

## Dual N-Channel MOSFET

## AO4824L (KO4824L)

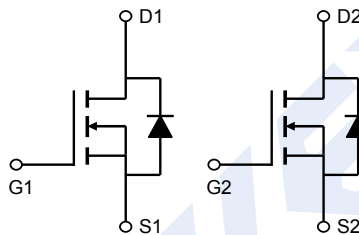
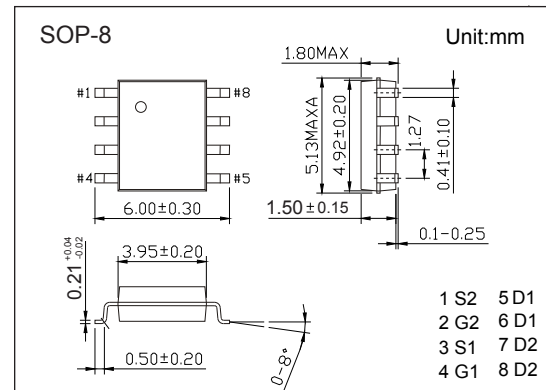
## ■ Features

N-Channel 1

- $V_{DS} (V) = 30V$
- $I_D = 8.5A (V_{GS} = 10V)$
- $R_{DS(ON)} < 17m\Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 27m\Omega (V_{GS} = 4.5V)$

N-Channel 2

- $V_{DS} (V) = 30V$
- $I_D = 9.8A (V_{GS} = 10V)$
- $R_{DS(ON)} < 13m\Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 15m\Omega (V_{GS} = 4.5V)$

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

Parameter		Symbol	N-Channel 1	N-Channel 2	Unit
Drain-Source Voltage		$V_{DS}$	30		V
Gate-Source Voltage		$V_{GS}$	$\pm 20$	$\pm 12$	
Continuous Drain Current	$T_A=25^\circ C$	$I_D$	8.5	9.8	A
	$T_A=70^\circ C$		6.8	7.8	
Pulsed Drain Current		$I_{DM}$	30	40	
Power Dissipation	$T_A=25^\circ C$	$P_D$	2		W
	$T_A=70^\circ C$		1.28		
Thermal Resistance.Junction- to-Ambient	$t \leq 10s$	$R_{thJA}$	62.5		$^\circ C/W$
	Steady-State		110		
Thermal Resistance.Junction- to-Lead		$R_{thJL}$	40		
Junction Temperature		$T_J$	150		$^\circ C$
Storage Temperature Range		$T_{stg}$	-55 to 150		

## Dual N-Channel MOSFET

### AO4824L (KO4824L)

#### ■ 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> =24V, V <sub>GS</sub> =0V			1	μA
		V <sub>DS</sub> =24V, V <sub>GS</sub> =0V, T <sub>J</sub> =55°C			5	
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V			±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1		3	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =8.5A			17	mΩ
		V <sub>GS</sub> =10V, I <sub>D</sub> =8.5A, T <sub>J</sub> =125°C			25	
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =6A			27	
On State Drain Current	I <sub>D(ON)</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =5V	30			A
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =8.5A		23		S
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =15V, f=1MHz		1040	1250	pF
Output Capacitance	C <sub>oss</sub>			180		
Reverse Transfer Capacitance	C <sub>rss</sub>			110		
Gate Resistance	R <sub>g</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, f=1MHz		0.7	0.85	Ω
Total Gate Charge (10V)	Q <sub>g</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =15V, I <sub>D</sub> =8.5A		19.2	23	nC
Total Gate Charge (4.5V)				9.36	11.2	
Gate Source Charge	Q <sub>gs</sub>			2.6		
Gate Drain Charge	Q <sub>gd</sub>			4.2		
Turn-On DelayTime	t <sub>d(on)</sub>		V <sub>GS</sub> =10V, V <sub>DS</sub> =15V, R <sub>L</sub> =1.8Ω, R <sub>GEN</sub> =3Ω		5.2	
Turn-On Rise Time	t <sub>r</sub>			4.4	6.5	
Turn-Off DelayTime	t <sub>d(off)</sub>			17.3	25	
Turn-Off Fall Time	t <sub>f</sub>			3.3	5	
Body Diode Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 8.5A, di/dt= 100A/us		16.7	21	nC
Body Diode Reverse Recovery Charge	Q <sub>rr</sub>			6.7	10	
Maximum Body-Diode Continuous Current	I <sub>S</sub>				3	A
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =1A, V <sub>GS</sub> =0V			1	V

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

#### ■ Marking

Marking	4824L KA****
---------	-----------------

## Dual N-Channel MOSFET

### AO4824L (K04824L)

#### ■ N-Channel 2 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> =24V, V <sub>GS</sub> =0V			1	μA
		V <sub>DS</sub> =24V, V <sub>GS</sub> =0V, T <sub>J</sub> =55°C			5	
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> =250μA	0.6		2	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =9.8A			13	mΩ
		V <sub>GS</sub> =10V, I <sub>D</sub> =9.8A, T <sub>J</sub> =125°C			17	
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =9A			15	
On State Drain Current	I <sub>D(ON)</sub>	V <sub>GS</sub> =4.5V, V <sub>DS</sub> =5V	40			A
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =9.8A	30	37		S
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =15V, f=1MHz		3656	4250	pF
Output Capacitance	C <sub>oss</sub>			256		
Reverse Transfer Capacitance	C <sub>rss</sub>			168		
Gate Resistance	R <sub>g</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, f=1MHz		0.86	1.05	Ω
Total Gate Charge	Q <sub>g</sub>	V <sub>GS</sub> =4.5V, V <sub>DS</sub> =15V, I <sub>D</sub> =9.8A		30.5	36	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		5.5	8.2	ns
Turn-On Rise Time	t <sub>r</sub>			3.1	5	
Turn-Off DelayTime	t <sub>d(off)</sub>			52.4	75	
Turn-Off Fall Time	t <sub>f</sub>			5.7	8.5	
Body Diode Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 9.8A, di/dt= 100A/us		21.5	26	nC
Body Diode Reverse Recovery Charge	Q <sub>rr</sub>			11	15	
Maximum Body-Diode Continuous Current	I <sub>S</sub>				3	A
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =1A, V <sub>GS</sub> =0V			1	V

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

## Dual N-Channel MOSFET

### AO4824L (KO4824L)

■ N-Channel 1 Typical Characteristics

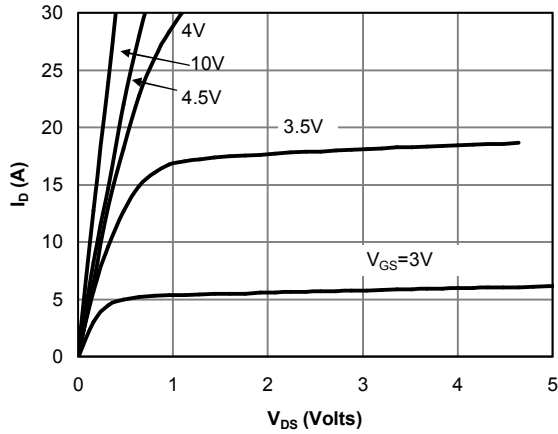


Fig 1: On-Region Characteristics

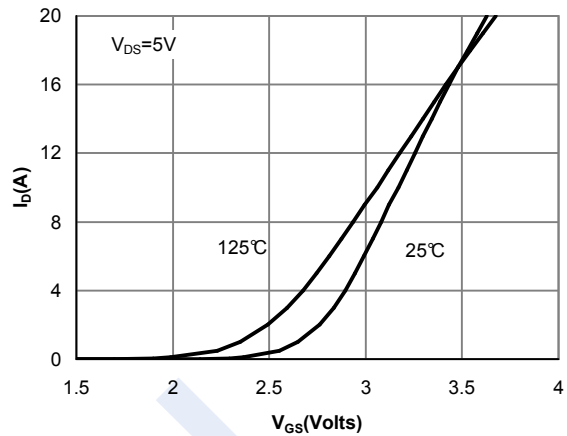


Figure 2: Transfer Characteristics

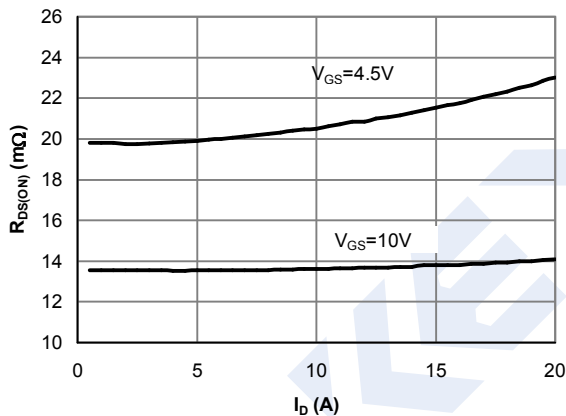


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

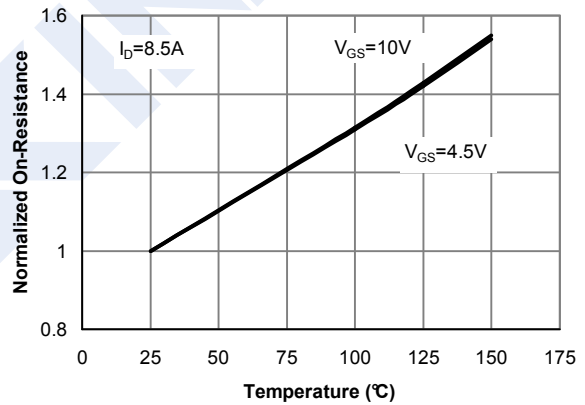


Figure 4: On-Resistance vs. Junction Temperature

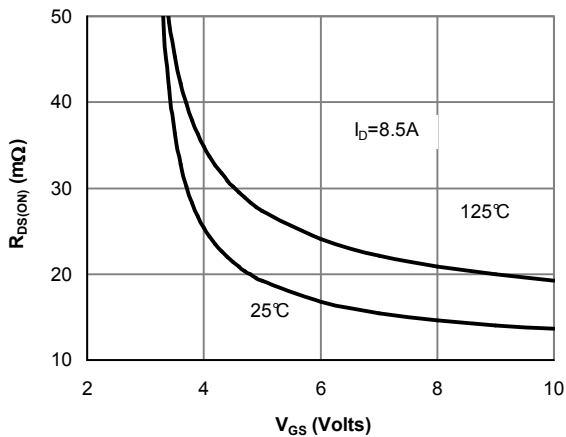


Figure 5: On-Resistance vs. Gate-Source Voltage

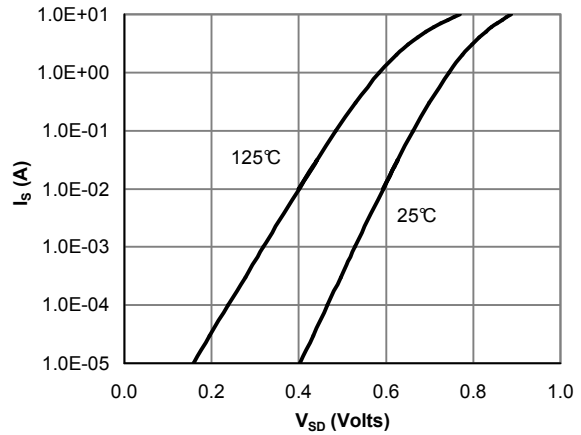


Figure 6: Body-Diode Characteristics

# Dual N-Channel MOSFET

## AO4824L (KO4824L)

### ■ N-Channel 1 Typical Characteristics

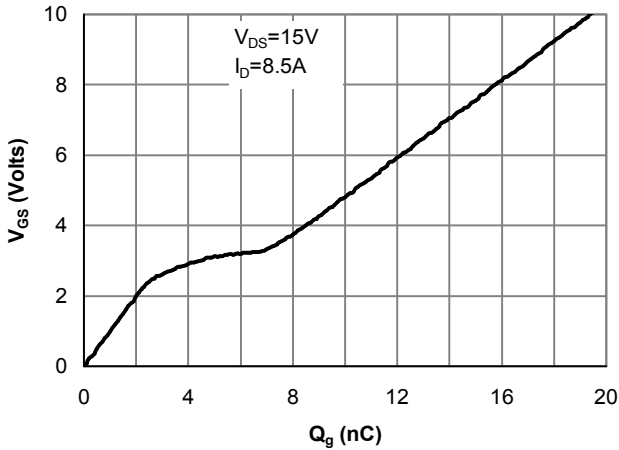


Figure 7: Gate-Charge Characteristics

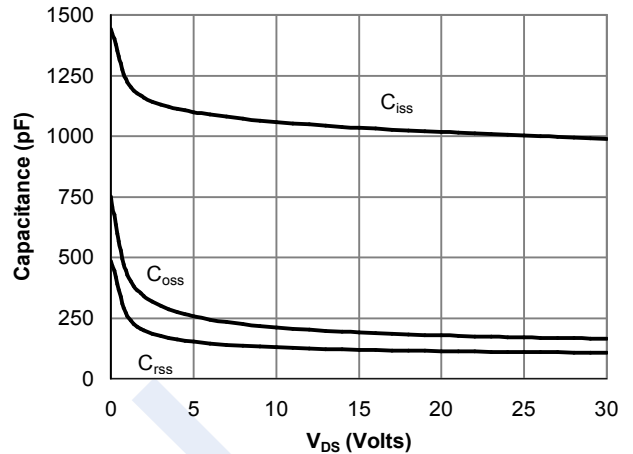


Figure 8: Capacitance Characteristics

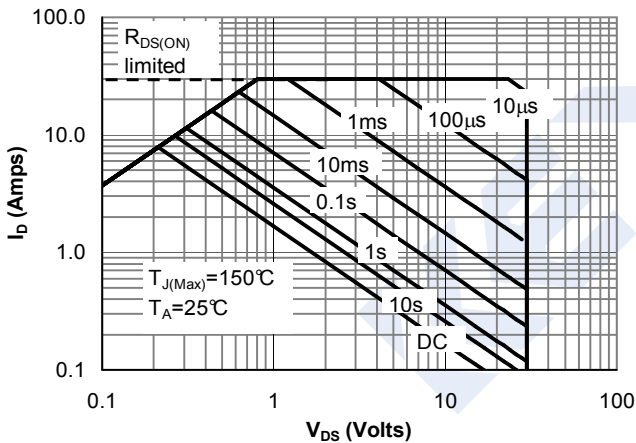


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

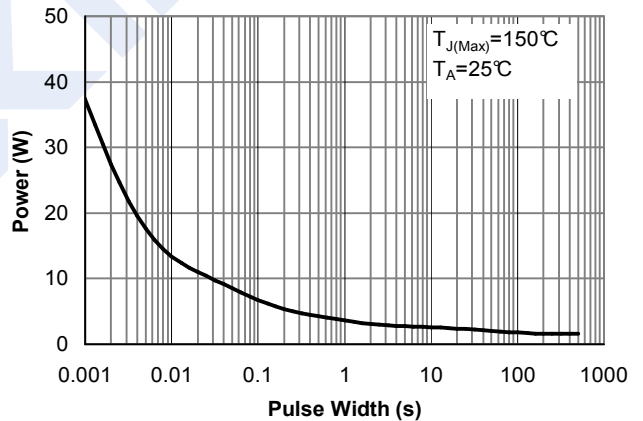


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

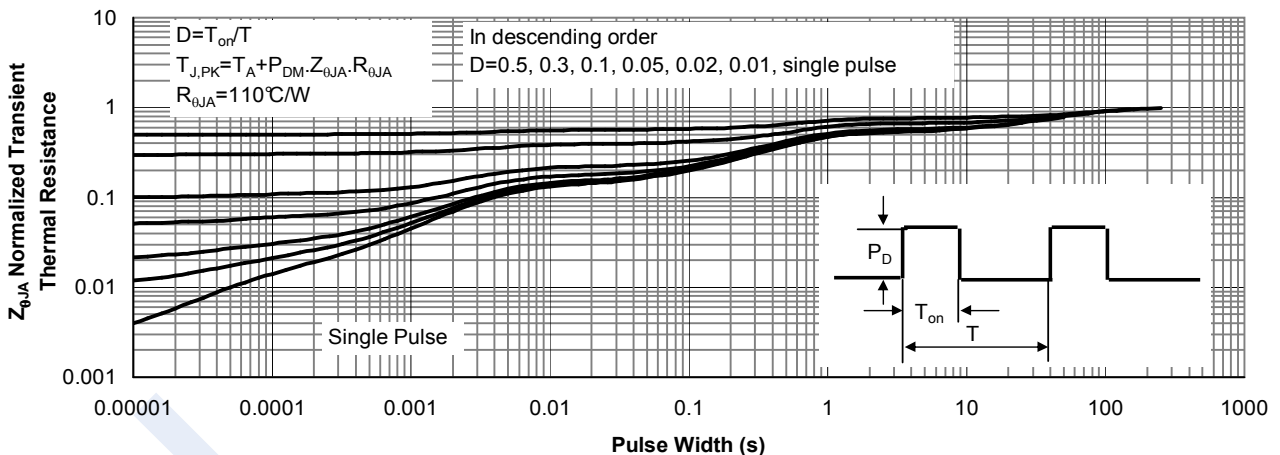


Figure 11: Normalized Maximum Transient Thermal Impedance

## Dual N-Channel MOSFET

### AO4824L (KO4824L)

■ N-Channel 2 Typical Characteristics

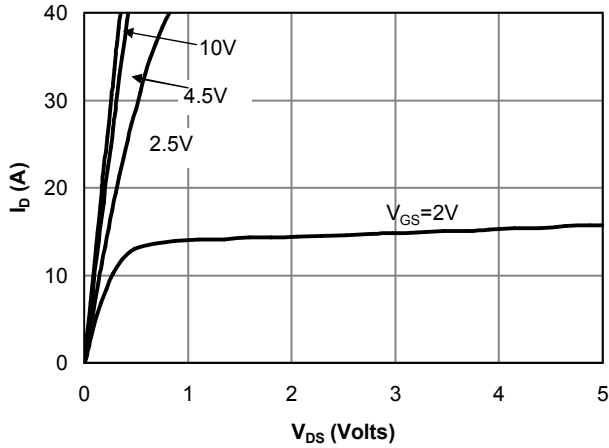


Fig 1: On-Region Characteristics

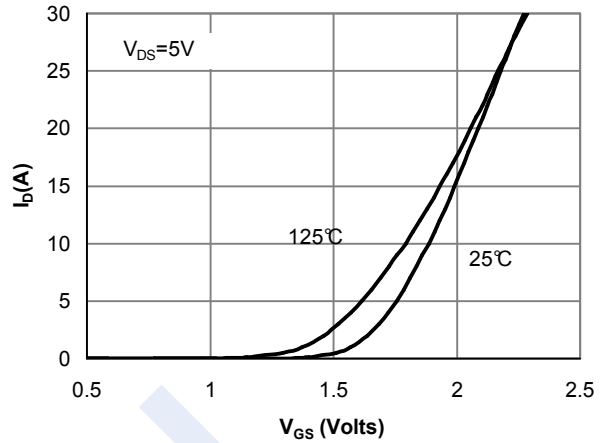


Figure 2: Transfer Characteristics

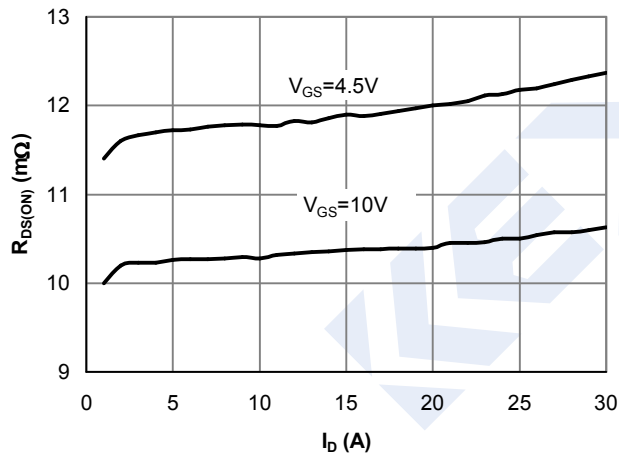


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

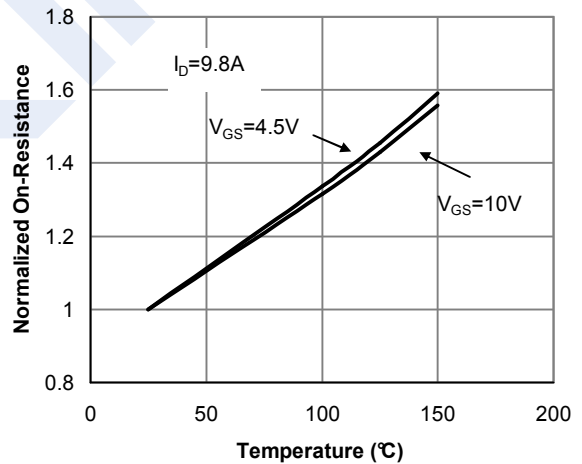


Figure 4: On resistance vs. Junction Temperature

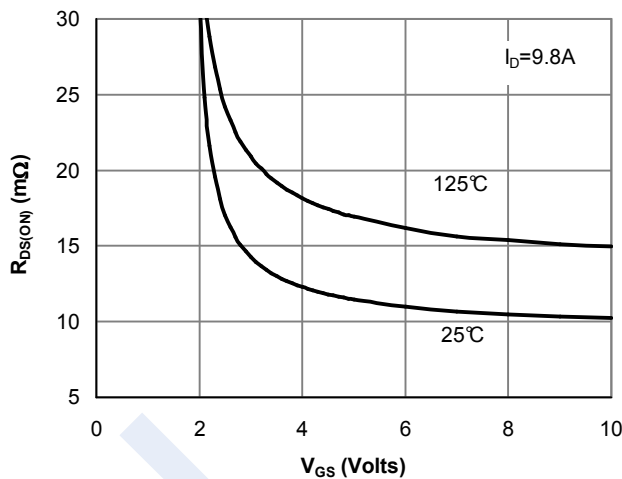


Figure 5: On resistance vs. Gate-Source Voltage

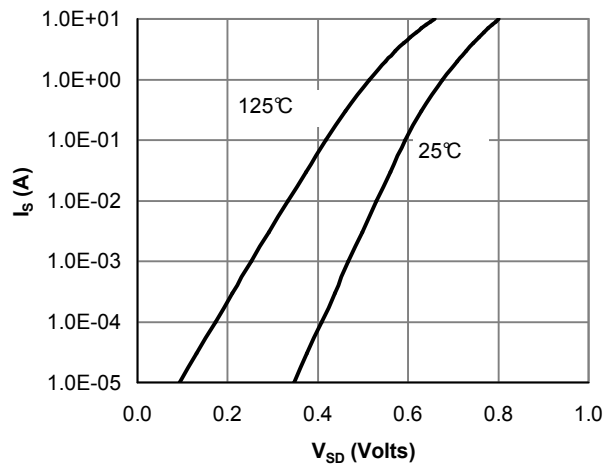


Figure 6: Body-Diode Characteristics

## Dual N-Channel MOSFET AO4824L (KO4824L)

■ N-Channel 2 Typical Characteristics

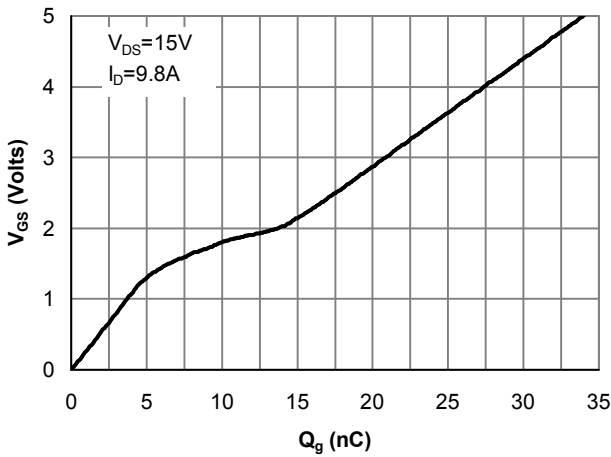


Figure 7: Gate-Charge Characteristics

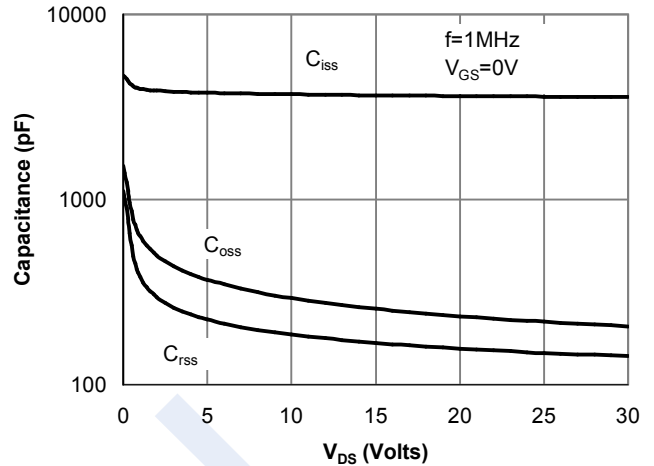


Figure 8: Capacitance Characteristics

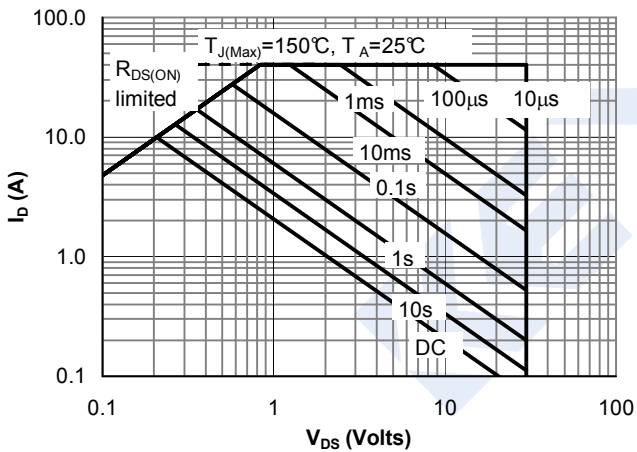


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

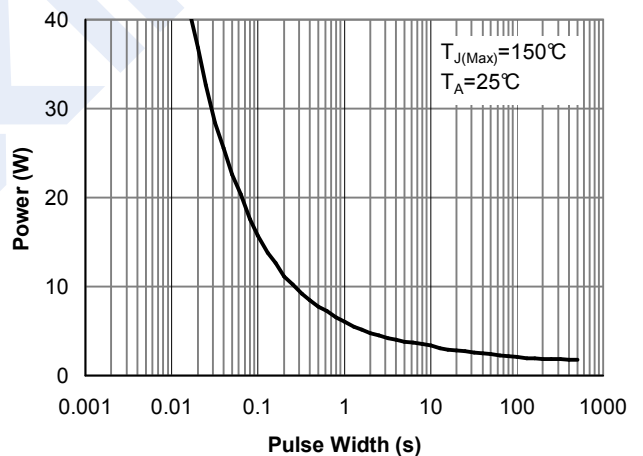


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

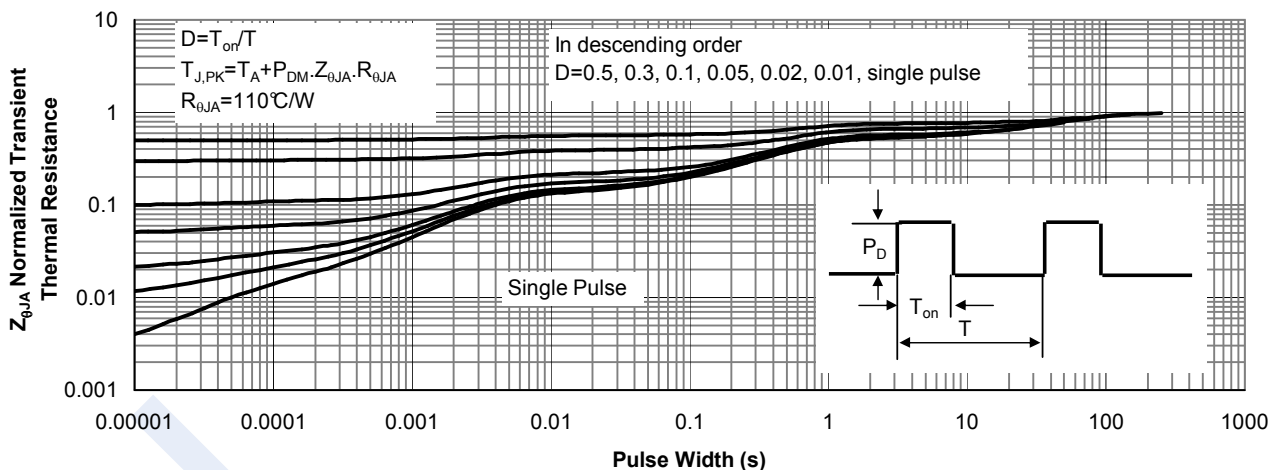


Figure 11: Normalized Maximum Transient Thermal Impedance