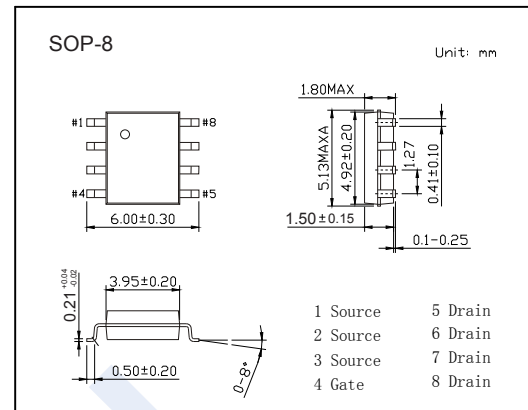
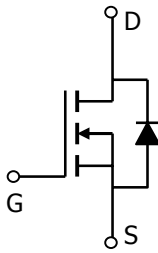


N-Channel MOSFET

AO4438 (KO4438)

■ Features

- $V_{DS} (V) = 60V$
- $I_D = 8.2 A (V_{GS} = 10V)$
- $R_{DS(ON)} < 22m\Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 27m\Omega (V_{GS} = 4.5V)$

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current	I_D	$T_A=25^\circ C$	8.2
		$T_A=70^\circ C$	6.6
Pulsed Drain Current	I_{DM}	40	A
Power Dissipation	P_D	$T_A=25^\circ C$	3.1
		$T_A=70^\circ C$	2
Thermal Resistance.Junction- to-Ambient	R_{thJA}	$t \leq 10s$	40
		Steady-State	75
Thermal Resistance.Junction- to-Lead	R_{thJL}	30	$^\circ C/W$
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature Range	T_{stg}	-55 to 150	

N-Channel MOSFET

AO4438 (KO4438)

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Drain-Source Breakdown Voltage	V _{DSS}	I _D =250 μA, V _{GS} =0V	60			V	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =48V, V _{GS} =0V			1	μA	
		V _{DS} =48V, V _{GS} =0V, T _J =55°C			5		
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250 μA	1		3	V	
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =8.2A			22	mΩ	
		V _{GS} =10V, I _D =8.2A, T _J =125°C			40		
		V _{GS} =4.5V, I _D =7.6A			27		
On State Drain Current	I _{D(ON)}	V _{GS} =10V, V _{DS} =5V	40			A	
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =8.2A		24		S	
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =30V, f=1MHz		1920	2300	pF	
Output Capacitance	C _{oss}			155			
Reverse Transfer Capacitance	C _{rss}			116			
Gate Resistance	R _g		V _{GS} =0V, V _{DS} =0V, f=1MHz		0.65		0.8
Total Gate Charge (10V)	Q _g	V _{GS} =10V, V _{DS} =30V, I _D =8.2A		47.6	58	nC	
Total Gate Charge (4.5V)				24.2	30		
Gate Source Charge			Q _{gs}		6		
Gate Drain Charge			Q _{gd}		14.4		
Turn-On DelayTime			t _{d(on)}	V _{GS} =10V, V _{DS} =30V, R _L =3.6Ω, R _{GEN} =3Ω			8.2
Turn-On Rise Time	t _r		5.5				
Turn-Off DelayTime	t _{d(off)}		29.7				
Turn-Off Fall Time	t _f		5.2				
Body Diode Reverse Recovery Time	t _{rr}	I _F = 8.2A, di/dt= 100A/μs		34	41	nC	
Body Diode Reverse Recovery Charge	Q _{rr}			53			
Maximum Body-Diode Continuous Current	I _S				3	A	
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V			1	V	

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

■ Marking

Marking	4438 KC****
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N-Channel MOSFET AO4438 (KO4438)

■ Typical Characteristics

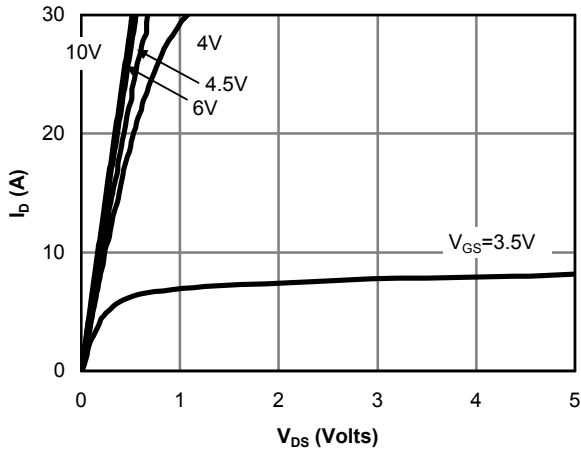


Fig 1: On-Region Characteristics

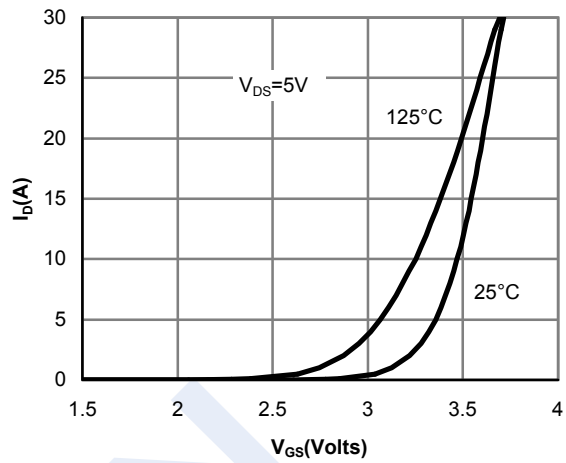


Figure 2: Transfer Characteristics

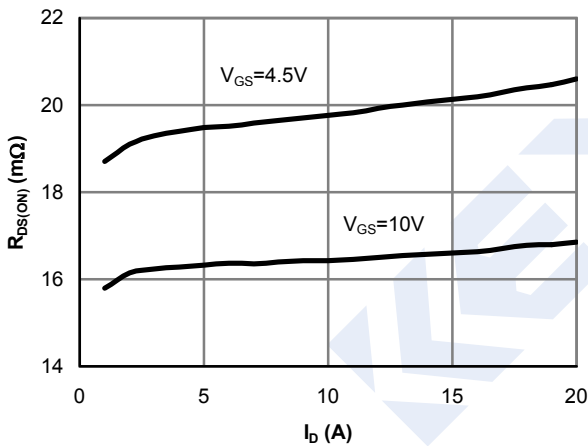


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

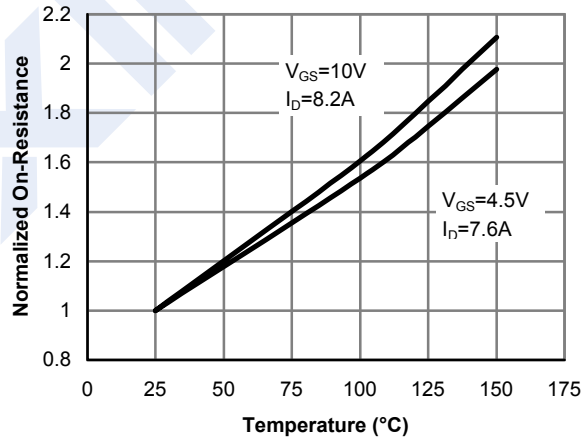


Figure 4: On-Resistance vs. Junction Temperature

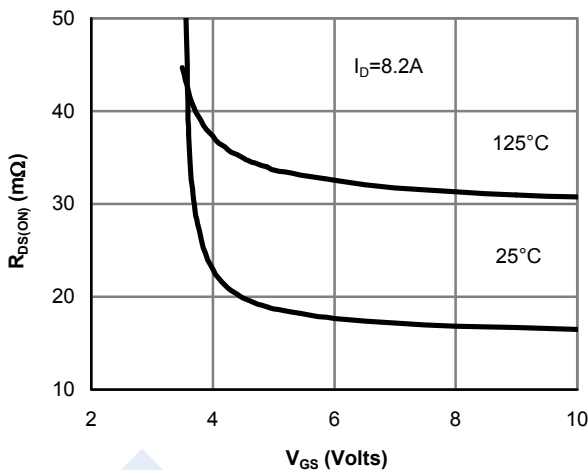


Figure 5: On-Resistance vs. Gate-Source Voltage

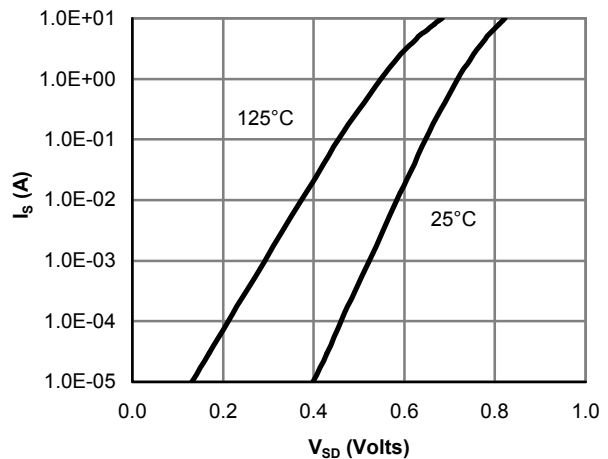


Figure 6: Body-Diode Characteristics

N-Channel MOSFET AO4438 (KO4438)

■ Typical Characteristics

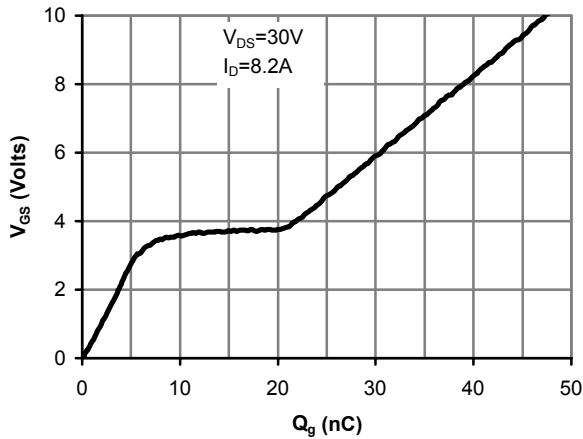


Figure 7: Gate-Charge Characteristics

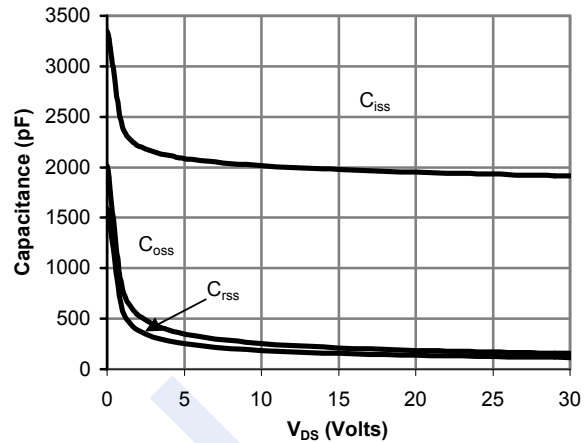


Figure 8: Capacitance Characteristics

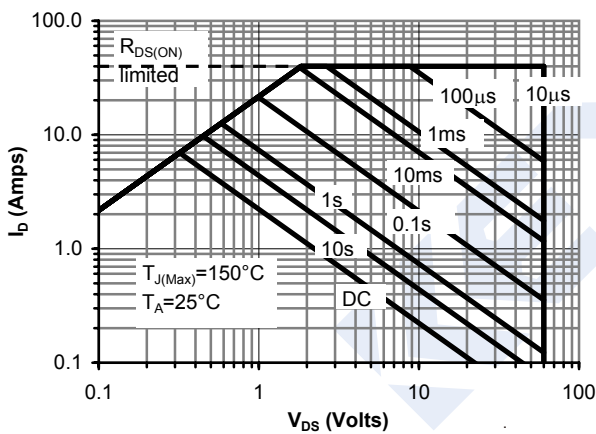


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

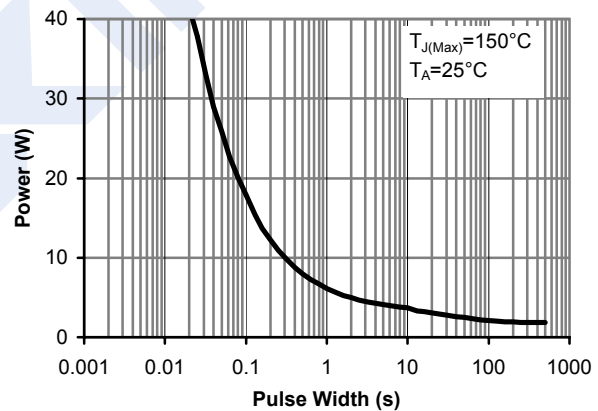


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

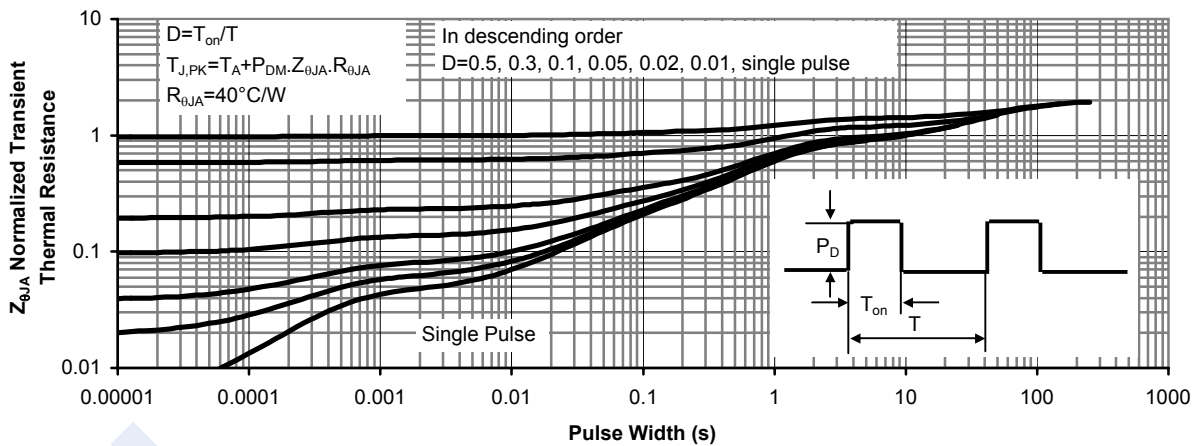


Figure 11: Normalized Maximum Transient Thermal Impedance