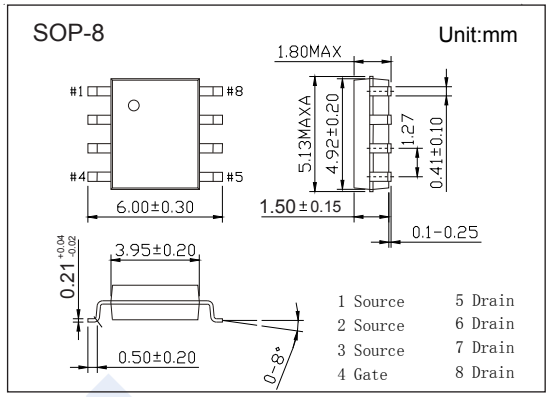
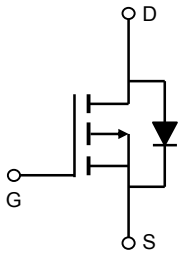
P-Channel MOSFET

AO4485 (KO4485)



■ Features

- $V_{DS\ (V)}$ =-40V
- I_D =-10 A (V_{GS} =-10V)
- $R_{DS(ON)}$ < 15mΩ (V_{GS} =-10V)
- $R_{DS(ON)}$ < 20mΩ (V_{GS} =-4.5V)



■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	10 Sec	Steady State	Unit
Drain-Source Voltage		V_{DS}	-40		V
Gate-Source Voltage		V_{GS}	±20		
Continuous Drain Current	T_A=25°C	I_D	-12	-10	A
	T_A=70°C		-9	-8	
Pulsed Drain Current		I_{DM}	-120		
Avalanche Current		I_{AR}	-28		
Repetitive avalanche energy	L=0.3mH	E_{AR}	118		mJ
Power Dissipation	T_A=25°C	P_D	3.1	1.7	W
	T_A=70°C		2	1.1	
Thermal Resistance.Junction- to-Ambient		R_{thJA}	40	75	℃/W
Thermal Resistance.Junction- to-Case		R_{thJC}	-	24	
Junction Temperature		T_J	150		℃
Junction 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	-40			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-40V, V_{GS}=0V			-1	μA
		V_{DS}=-40V, V_{GS}=0V, T_J=55℃			-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=-250μA	-1.7		-2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-10A			15	mΩ
		V_{GS}=-10V, I_D=-10A T_J=125℃			23	
		V_{GS}=-4.5V, I_D=-8A			20	
On state drain current	$I_{D(ON)}$	V_{GS}=-10V, V_{DS}=-5V	-120			A
Forward Transconductance	g_{FS}	V_{DS}=-5V, I_D=-10A		25		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-20V, f=1MHz		2500	3000	pF
Output Capacitance	C_{oss}			260		
Reverse Transfer Capacitance	C_{rss}			180		
Gate resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz	2.5		6	Ω
Total Gate Charge (10V)	Q_g	V_{GS}=-10V, V_{DS}=-20V, I_D=-10A		42	55	nC
Total Gate Charge (4.5V)				18.6		
Gate Source Charge	Q_{gs}			7		
Gate Drain Charge	Q_{gd}			8.6		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=-10V, V_{DS}=-20V, R_L= 2Ω, R_{GEN}=3Ω		9.4		ns
Turn-On Rise Time	t_r			20		
Turn-Off DelayTime	$t_{d(off)}$			55		
Turn-Off Fall Time	t_f			30		
Body Diode Reverse Recovery Time	t_{rr}	I_F=-10A, dI/dt=100A/us		38	49	
Body Diode Reverse Recovery Charge	Q_{rr}			47		nC
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 t ⩽ 300us pulses, duty cycle 0.5% max.

■ Marking

Marking	4485 KC****

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■ Typical Characterisitics

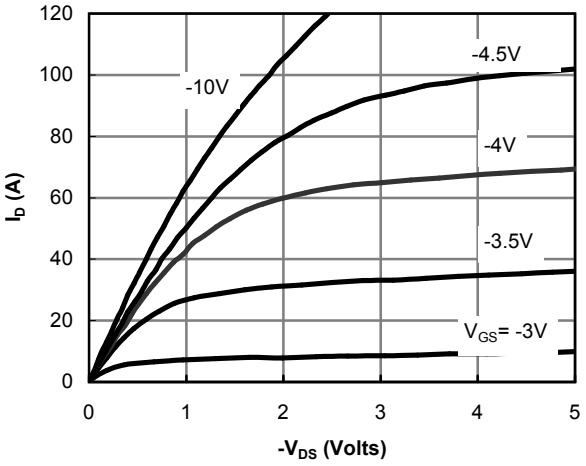

Figure 1: On-Region Characteristics

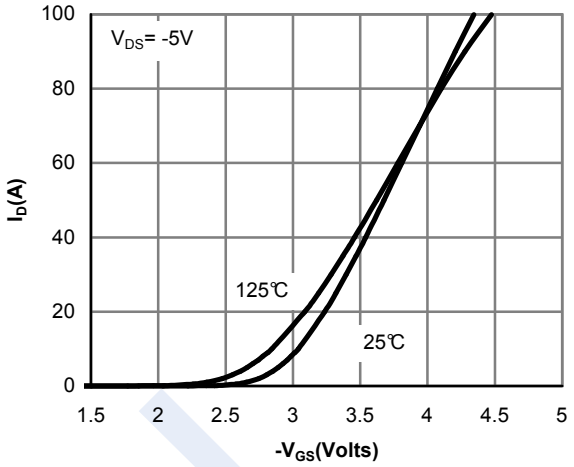

Figure 2: Transfer Characteristics

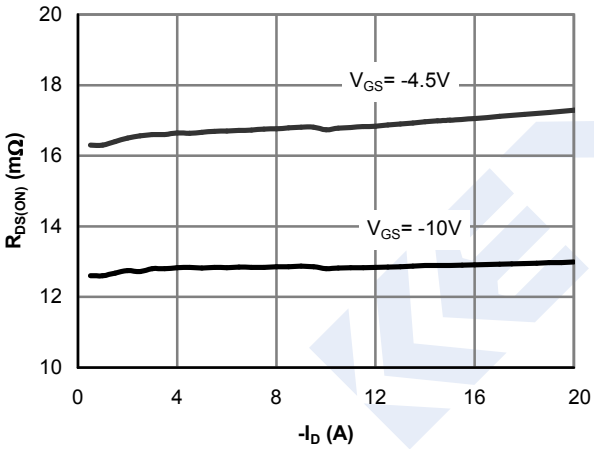

Figure 3: On-Resistance vs. Drain Current and Gate Voltage

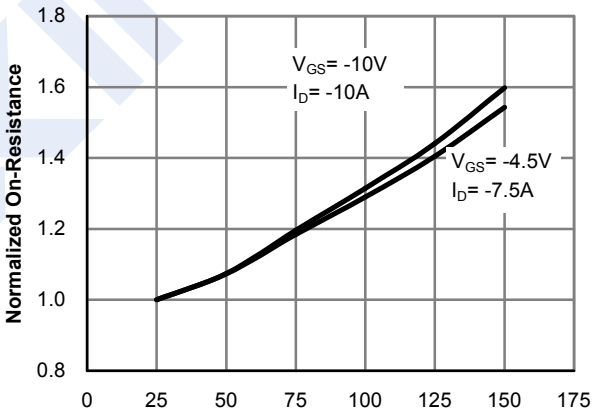

Figure 4: On-Resistance vs. Junction Temperature

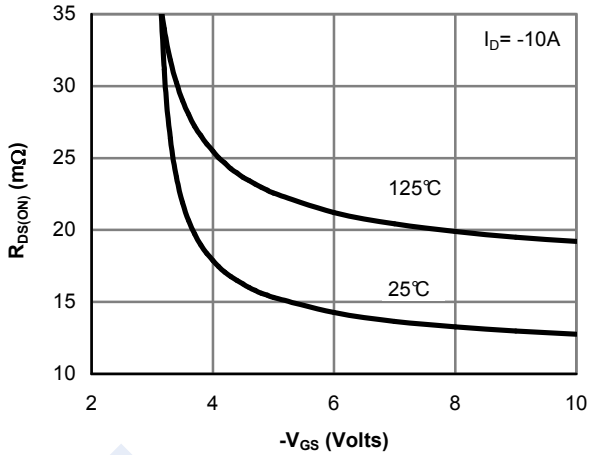

Figure 5: On-Resistance vs. Gate-Source Voltage

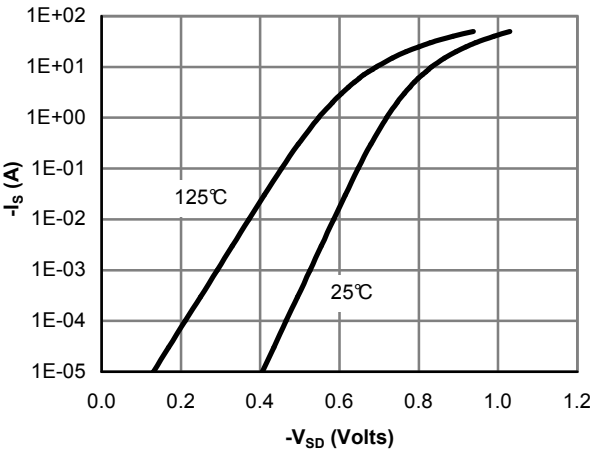

Figure 6: Body-Diode Characteristics

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■ Typical Characterisitics

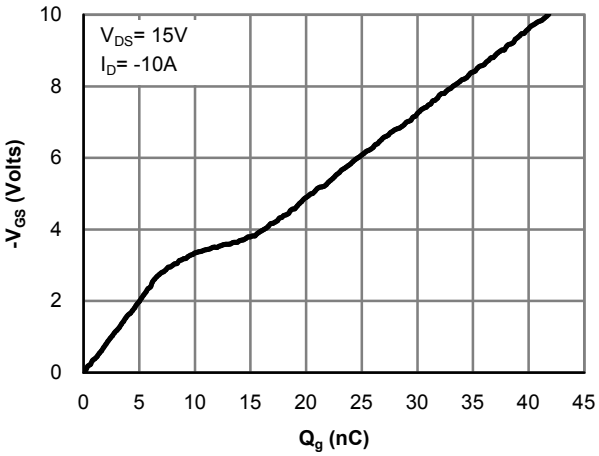

Figure 7: Gate-Charge Characteristics

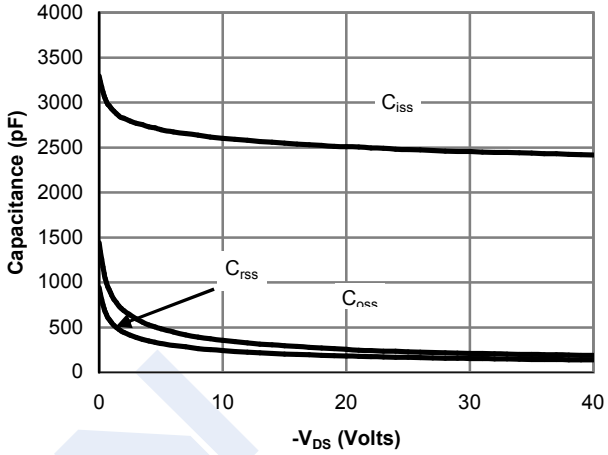

Figure 8: Capacitance Characteristics

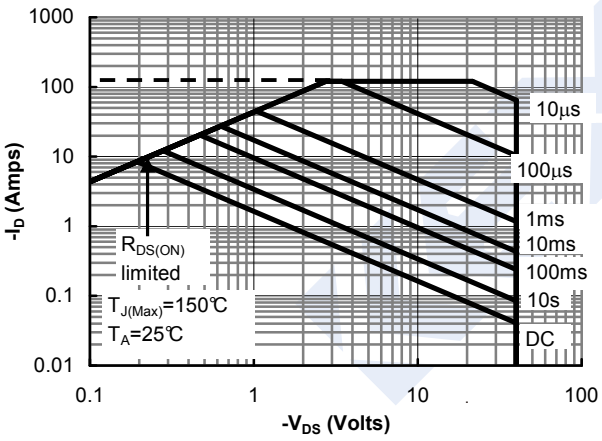

Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

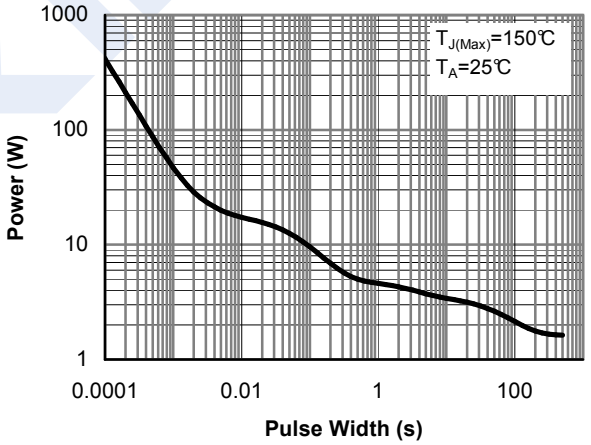

Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

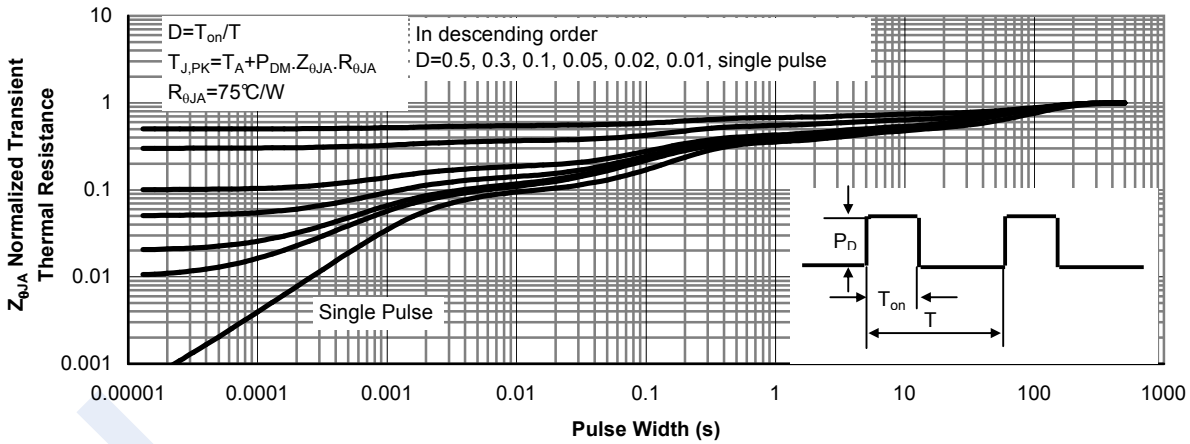

Figure 11: Normalized Maximum Transient Thermal Impedance(Note E)