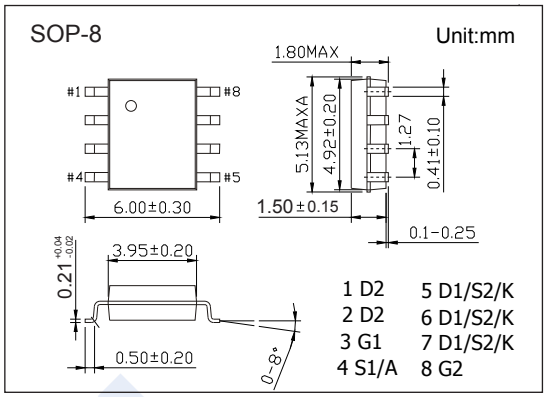
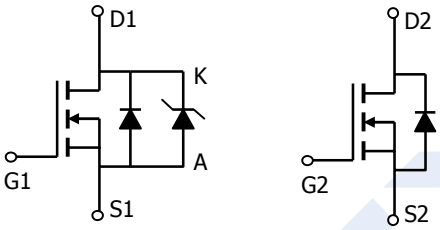
Dual N-Channel MOSFET

AO4906 (KO4906)



■ Features

- V_{DS} (V) = 30V
- I_D = 7 A (V_{GS} = 10V)
- $R_{DS(ON)}$ < 27mΩ (V_{GS} = 10V)
- $R_{DS(ON)}$ < 32mΩ (V_{GS} = 4.5V)
- $R_{DS(ON)}$ < 50mΩ (V_{GS} = 2.5V)
- V_{DS} (V) = 30V, I_F = 3A, V_F<0.5V@1A



■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	MOSFET	Schottky	Unit
Drain-Source Voltage		V_{DS}	30		V
Gate-Source Voltage		V_{GS}	±12		
Schottky Reverse Voltage		V_{KA}		30	
Continuous Drain Current	T_A=25℃	I_D	7		A
	T_A=70℃		6		
Pulsed Drain Current		I_{DM}	40		
Continuous Forward Current	T_A=25℃	I_F		3	A
	T_A=70℃			2	
Pulsed Diode Forward Current		I_{FM}		40	
Power Dissipation	T_A=25℃	P_D	2		W
	T_A=70℃		1.44		
Thermal Resistance.Junction- to-Ambient	t ≤ 10s	R_{thJA}	62.5		℃/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		

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250μA, 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℃			5	
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±12V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} , I_D=250μA	0.7		1.4	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=7A			27	mΩ
		V_{GS}=10V, I_D=7A T_J=125℃			40	
		V_{GS}=4.5V, I_D=6A			32	
		V_{GS}=2.5V, I_D=5A			50	
On State Drain Current	$I_{D(ON)}$	V_{GS}=4.5V, V_{DS}=5V	25			A
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=5A	12	16		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=15V, f=1MHz		846	1050	pF
Output Capacitance	C_{oss}			96		
Reverse Transfer Capacitance	C_{rss}			67		
Gate Resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz		1.24	3.6	Ω
Total Gate Charge	Q_g	V_{GS}=4.5V, V_{DS}=15V, I_D=7A		9.6	12	nC
Gate Source Charge	Q_{gs}			1.6		
Gate Drain Charge	Q_{gd}			3		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=10V, V_{DS}=15V, R_L=2.2Ω, R_{GEN}=3Ω		3.2	4.8	ns
Turn-On Rise Time	t_r			4.1	6.2	
Turn-Off DelayTime	$t_{d(off)}$			26.3	40	
Turn-Off Fall Time	t_f			3.7	5.5	
Body Diode Reverse Recovery Time	t_{rr}	I_F= 5A, dI/dt= 100A/us		15.5	20	
Body Diode Reverse Recovery Charge	Q_{rr}			7.9	12	nC
Body-Diode + Schottky Continuous Current	I_S				3	A
Diode + Schottky Forward Voltage	V_{SD}	I_S=1A,V_{GS}=0V			1	V
Forward Voltage Drop	V_F	I_F=1A			0.5	
Maximum reverse leakage current	I_{rm}	V_R=30V			0.05	mA
		V_R=30V,T_J=125℃			10	
		V_R=30V,T_J=150℃			20	
Junction Capacitance	C_T	V_R=15V		37		pF

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

■ Marking

Marking	4906 KA****

Dual N-Channel MOSFET

AO4906 (KO4906)

■ Typical Characterisitics

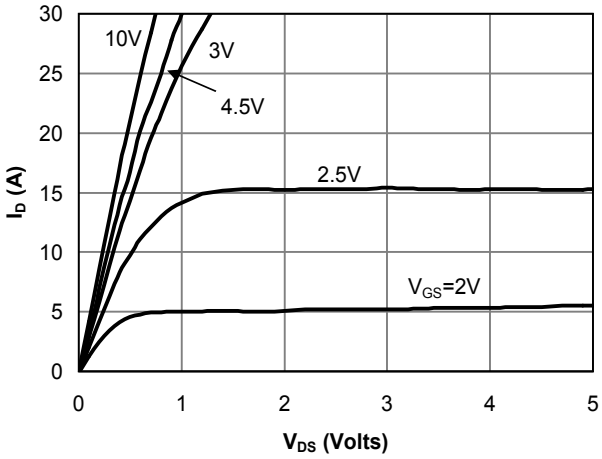

Fig 1: On-Region Characteristics

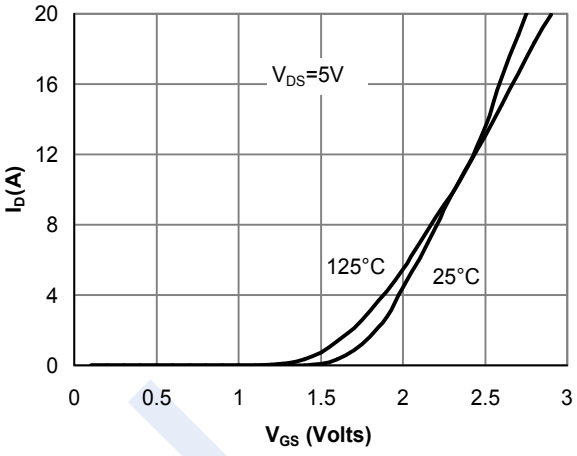

Figure 2: Transfer Characteristics

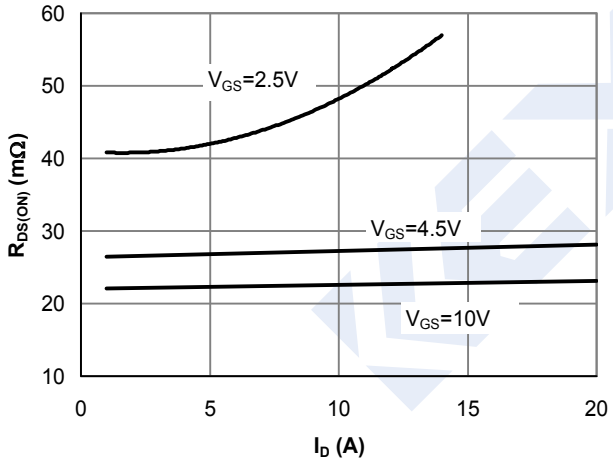

Figure 3: On-Resistance vs. Drain Current and Gate Voltage

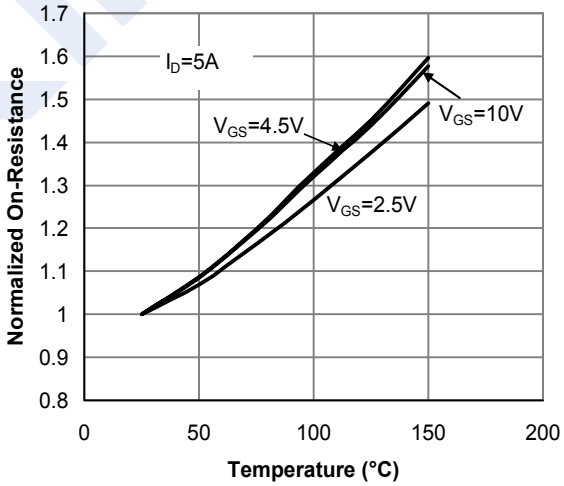

Figure 4: On resistance vs. Junction Temperature

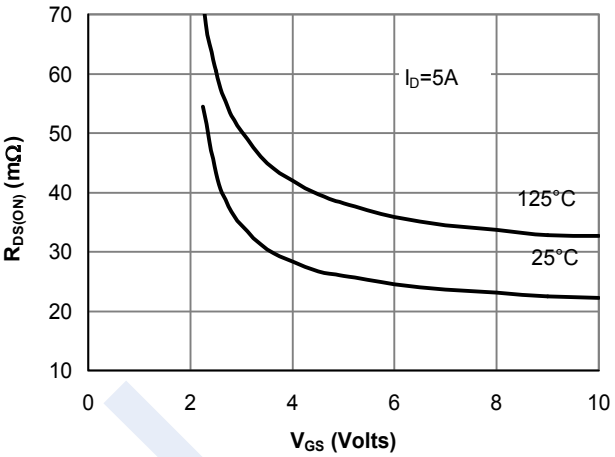

Figure 5: On resistance vs. Gate-Source Voltage

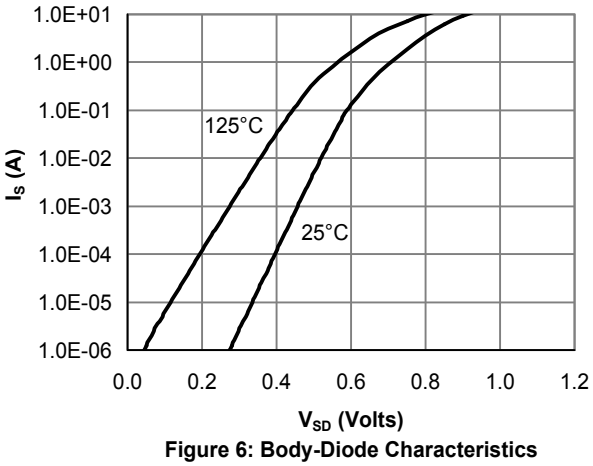

Figure 6: Body-Diode Characteristics

Dual N-Channel MOSFET

AO4906 (KO4906)

■ Typical Characterisitics

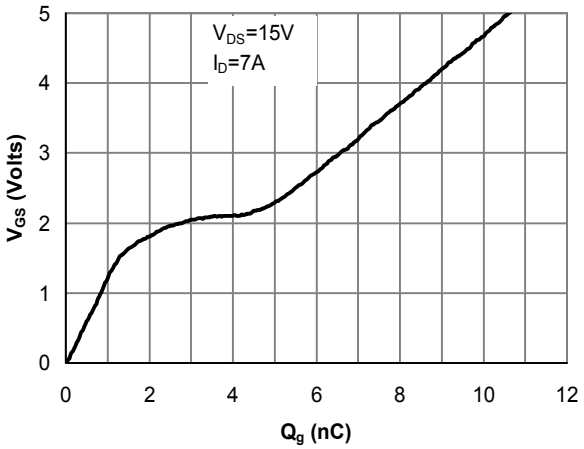

Figure 7: Gate-Charge Characteristics

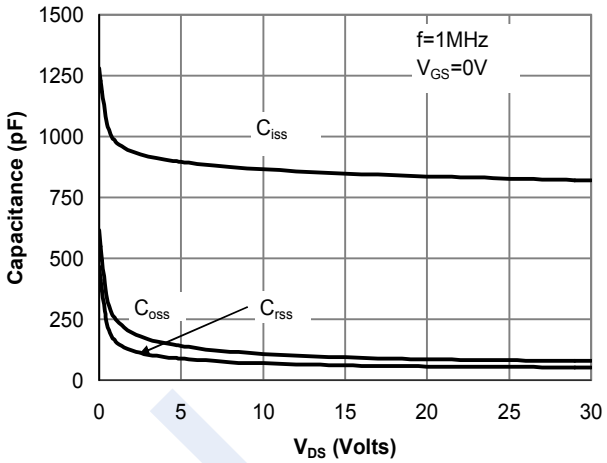

Figure 8: Capacitance Characteristics

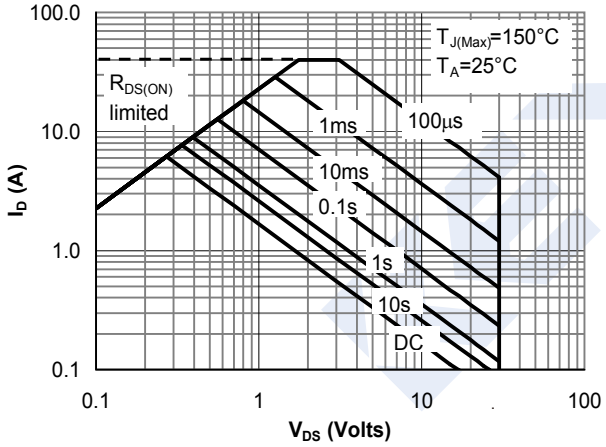

Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

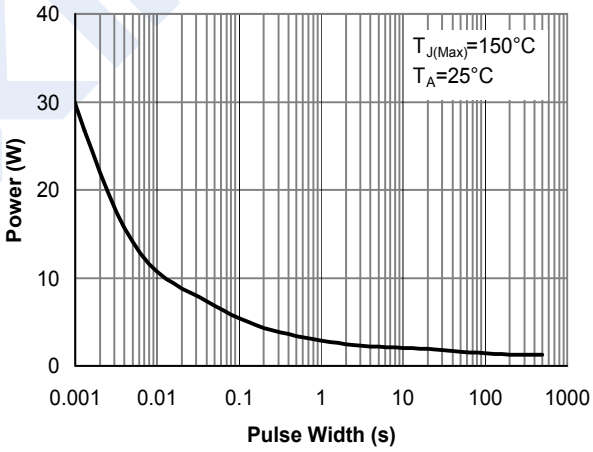

Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

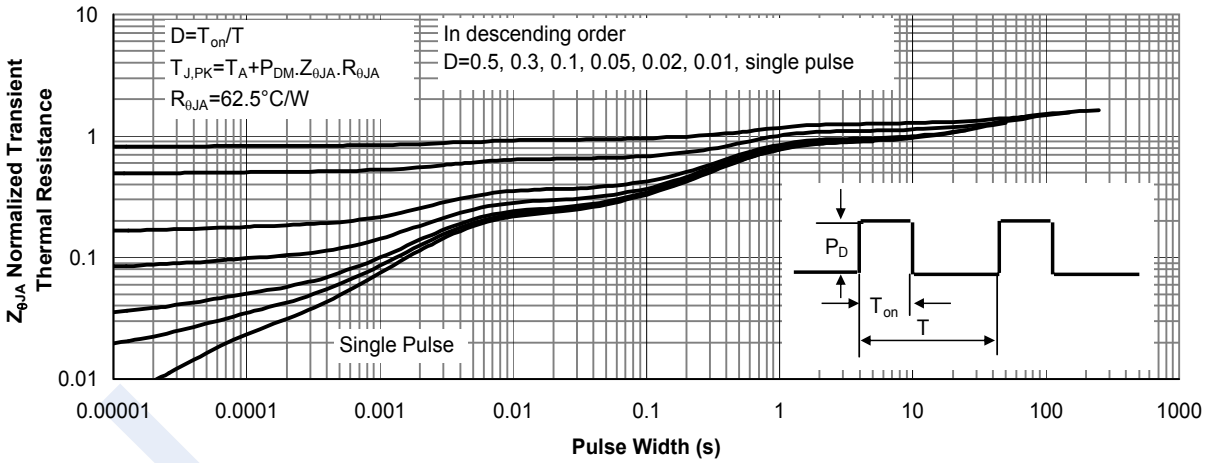

Figure 11: Normalized Maximum Transient Thermal Impedance

Dual N-Channel MOSFET

AO4906 (KO4906)

■ Typical Characterisitics

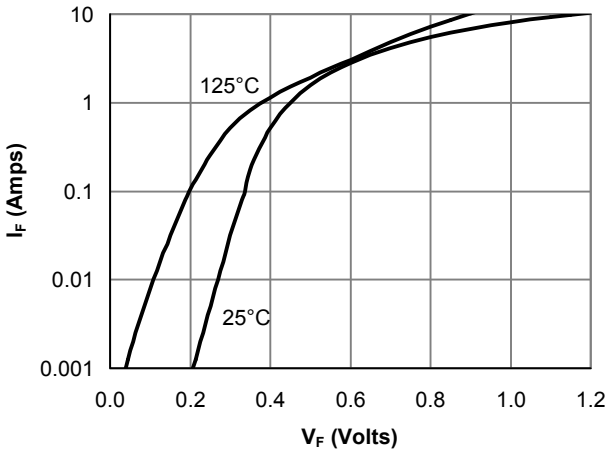

Figure 12: Schottky Forward Characteristics

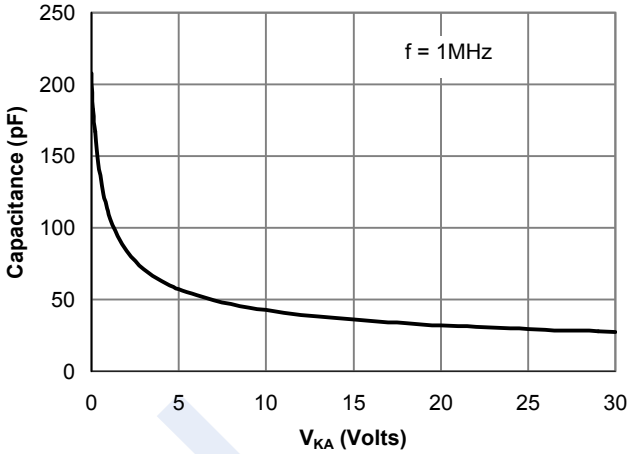

Figure 13: Schottky Capacitance Characteristics

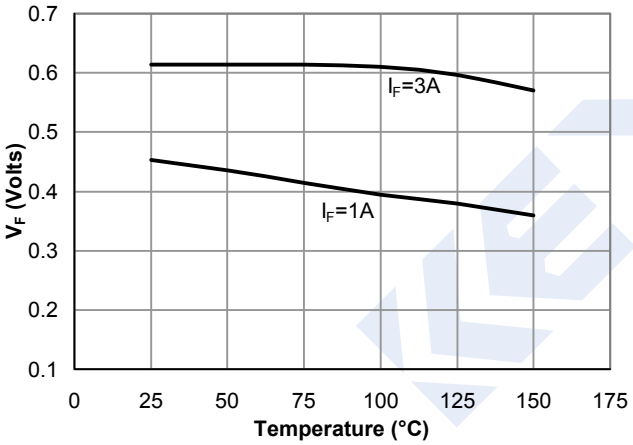

Figure 14: Schottky Forward Drop vs. Junction Temperature

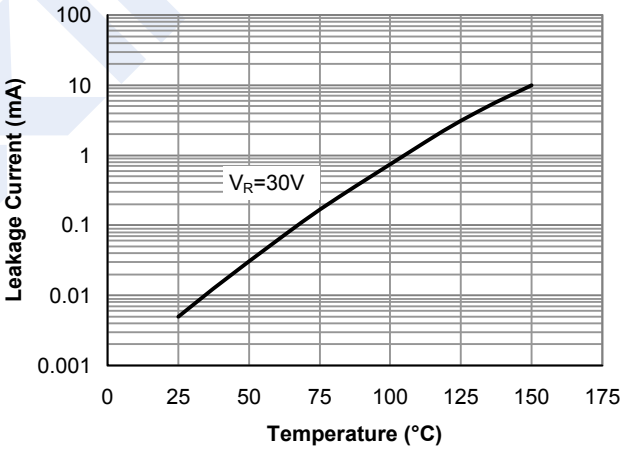

Figure 15: Schottky Leakage current vs. Junction Temperature

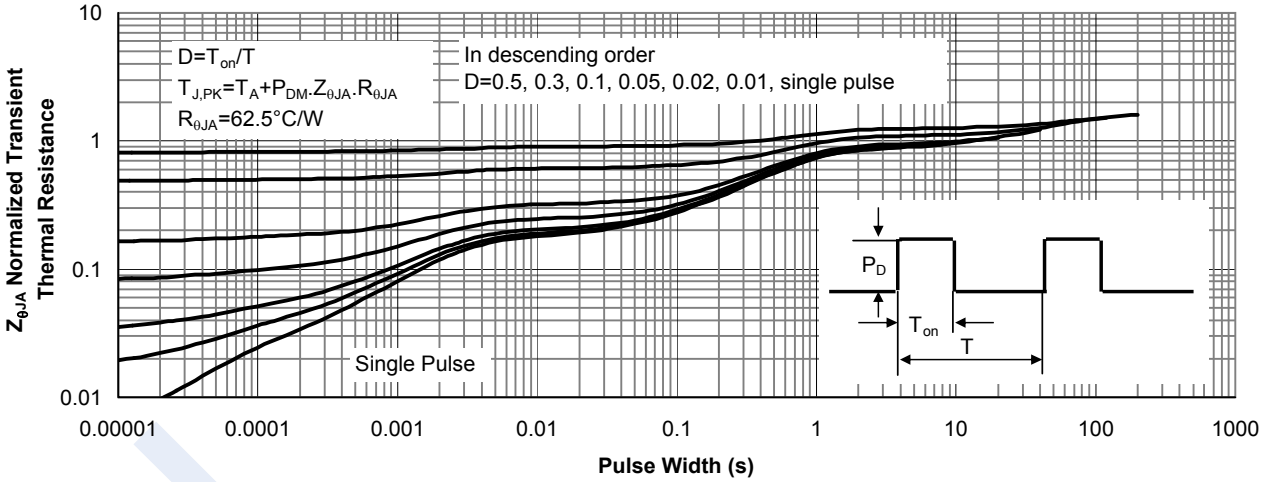

Figure 15: Schottky Normalized Maximum Transient Thermal Impedance