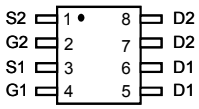
N-Channel Enhancement MOSFET

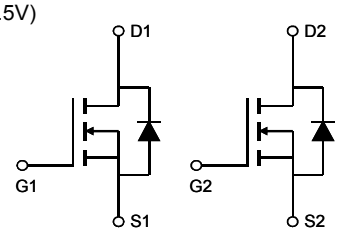
AO4886 (KO4886)

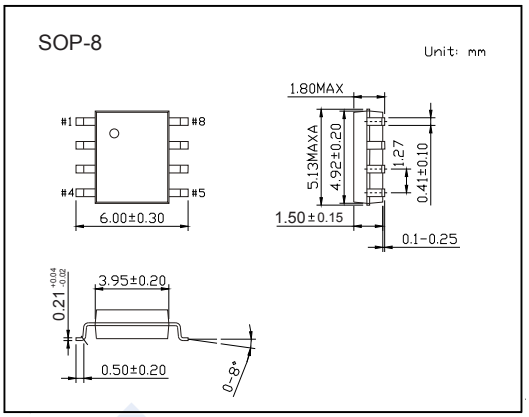
■ Features

- $V_{DS\ (V)}$ = 100V
- I_D = 3.3A (V_{GS} = 10V)
- $R_{DS(ON)}$ < 80mΩ (V_{GS} = 10V)
- $R_{DS(ON)}$ < 91mΩ (V_{GS} = 4.5V)

Top View







■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current	TA=25℃	I_D	3.3	A
	TA=70℃		2.7	
Pulsed Drain Current *1		I_{DM}	17	
Avalanche Current *1		I_{AS},I_{AR}	14	A
Avalanche Energy L=0.1mH *1		E_{AS},E_{AR}	10	mJ
Power Dissipation *2	TA=25℃	P_D	2	W
	TA=70℃		1.28	
Thermal Resistance.Junction- to-Ambient *3	t≤10S	R_{thJA}	62.5	℃/W
	Steady-State *4		90	
Thermal Resistance.Junction- to-Case		R_{thJC}	40	
Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{stg}	-55 to 150	

*1 Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C.

Ratings are based on low frequency and duty cycles to keep initial T_J=25°C.

*2 The power dissipation PD is based on TJ(MAX)=150°C, using ≤ 10s junction-to-ambient thermal resistance.

*3 The value of RqJA is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with TA =25°C.

*4 The RqJA is the sum of the thermal impedence from junction to lead RqJL and lead to ambient.

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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	100			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V, V_{GS}=0V			1	μA
		V_{DS}=100V, 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	1.6	2.2	2.7	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=3A		63.5	80	mΩ
		V_{GS}=10V, I_D=3A T_J=125℃		122	152	
		V_{GS}=4.5V, I_D=3A		70	91	
On State Drain Current	$I_{D(ON)}$	V_{GS}=10V,V_{DS}=5V	17			A
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=3A		20		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=50V, f=1MHz	620	778	942	pF
Output Capacitance	C_{oss}		38	55	81	
Reverse Transfer Capacitance	C_{rss}		13	24	35	
Gate Resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz	0.7	1.45	2.2	Ω
Total Gate Charge (10V)	Q_g	V_{GS}=10V, V_{DS}=50V, I_D=3A	13	16.3	20	nC
Total Gate Charge (4.5V)			6.4	8.1	10	
Gate Source Charge	Q_{gs}		2.2	2.8	3.4	
Gate Drain Charge	Q_{gd}		2.4	4.1	5.8	
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=10V, V_{DS}=50V, R_L=16.7Ω,R_{GEN}=3Ω		6		ns
Turn-On Rise Time	t_r			2.5		
Turn-Off DelayTime	$t_{d(off)}$			21		
Turn-Off Fall Time	t_f			2.4		
Body Diode Reverse Recovery Time	t_{rr}	I_F= 3A, dI/dt= 500A/μs	14	21	28	
Body Diode Reverse Recovery Charge	Q_{rr}	I_F= 3A, dI/dt= 500A/μs	65	94	123	nC
Maximum Body-Diode Continuous Current	I_S				2.5	A
Diode Forward Voltage	V_{SD}	I_S=1A,V_{GS}=0V		0.74	1	V

■ Marking

Marking	4886 KA****

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■ Typical Characterisitics

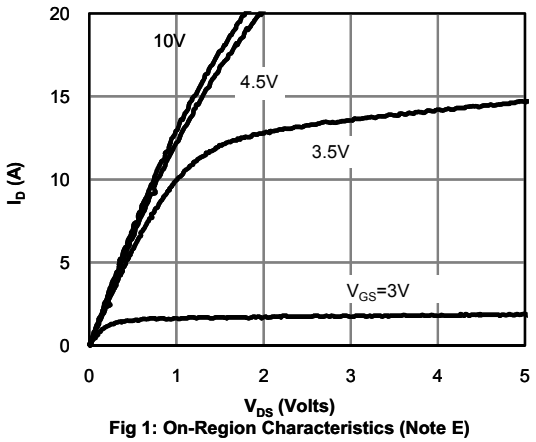

Fig 1: On-Region Characteristics (Note E)

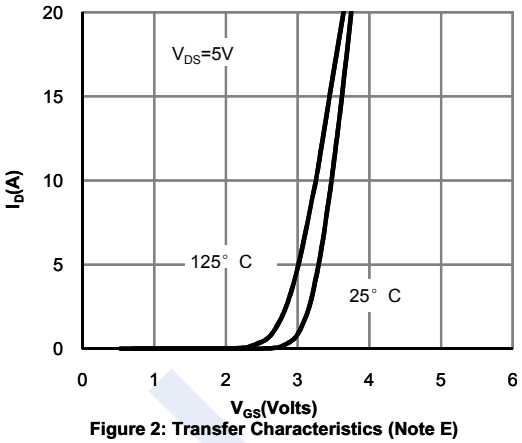

Figure 2: Transfer Characteristics (Note E)

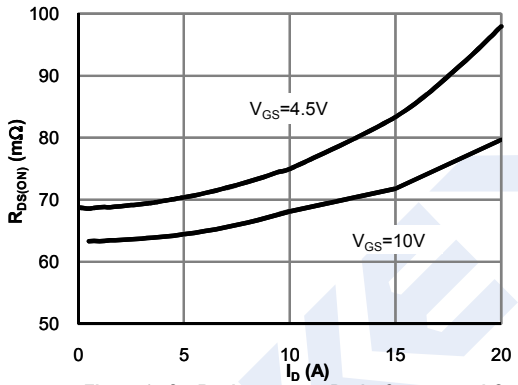

Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

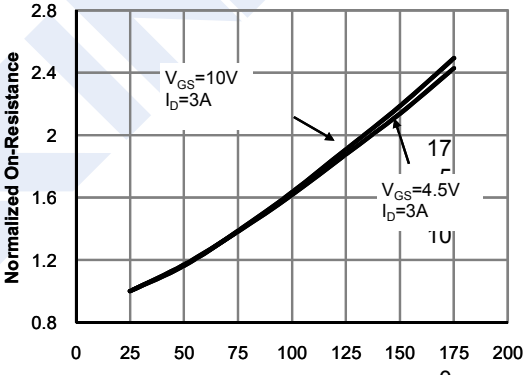

Figure 4: On-Resistance vs. Junction Temperature (Note E)

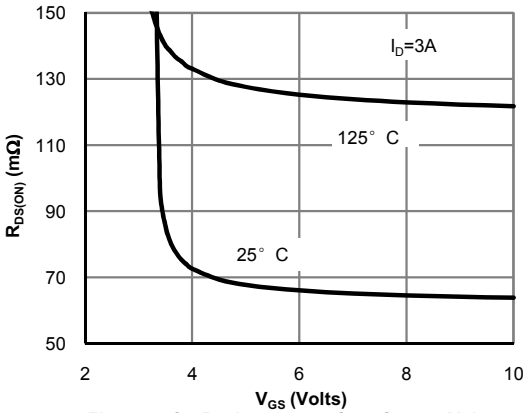

Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

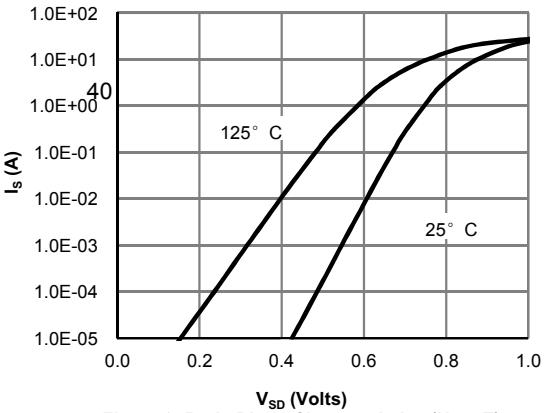

Figure 6: Body-Diode Characteristics (Note E)

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■ Typical Characterisitics

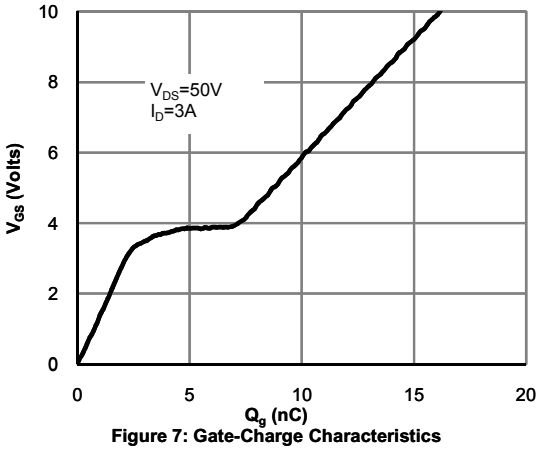

Figure 7: Gate-Charge Characteristics

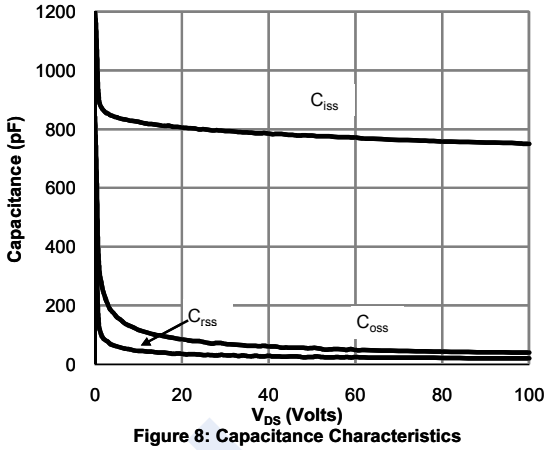

Figure 8: Capacitance Characteristics

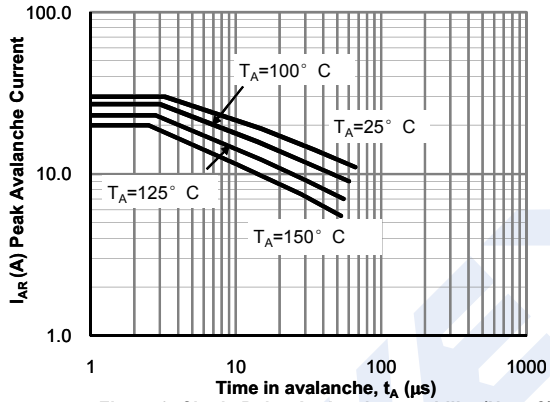

Figure 9: Single Pulse Avalanche capability (Note C)

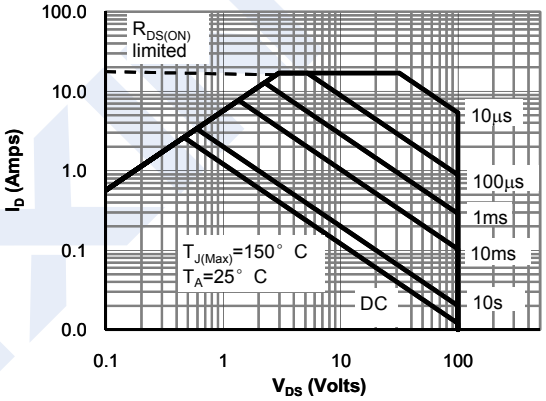

Figure 10: Maximum Forward Biased Safe Operating Area (Note F)

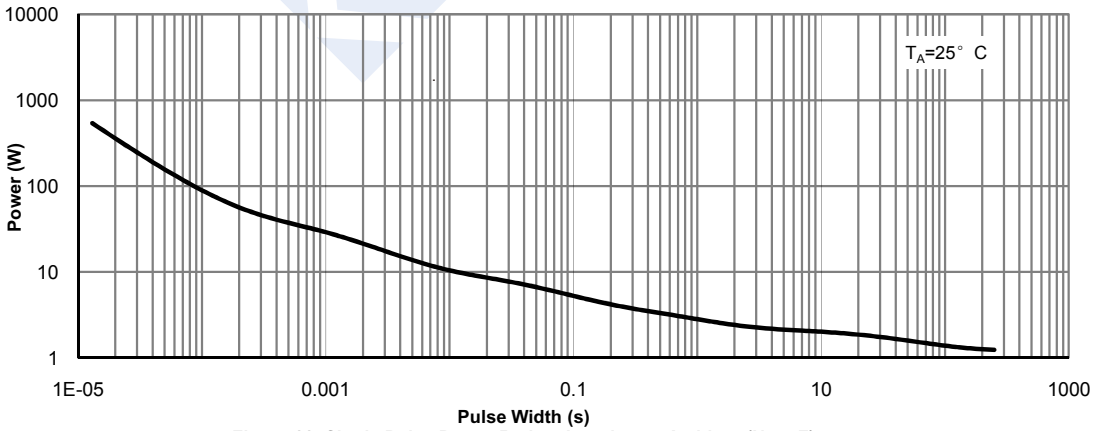

Figure 11: Single Pulse Power Rating Junction-to-Ambient (Note F)

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■ Typical Characterisitics

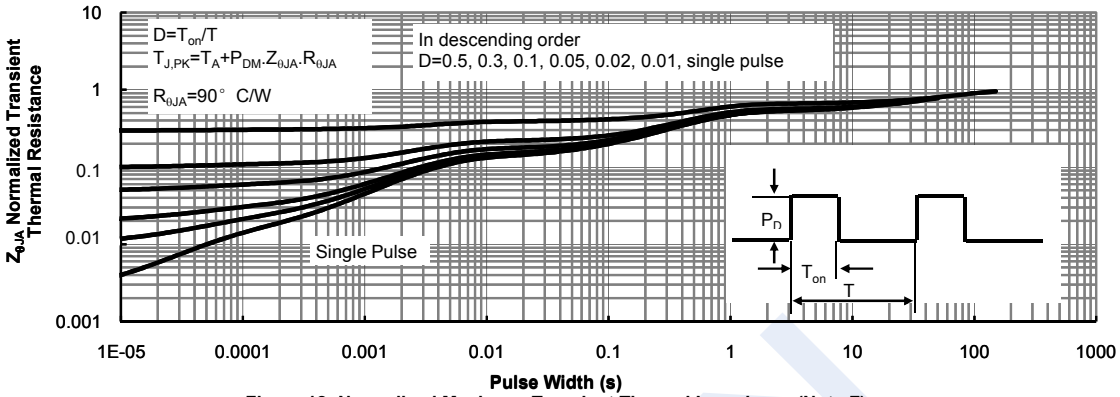

Figure 12: Normalized Maximum Transient Thermal Impedance (Note F)