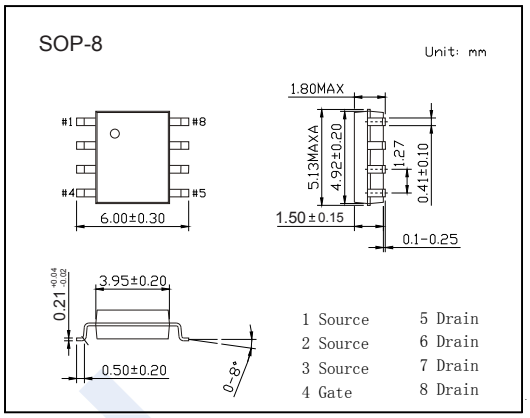
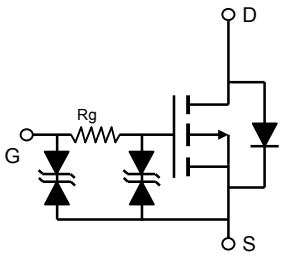
P-Channel MOSFET

AO4447A (KO4447A)



■ Features

- $V_{DS\ (V)}$ =-30V
- I_D =-17 A (V_{GS} =-10V)
- $R_{DS(ON)}$ < 7mΩ (V_{GS} =-10V)
- $R_{DS(ON)}$ < 8mΩ (V_{GS} =-4.5V)
- $R_{DS(ON)}$ < 9mΩ (V_{GS} =-4V)
- ESD Rating: 2000V HBM



■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current	T_A=25°C	I_D	-17	A
	T_A=70°C		-13	
Pulsed Drain Current		I_{DM}	-160	
Power Dissipation	T_A=25°C	P_D	3.1	W
	T_A=70°C		2	
Thermal Resistance.Junction- to-Ambient	t ⩽ 10s	R_{thJA}	40	℃/W
	Steady-State		75	
Thermal Resistance.Junction- to-Lead		R_{thJL}	24	
Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{stg}	-55 to 150	

P-Channel MOSFET

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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}=-30V, V_{GS}=0V			-1	uA
		V_{DS}=-30V, V_{GS}=0V, T_J=55℃			-5	
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±16V			±10	uA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250uA	-0.8		-1.6	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-17A			7	mΩ
		V_{GS}=-10V, I_D=-17A T_J=125℃			8.5	
		V_{GS}=-4.5V, I_D=-15A			8	
		V_{GS}=-4V, I_D=-13A			9	
On state drain current	$I_{D(ON)}$	V_{GS}=-10V, V_{DS}=-5V	-160			A
Forward Transconductance	g_{FS}	V_{DS}=-5V, I_D=-17A		70		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-15V, f=1MHz		4580	5500	pF
Output Capacitance	C_{oss}			755		
Reverse Transfer Capacitance	C_{rss}			564		
Gate resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz		160	210	Ω
Total Gate Charge (10V)	Q_g	V_{GS}=-10V, V_{DS}=-15V, I_D=-17A		87	105	nC
Total Gate Charge (4.5V)				41		
Gate Source Charge	Q_{gs}			12.8		
Gate Drain Charge	Q_{gd}			17		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=-10V, V_{DS}=-15V, R_L=0.9Ω, R_{GEN}=3Ω		180		ns
Turn-On Rise Time	t_r			260		
Turn-Off DelayTime	$t_{d(off)}$			1200		
Turn-Off Fall Time	t_f			9700		
Body Diode Reverse Recovery Time	t_{rr}	I_F=-17A, dI/dt=300A/us		32	40	
Body Diode Reverse Recovery Charge	Q_{rr}			77		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 <300us pulses, duty cycle 0.5% max.

■ Marking

Marking	4447A KC****

P-Channel MOSFET

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■ Typical Characterisitics

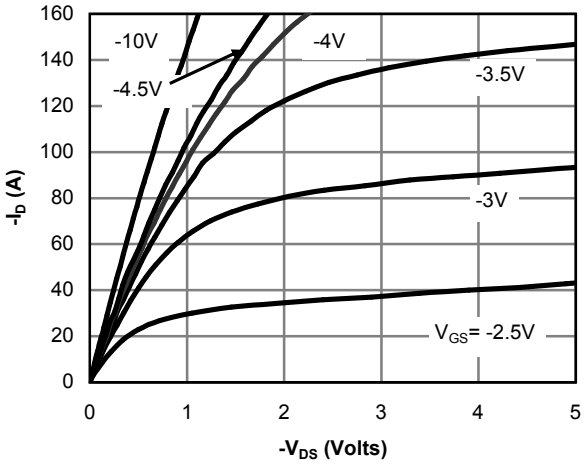

Figure 1: On-Region Characteristics(Note E)

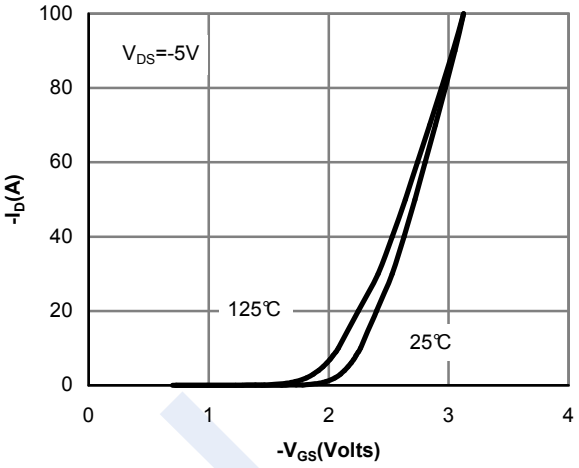

Figure 2: Transfer Characteristics(Note E)

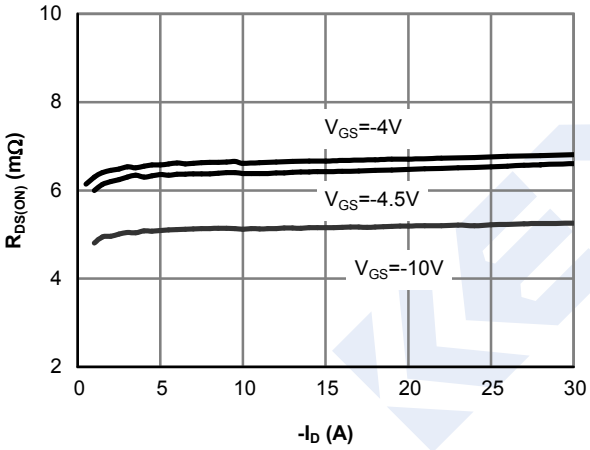

Figure 3: On-Resistance vs. Drain Current and Gate Voltage(Note E)

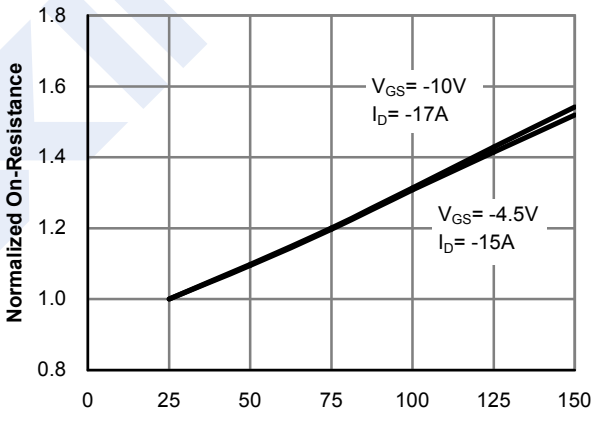

Figure 4: On-Resistance vs. Junction Temperature(Note E)

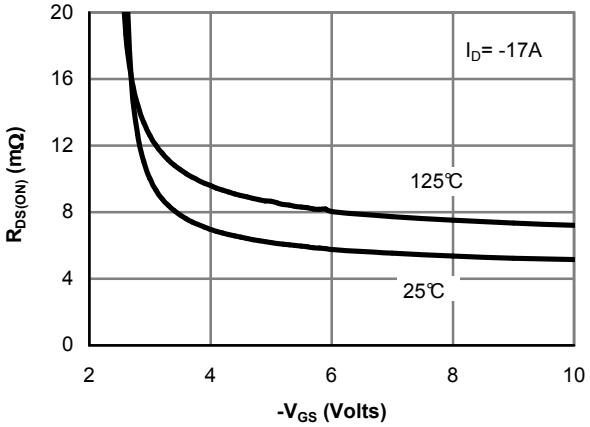

Figure 5: On-Resistance vs. Gate-Source Voltage(Note E)

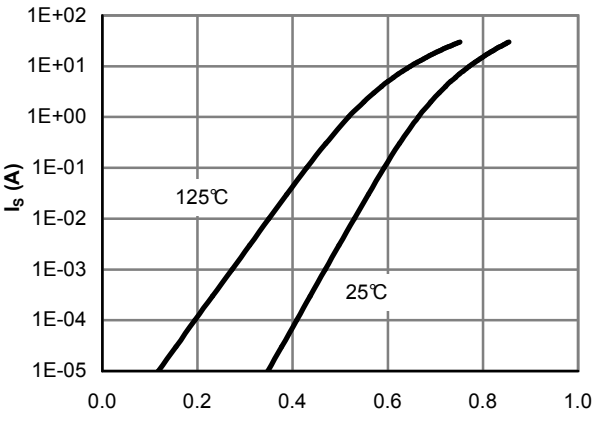

Figure 6: Body-Diode Characteristics(Note E)

P-Channel MOSFET

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■ Typical Characterisitics

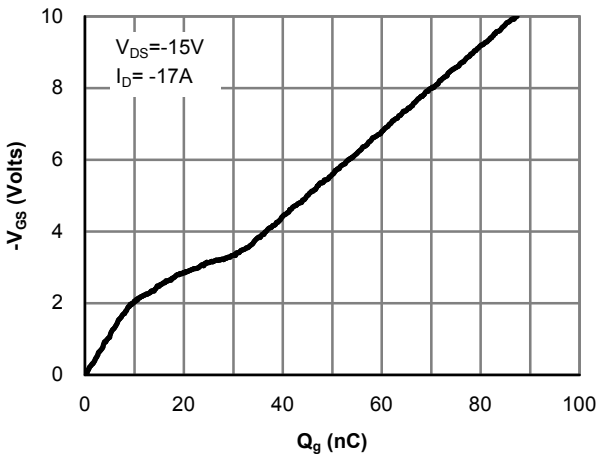

Figure 7: Gate-Charge Characteristics

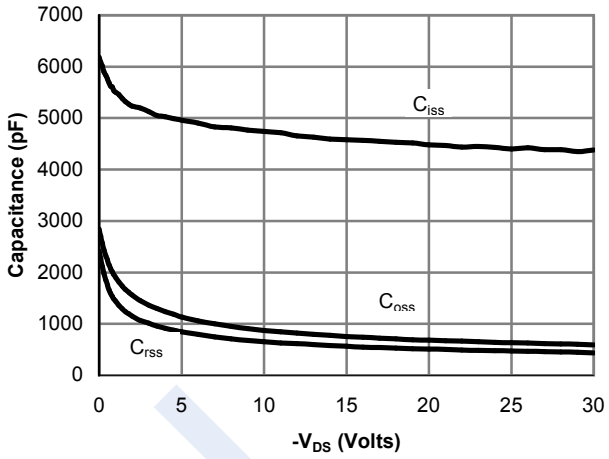

Figure 8: Capacitance Characteristics

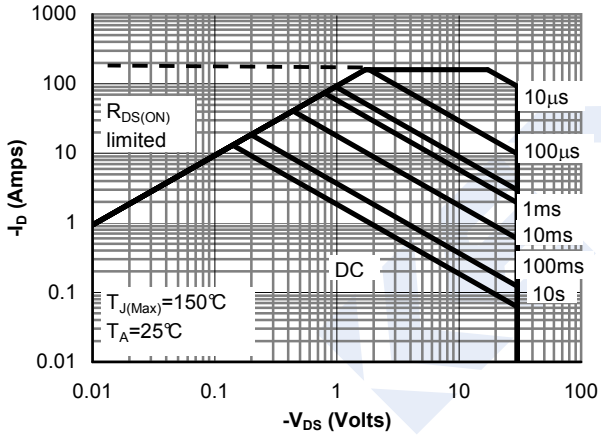

Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

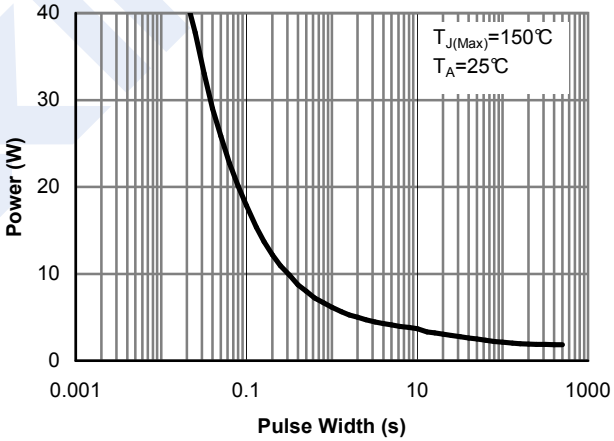

Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note F)

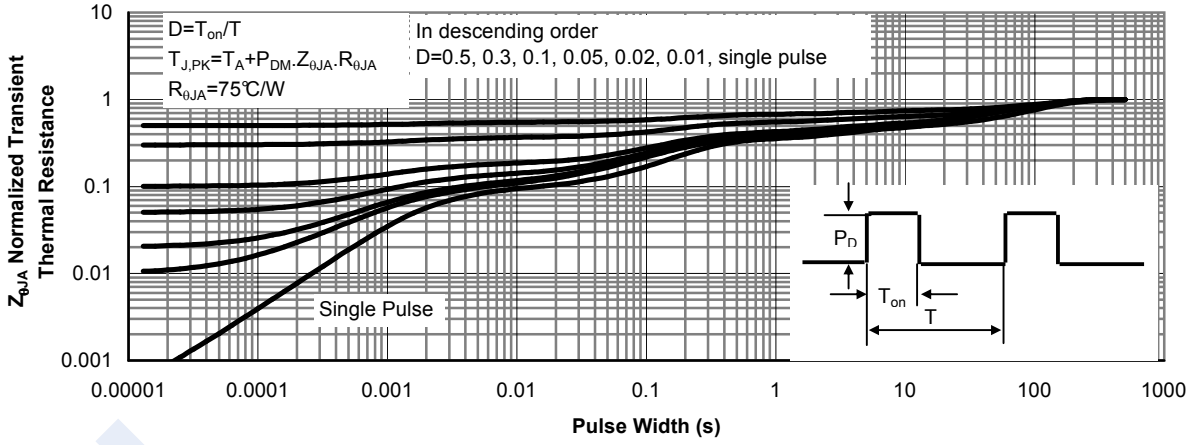

Figure 11: Normalized Maximum Transient Thermal Impedance(Note F)