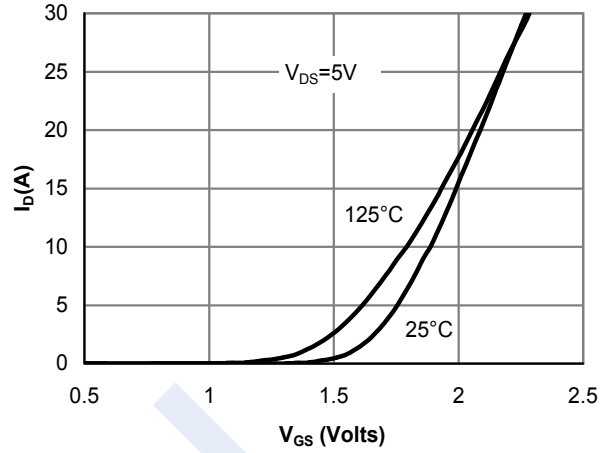


Figure 2: Transfer Characteristics

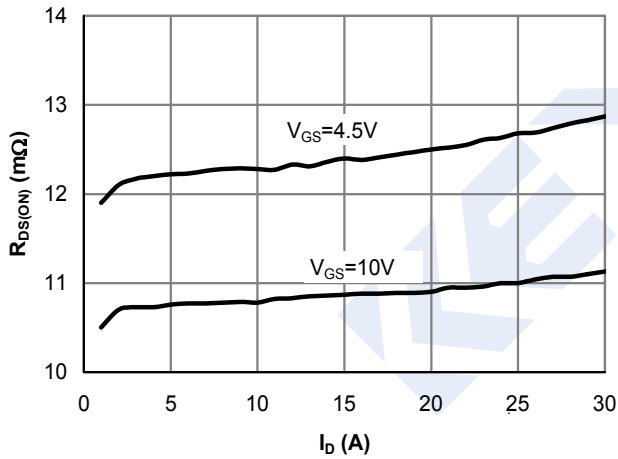


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

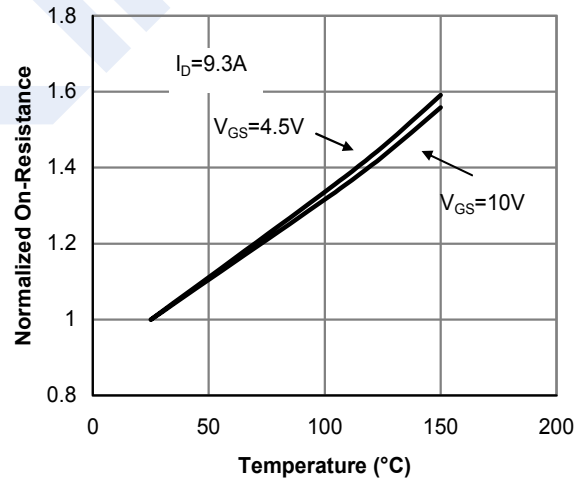


Figure 4: On resistance vs. Junction Temperature

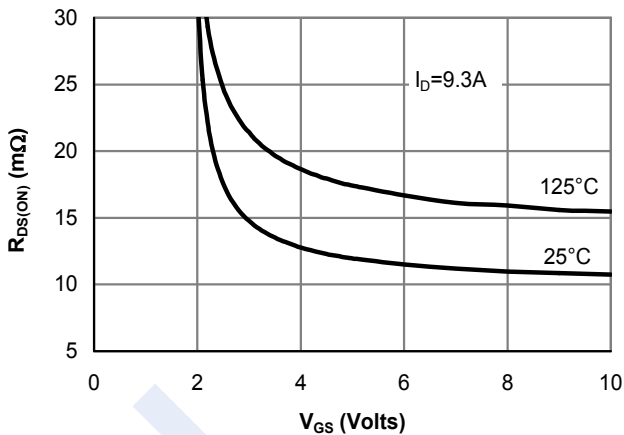


Figure 5: On resistance vs. Gate-Source Voltage

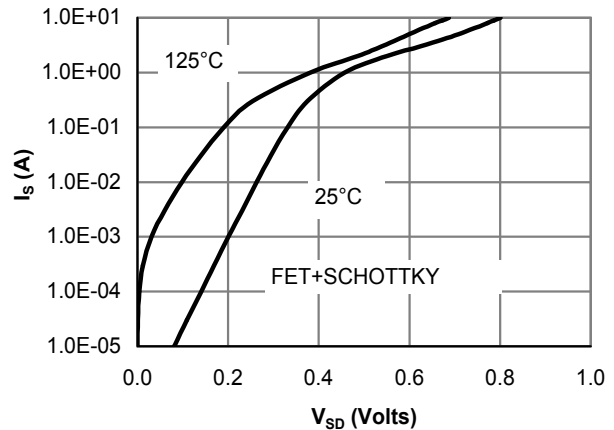


Figure 6: Body-Diode Characteristics (Note F)

## Dual N-Channel MOSFET AO4918 (KO4918)

### ■ N-Channel 1 Typical Characteristics

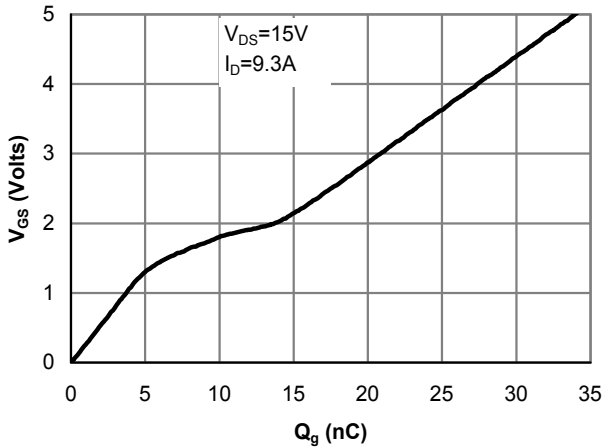


Figure 7: Gate-Charge Characteristics

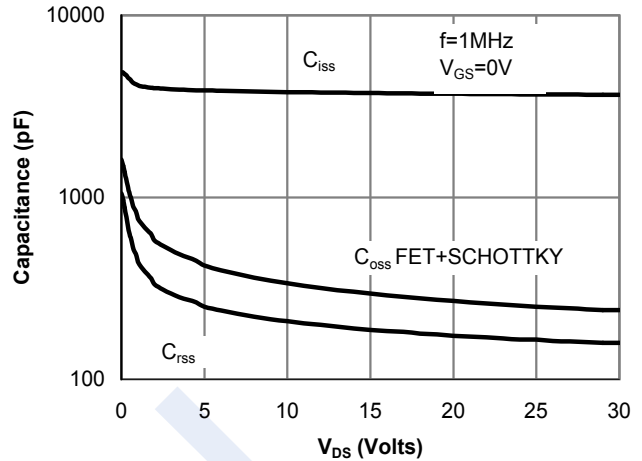


Figure 8: Capacitance Characteristics

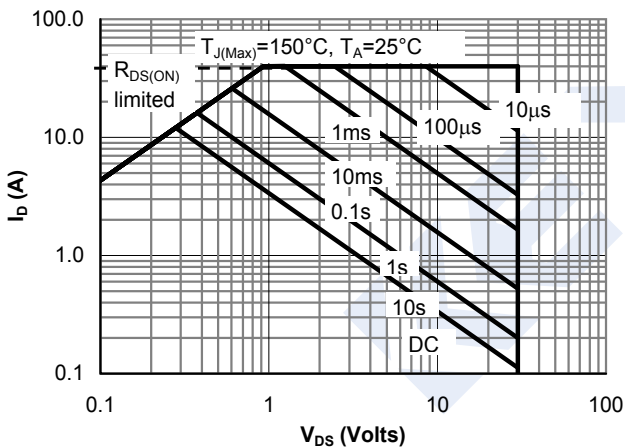


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

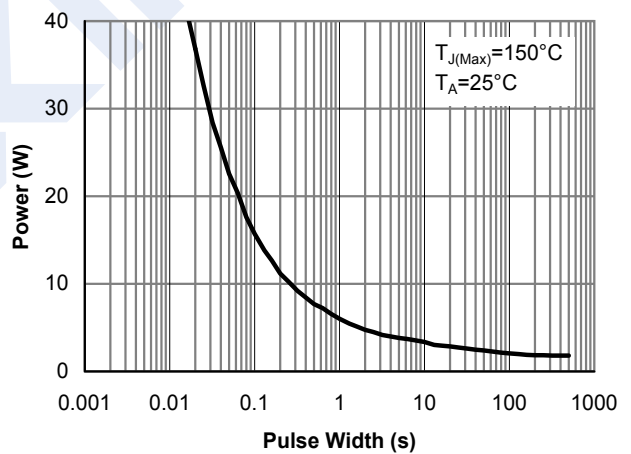


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

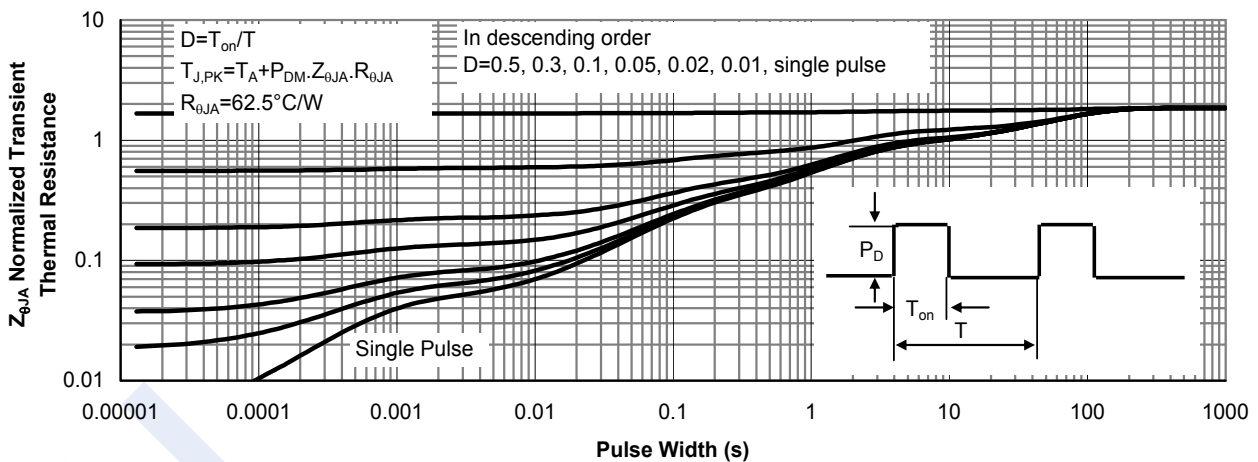


Figure 11: Normalized Maximum Transient Thermal Impedance

## Dual N-Channel MOSFET AO4918 (KO4918)

■ N-Channel 2 Typical Characteristics

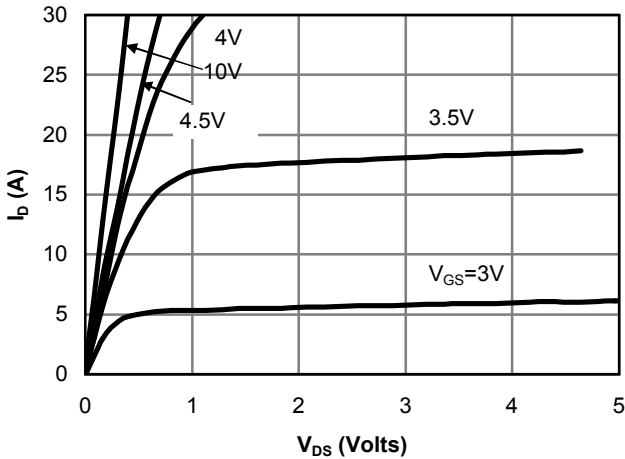


Fig 1: On-Region Characteristics

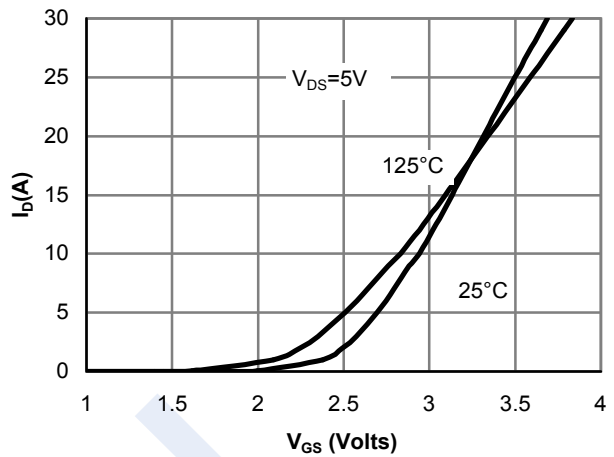


Figure 2: Transfer Characteristics

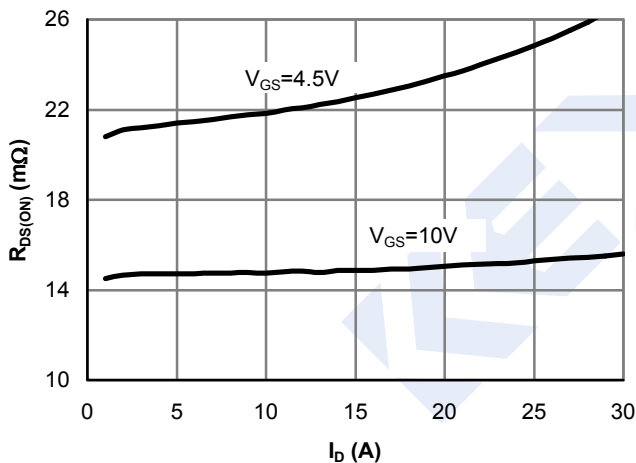


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

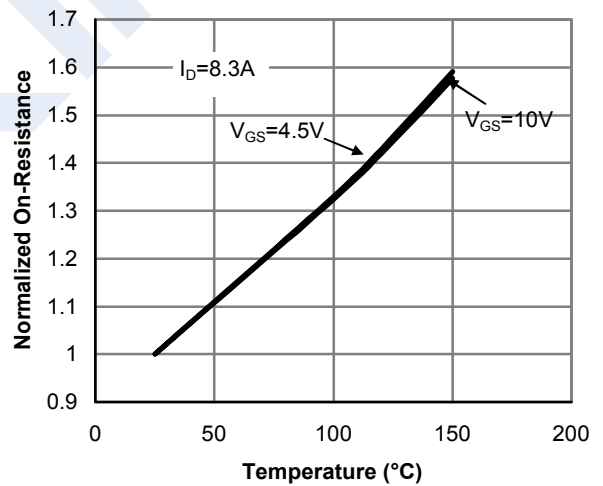


Figure 4: On resistance vs. Junction Temperature

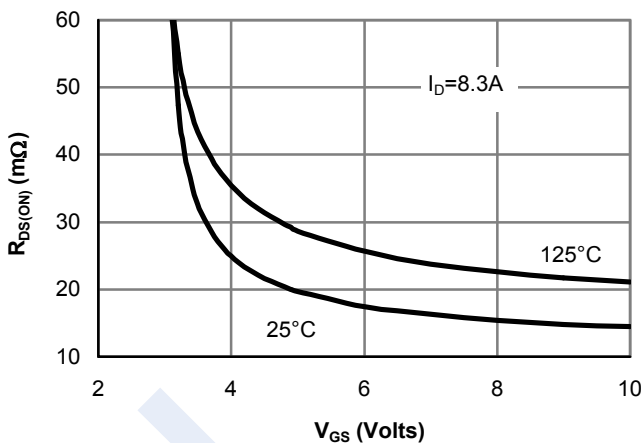


Figure 5: On resistance vs. Gate-Source Voltage

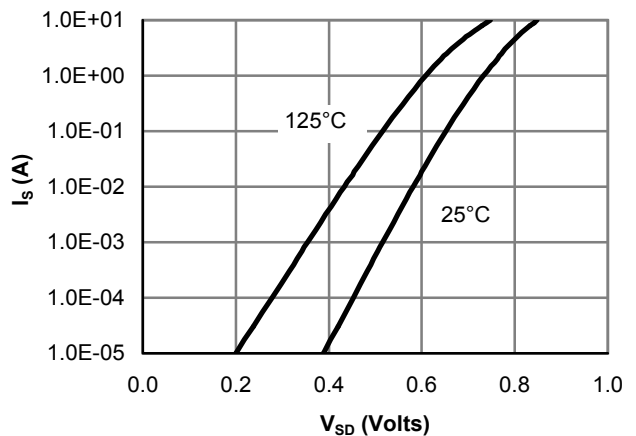


Figure 6: Body-Diode Characteristics

## Dual N-Channel MOSFET AO4918 (KO4918)

### ■ N-Channel 2 Typical Characteristics

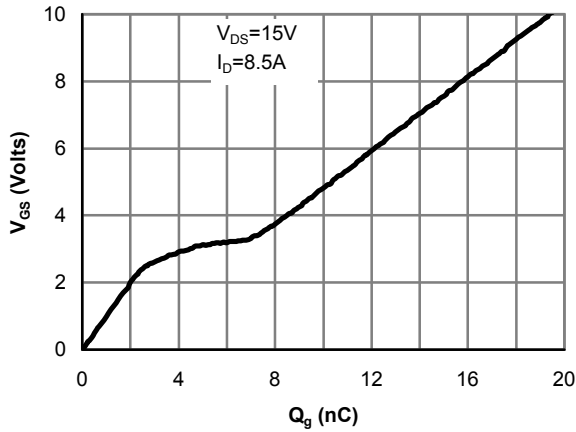


Figure 7: Gate-Charge Characteristics

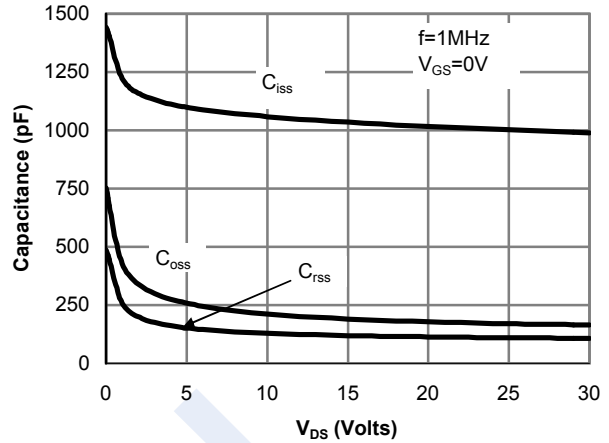


Figure 8: Capacitance Characteristics

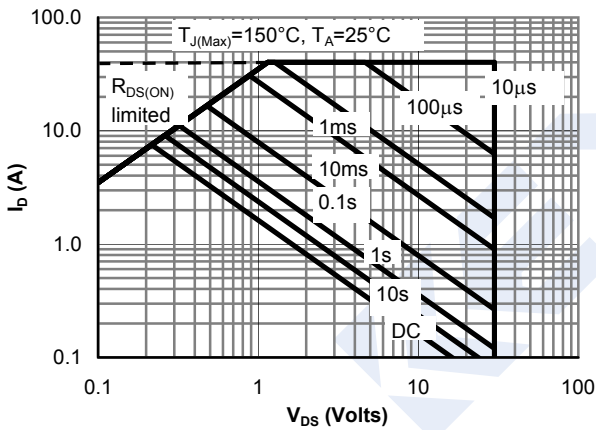


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

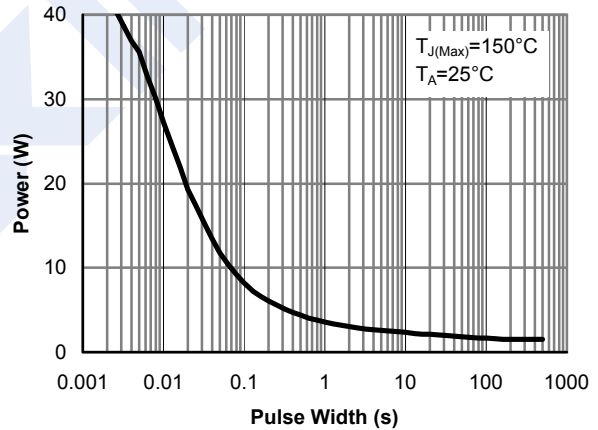


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

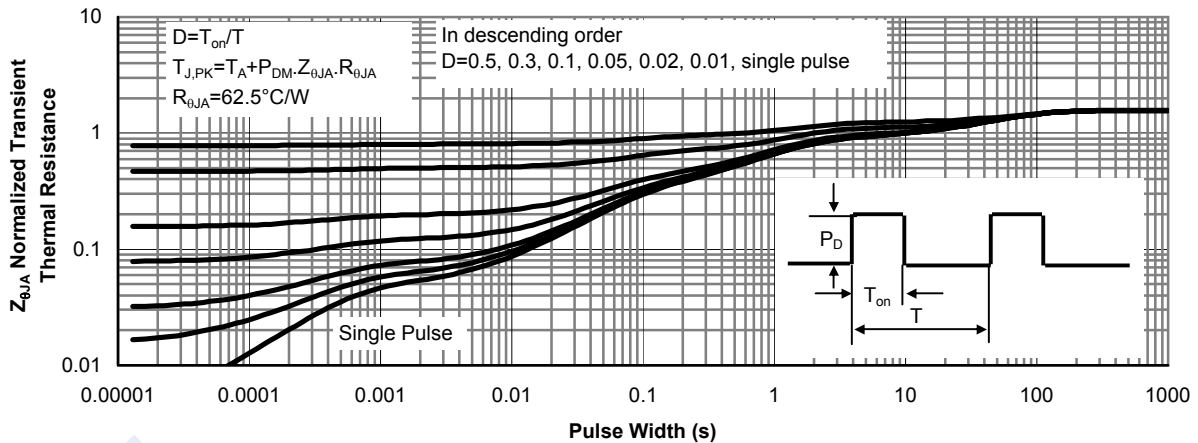


Figure 11: Normalized Maximum Transient Thermal Impedance