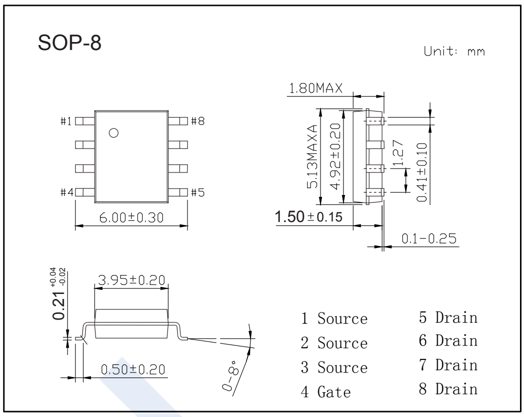
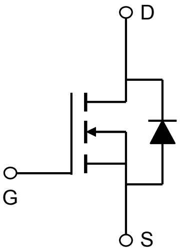
N-Channel MOSFET

AO4448 (KO4448)



■ Features

- ● V_{DS} (V) = 80V
- ● I_D = 10 A (V_{GS} = 10V)
- ● $R_{DS(ON)} < 16m\Omega$ (V_{GS} = 10V)
- ● $R_{DS(ON)} < 20m\Omega$ (V_{GS} = 7V)



■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	80	V
Gate-Source Voltage		V_{GS}	±25	
Continuous Drain Current	T_A=25℃	I_D	10	A
	T_A=70℃		8	
Pulsed Drain Current		I_{DM}	70	
Avalanche Current		I_{AS},I_{AR}	45	
Avalanche Energy	L=0.1mH	E_{AS},E_{AR}	101	mJ
Power Dissipation	T_A=25℃	P_D	3.1	W
	T_A=70℃		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	

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250uA, V_{GS}=0V	80			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=80V, V_{GS}=0V			10	uA
		V_{DS}=80V, V_{GS}=0V, T_J=55℃			50	
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±25V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} , I_D=250uA	2.8		4.2	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=10A			16	mΩ
		V_{GS}=10V, I_D=10A T_J=125℃			28.5	
		V_{GS}=7V, I_D=8A			20	
On State Drain Current	$I_{D(ON)}$	V_{GS}=10V, V_{DS}=5V	70			A
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=10A		23		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=40V, f=1MHz	1335		2005	pF
Output Capacitance	C_{oss}		150		280	
Reverse Transfer Capacitance	C_{rss}		40		100	
Gate Resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz	0.35		1.2	Ω
Total Gate Charge	Q_g	V_{GS}=10V, V_{DS}=40V, I_D=10A	22		34	nC
Gate Source Charge	Q_{gs}		8.8		13	
Gate Drain Charge	Q_{gd}		5		11	
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=10V, V_{DS}=40V, R_L=4Ω, R_{GEN}=3Ω		12		ns
Turn-On Rise Time	t_r			9		
Turn-Off DelayTime	$t_{d(off)}$			20		
Turn-Off Fall Time	t_f			8		
Body Diode Reverse Recovery Time	t_{rr}	I_F= 10A, dI/dt= 500A/μs	14.5		27.5	
Body Diode Reverse Recovery Charge	Q_{rr}		45.5		85	nC
Maximum Body-Diode Continuous Current	I_S				4	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	4448 KC****

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■ Typical Characterisitics

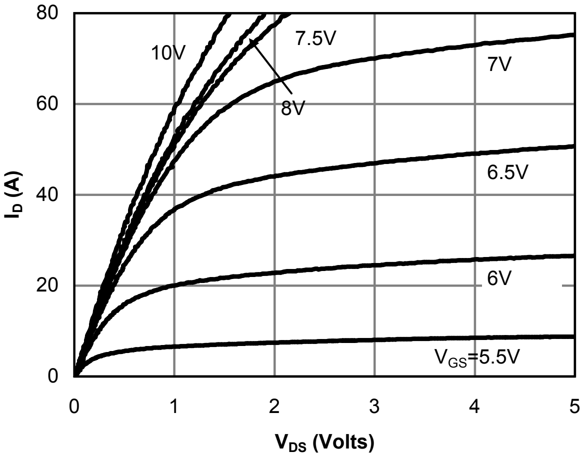

Fig 1: On-Region Characteristics (Note E)

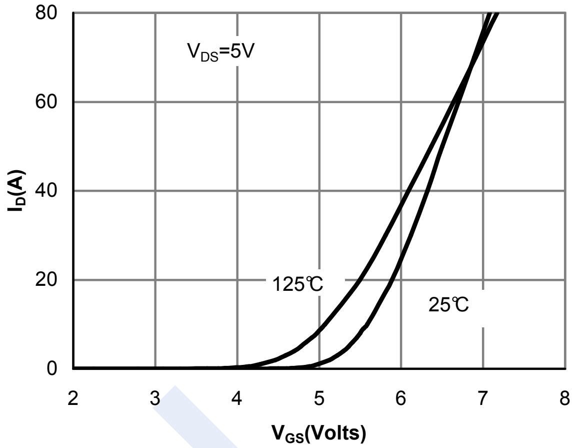

Figure 2: Transfer Characteristics (Note E)

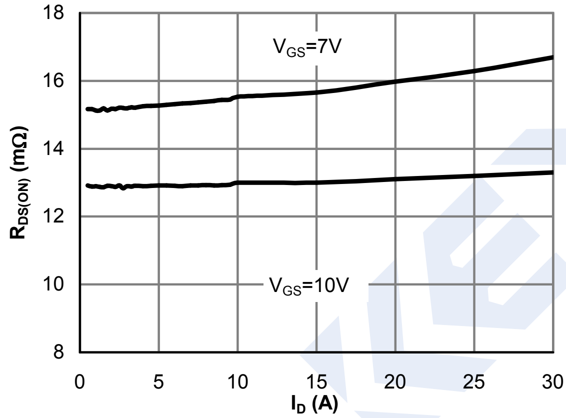

Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

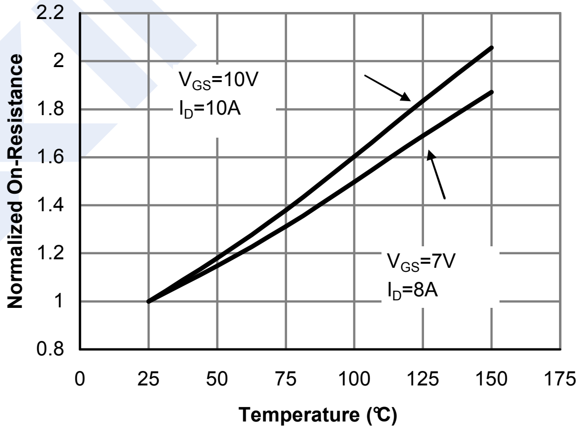

Figure 4: On-Resistance vs. Junction Temperature (Note E)

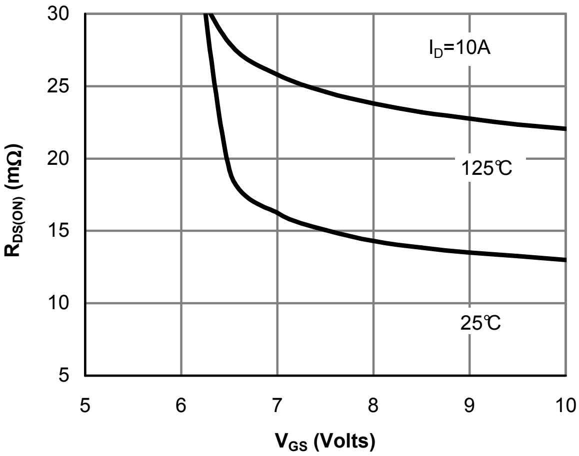

Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

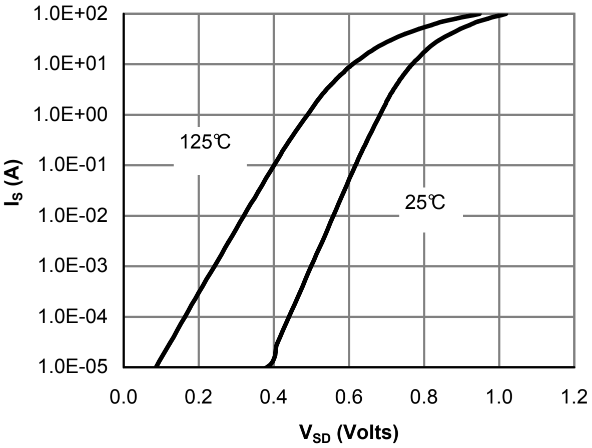

Figure 6: Body-Diode Characteristics (Note E)

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■ Typical Characterisitics

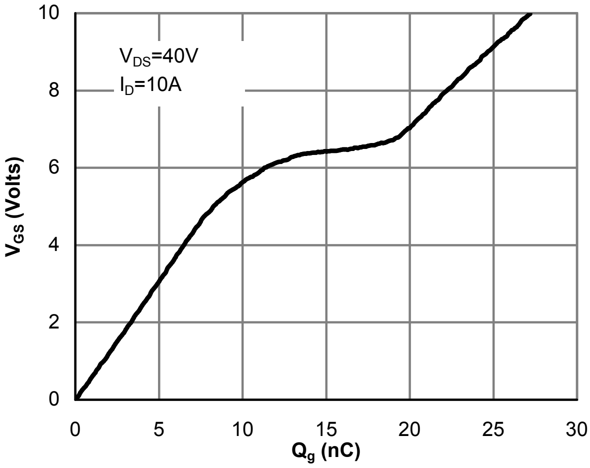

Figure 7: Gate-Charge Characteristics

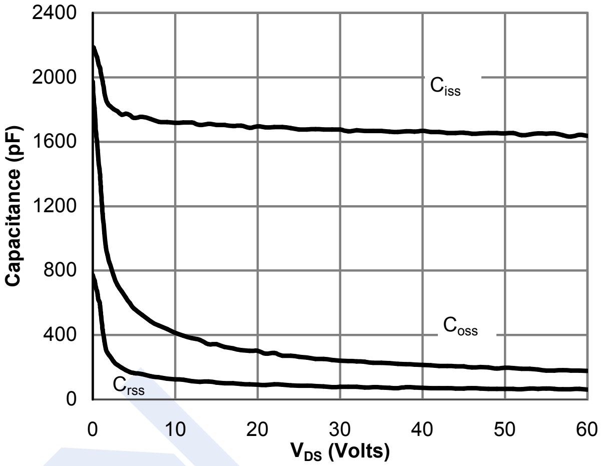

Figure 8: Capacitance Characteristics

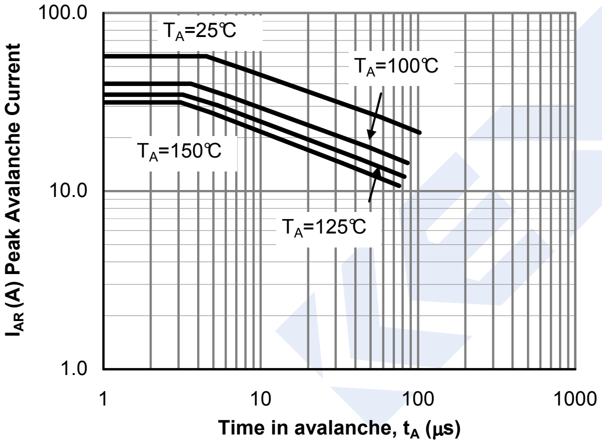

Figure 9: Single Pulse Avalanche capability (Note C)

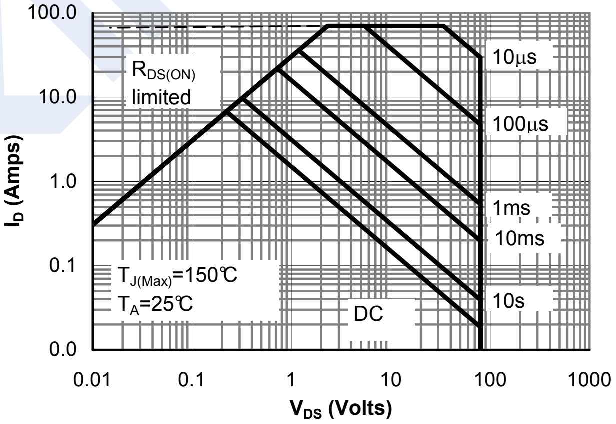

Figure 10: Maximum Forward Biased Safe Operating Area (Note F)

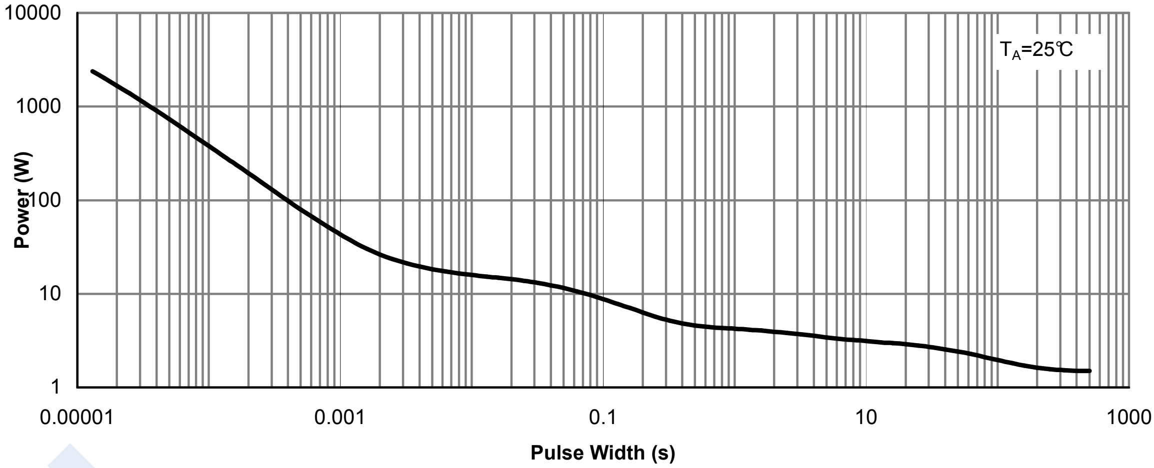

Figure 11: Single Pulse Power Rating Junction-to-Ambient (Note F)

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■ Typical Characterisitics

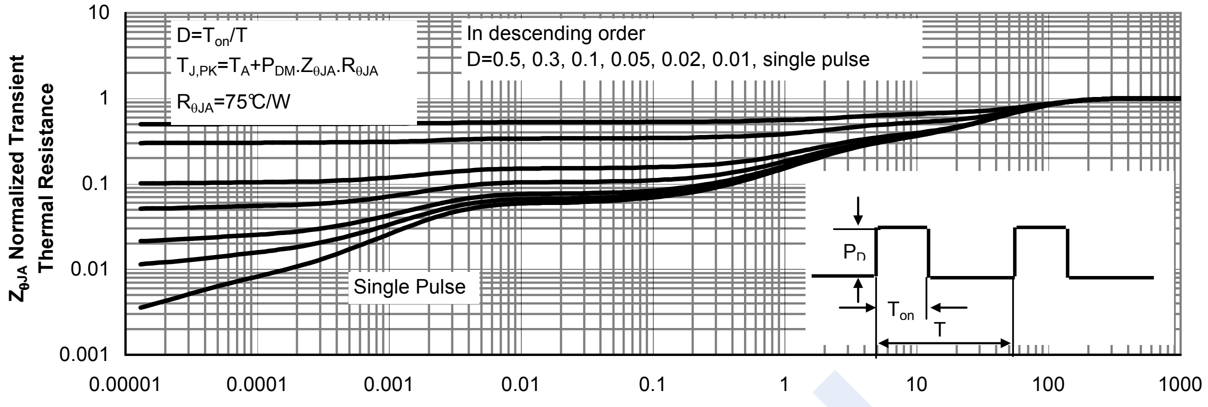

Figure 12: Normalized Maximum Transient Thermal Impedance (Note F)

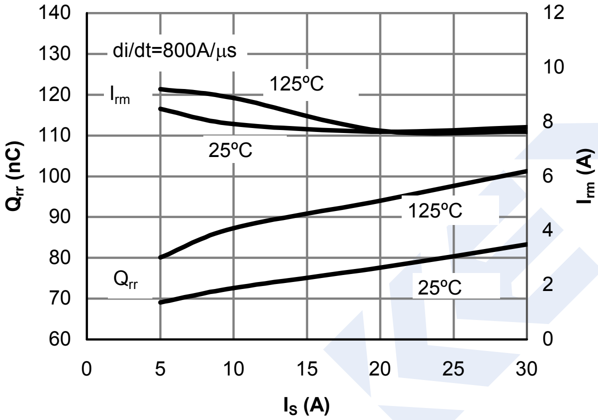

Figure 13: Diode Reverse Recovery Charge and Peak Current vs. Conduction Current

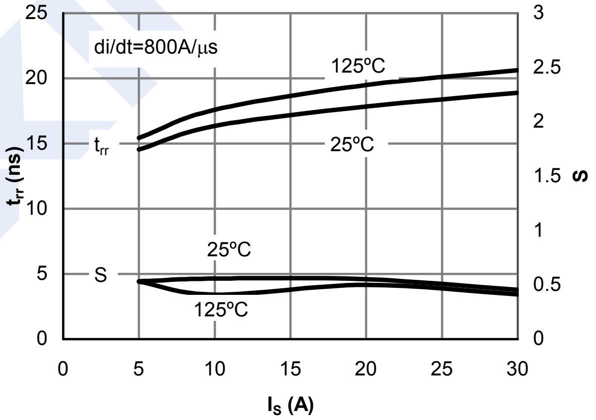

Figure 14: Diode Reverse Recovery Time and Softness Factor vs. Conduction Current

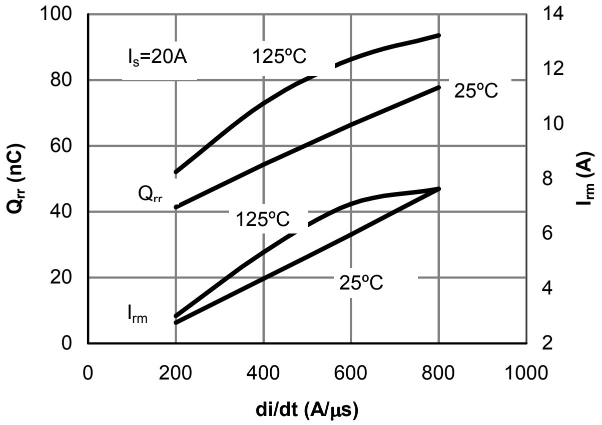

Figure 15: Diode Reverse Recovery Charge and Peak Current vs. di/dt

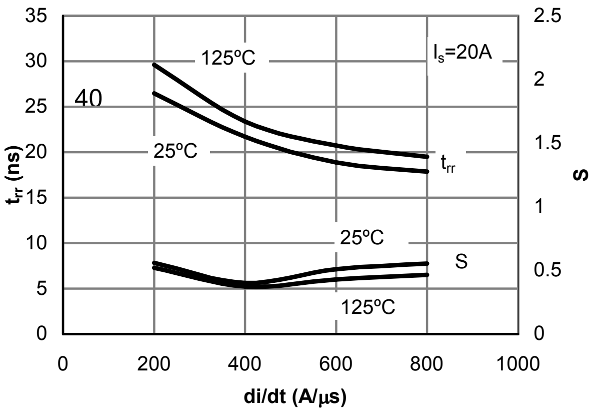

Figure 16: Diode Reverse Recovery Time and Softness Factor vs. di/dt