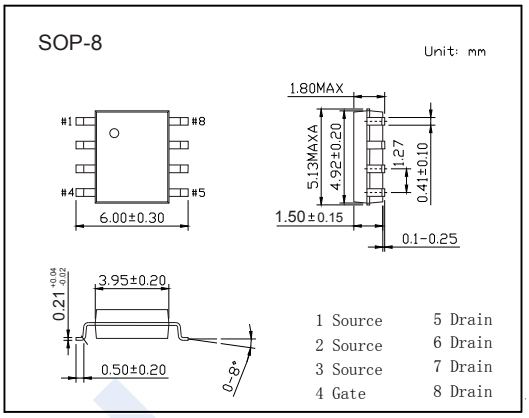
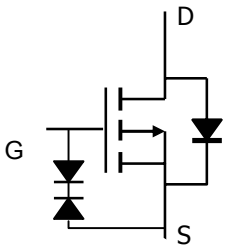
P-Channel MOSFET

AO4437 (KO4437)



■ Features

- $V_{DS\ (V)}$ =-12V
- I_D =-11 A (V_{GS} =-4.5V)
- $R_{DS(ON)}$ < 16mΩ (V_{GS} =-4.5V)
- $R_{DS(ON)}$ < 20mΩ (V_{GS} =-2.5V)
- $R_{DS(ON)}$ < 25mΩ (V_{GS} =-1.8V)
- ESD Rating: 4KV HBM



■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-12	V
Gate-Source Voltage		V_{GS}	±8	
Continuous Drain Current	T_A=25°C	I_D	-11	A
	T_A=70°C		-9	
Pulsed Drain Current		I_{DM}	-20	
Power Dissipation	T_A=25°C	P_D	3	W
	T_A=70°C		2.1	
Thermal Resistance.Junction- to-Ambient	t ⩽ 10s	R_{thJA}	40	℃/W
	Steady-State		75	
Thermal Resistance.Junction- to-Lead		R_{thJL}	30	
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	-12			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-9.6V, V_{GS}=0V			-1	uA
		V_{DS}=-9.6V, V_{GS}=0V, T_J=55℃			-5	
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±4.5V			±1	uA
		V_{DS}=0V, V_{GS}=±8V			±10	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-0.3		-1	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-11A			16	mΩ
		V_{GS}=-4.5V, I_D=-11A T_J=125℃			21	
		V_{GS}=-2.5V, I_D=-10A			20	
		V_{GS}=-1.8V, I_D=-6A			25	
On state drain current	$I_{D(ON)}$	V_{GS}=-4.5V, V_{DS}=-5V	-20			A
Forward Transconductance	g_{FS}	V_{DS}=-5V, I_D=-11A		38		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-6V, f=1MHz		3960	4750	pF
Output Capacitance	C_{oss}			910		
Reverse Transfer Capacitance	C_{rss}			757		
Gate resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz		6.9	8.5	Ω
Total Gate Charge	Q_g	V_{GS}=-4.5V, V_{DS}=-6V, I_D=-11A		37	47	nC
Gate Source Charge	Q_{gs}			4.5		
Gate Drain Charge	Q_{gd}			11		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=-4.5V, V_{DS}=-6V, R_L=0.55Ω, R_{GEN}=3Ω		15		ns
Turn-On Rise Time	t_r			43		
Turn-Off DelayTime	$t_{d(off)}$			158		
Turn-Off Fall Time	t_f			95		
Body Diode Reverse Recovery Time	t_{rr}	I_F=-11A, dI/dt=100A/us		64		
Body Diode Reverse Recovery Charge	Q_{rr}			50		nC
Maximum Body-Diode Continuous Current	I_S				-4.5	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 <300 μs pulses, duty cycle 0.5% max.

■ Marking

Marking	4437 KC****

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■ Typical Characterisitics

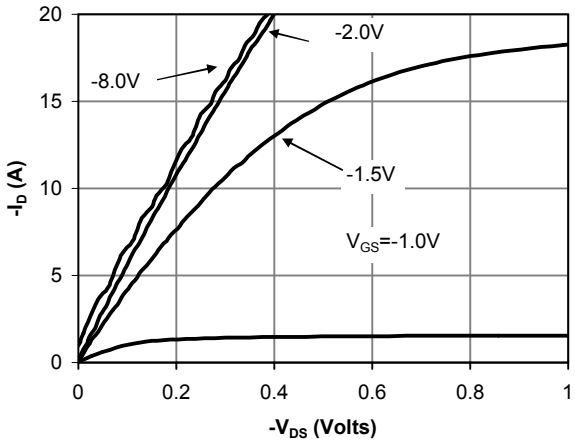

Fig 1: On-Region Characteristics

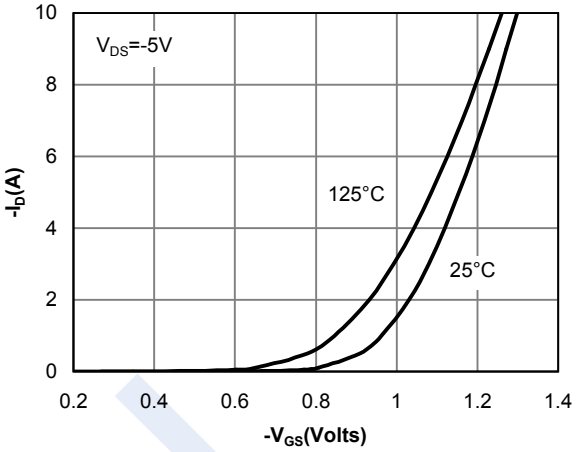

Figure 2: Transfer Characteristics

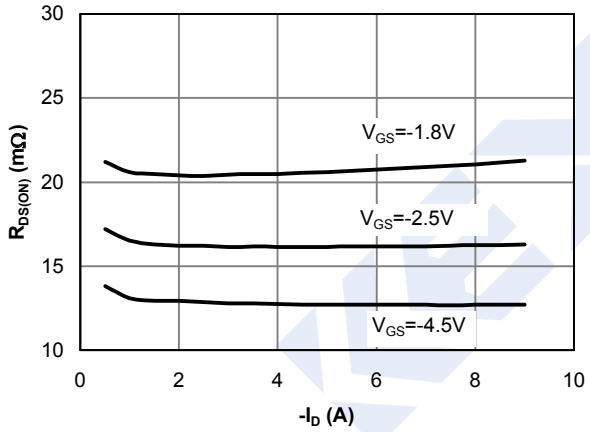

Figure 3: On-Resistance vs. Drain Current and Gate Voltage

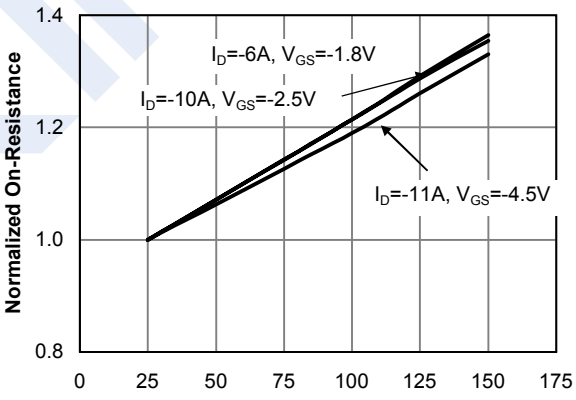

Figure 4: On-Resistance vs. Junction Temperature

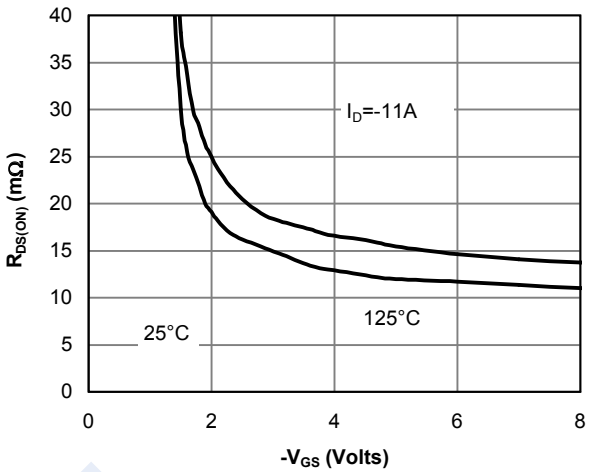

Figure 5: On-Resistance vs. Gate-Source Voltage

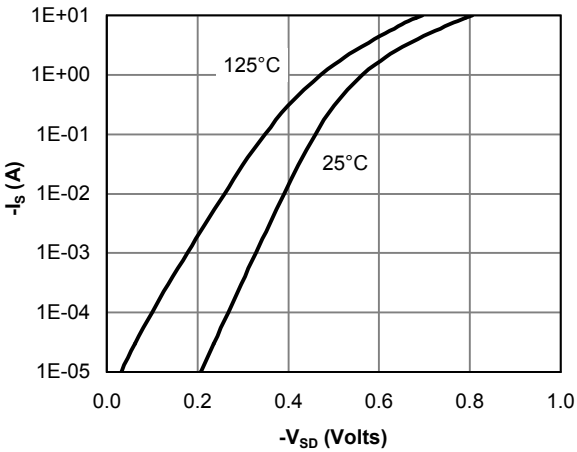

Figure 6: Body-Diode Characteristics

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■ Typical Characterisitics

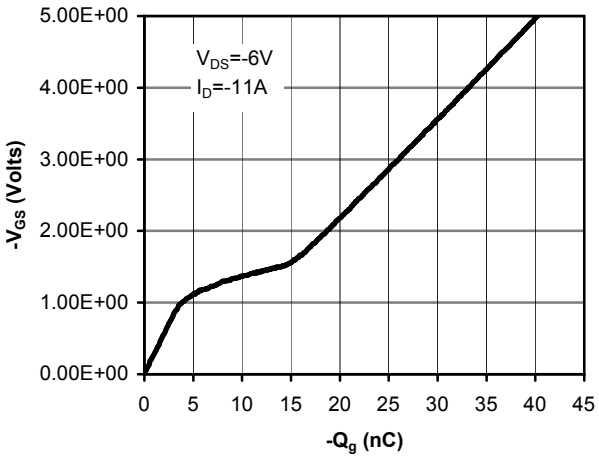

Figure 7: Gate-Charge Characteristics

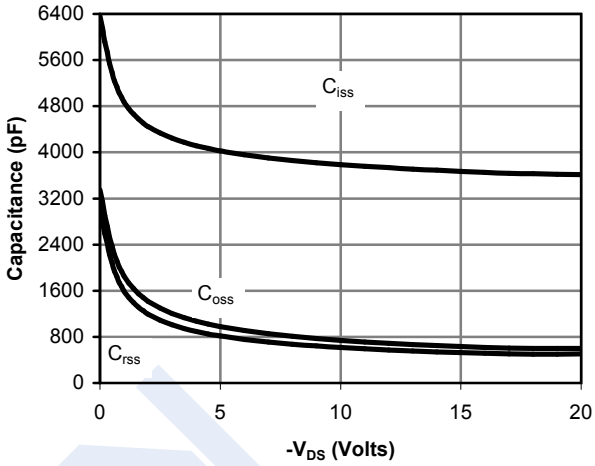

Figure 8: Capacitance Characteristics

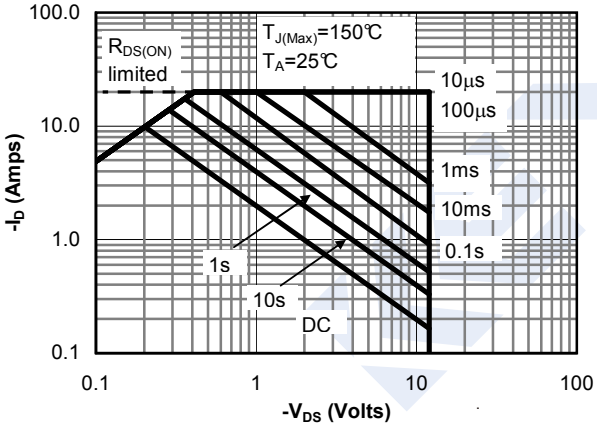

Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

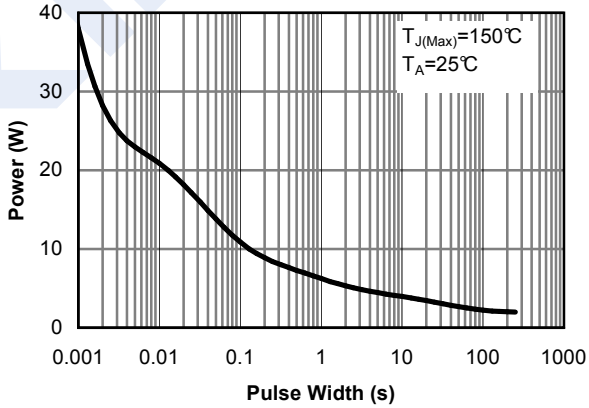

Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

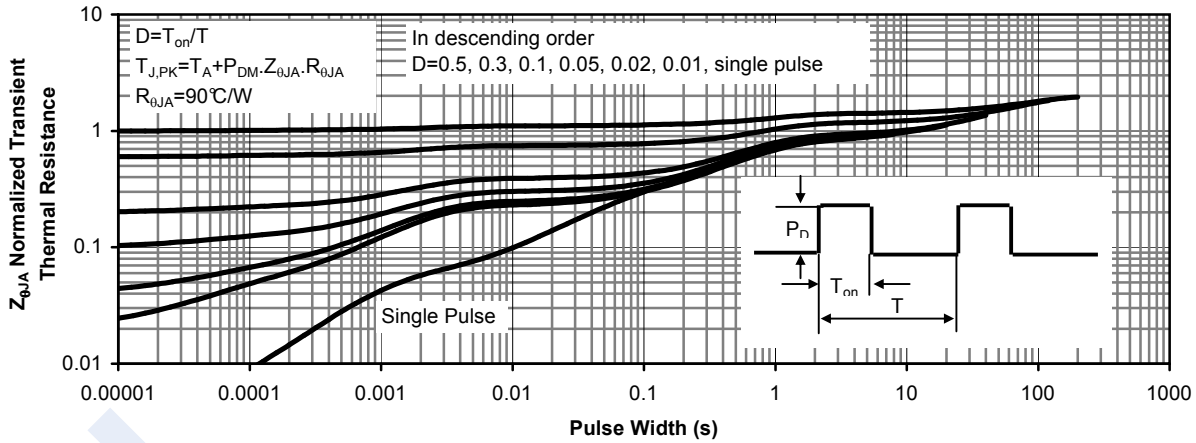

Figure 11: Normalized Maximum Transient Thermal Impedance