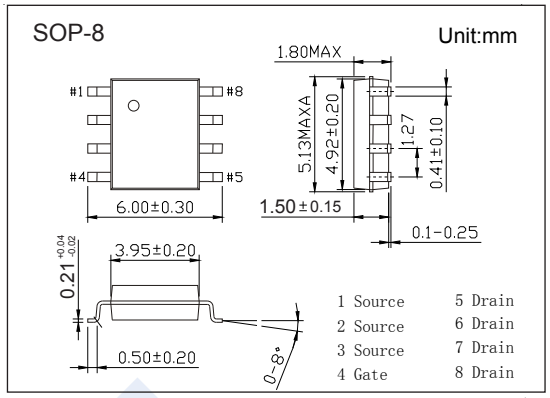
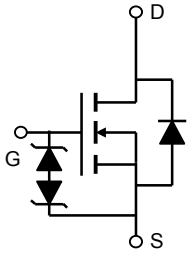
N-Channel MOSFET

AO4488 (KO4488)



■ Features

- $V_{DS\,(V)}$ = 30V
- I_D = 20 A (V_{GS} = 10V)
- $R_{DS(ON)}$ < 4.6mΩ (V_{GS} = 10V)
- $R_{DS(ON)}$ < 6.4mΩ (V_{GS} = 4.5V)
- ESD Rating: 2KV HBM



■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	10 Sec	Steady State	Unit
Drain-Source Voltage		V_{DS}	30		V
Gate-Source Voltage		V_{GS}	±20		
Continuous Drain Current	T_A=25℃	I_D	20	15	A
	T_A=70℃		17	12	
Pulsed Drain Current		I_{DM}	80		
Avalanche Current		I_{AR}	50		
Repetitive Avalanche Energy	L=0.3mH	E_{AR}	375		mJ
Power Dissipation	T_A=25℃	P_D	3.1	1.7	W
	T_A=70℃		2	1.1	
Thermal Resistance.Junction- to-Ambient		R_{thJA}	40	75	℃/W
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=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	1		2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=20A			4.6	mΩ
		V_{GS}=10V, I_D=20A T_J=125℃			6.5	
		V_{GS}=4.5V, I_D=18A			6.4	
On State Drain Current	$I_{D(ON)}$	V_{GS}=10V, V_{DS}=5V	80			A
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=20A		72		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=15V, f=1MHz		5450	6800	pF
Output Capacitance	C_{oss}			760		
Reverse Transfer Capacitance	C_{rss}			540		
Gate Resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz		1	1.5	Ω
Total Gate Charge (10V)	Q_g	V_{GS}=10V, V_{DS}=15V, I_D=20A		84	112	nC
Total Gate Charge (4.5V)				42	56	
Gate Source Charge	Q_{gs}			12		
Gate Drain Charge	Q_{gd}			21		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=10V, V_{DS}=15V, R_L=0.75Ω, R_{GEN}=3Ω		13		ns
Turn-On Rise Time	t_r			9.8		
Turn-Off DelayTime	$t_{d(off)}$			49		
Turn-Off Fall Time	t_f			16		
Body Diode Reverse Recovery Time	t_{rr}	I_F= 20A, dI/dt= 100A/us		42	56	
Body Diode Reverse Recovery Charge	Q_{rr}			31		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 <300 us pulses, duty cycle 0.5% max.

■ Marking

Marking	4488 KC****

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■ Typical Characterisitics

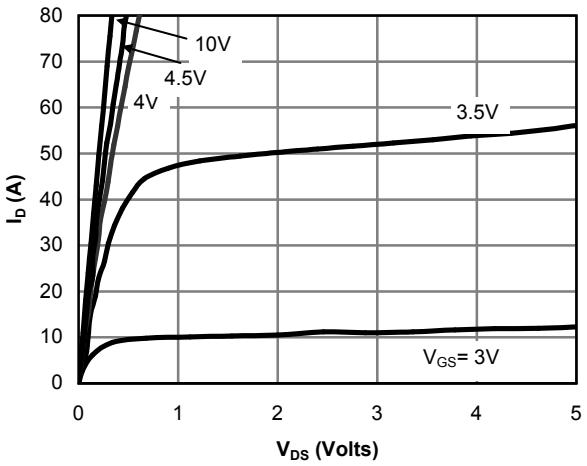

Figure 1: On-Region Characteristics

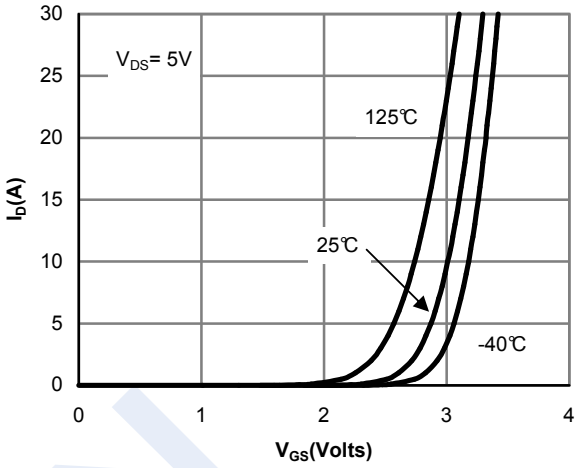

Figure 2: Transfer Characteristics

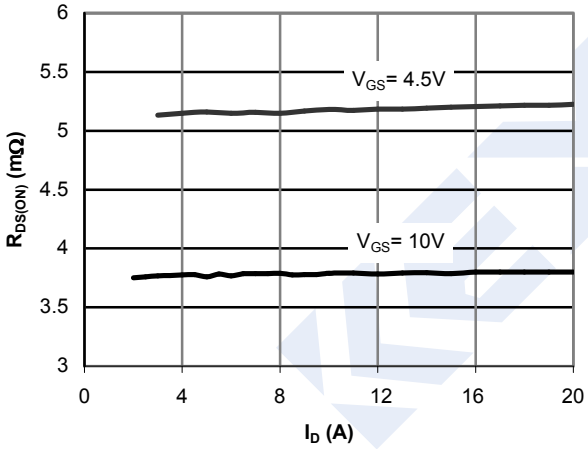

Figure 3: On-Resistance vs. Drain Current and Gate Voltage

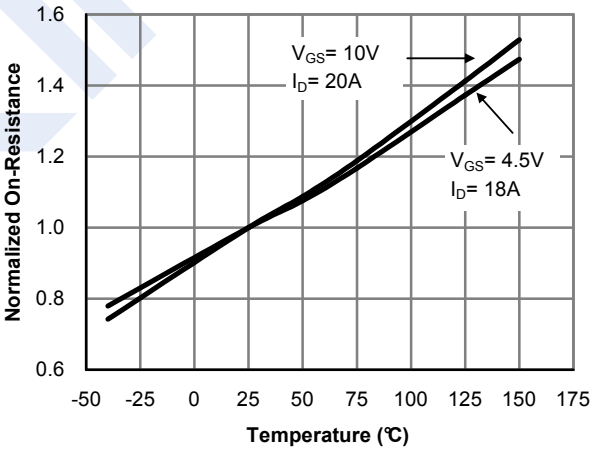

Figure 4: On-Resistance vs. Junction Temperature

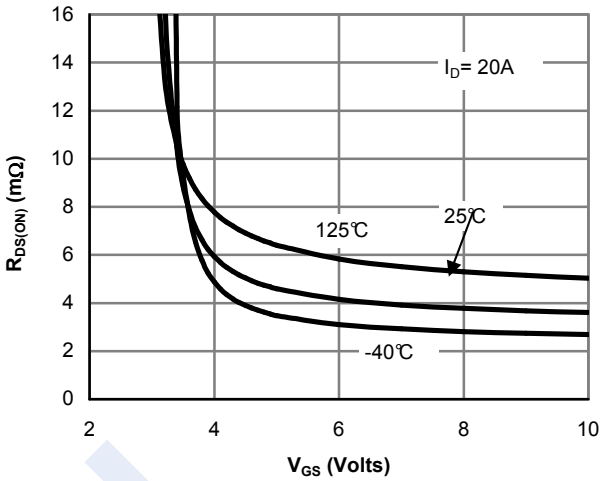

Figure 5: On-Resistance vs. Gate-Source Voltage

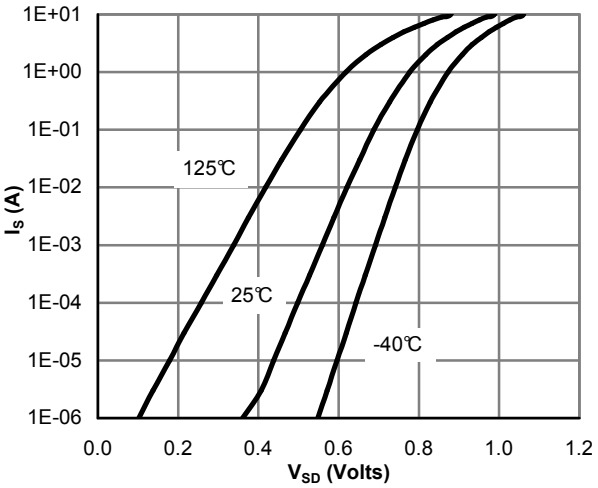

Figure 6: Body-Diode Characteristics

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■ Typical Characterisitics

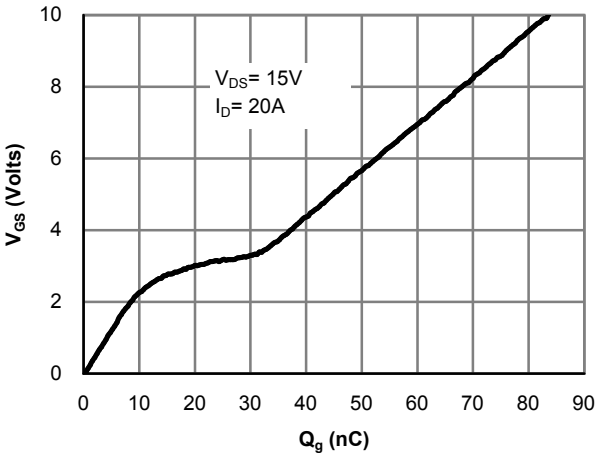

Figure 7: Gate-Charge Characteristics

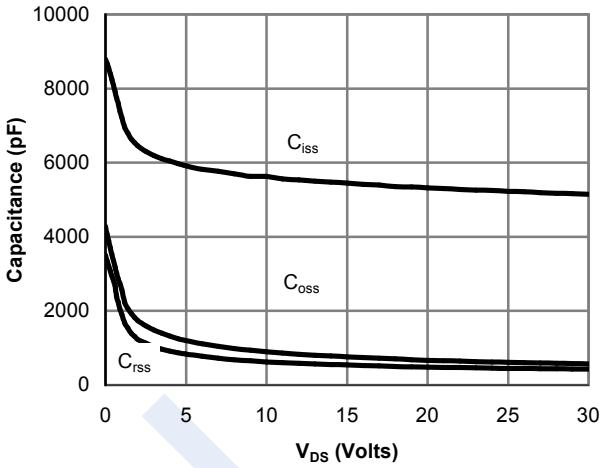

Figure 8: Capacitance Characteristics

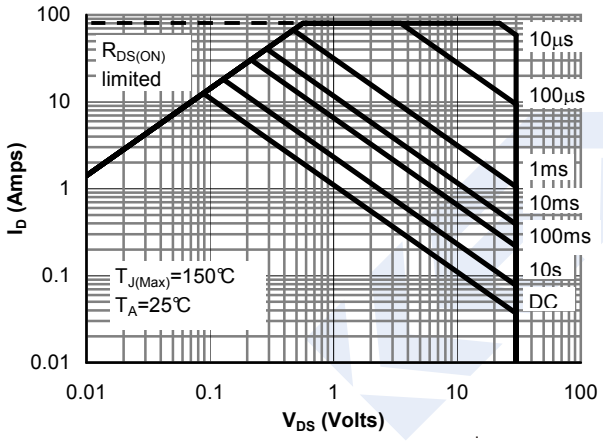

Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

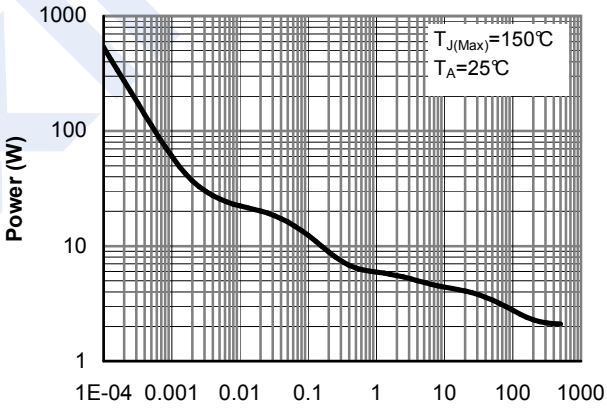

Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

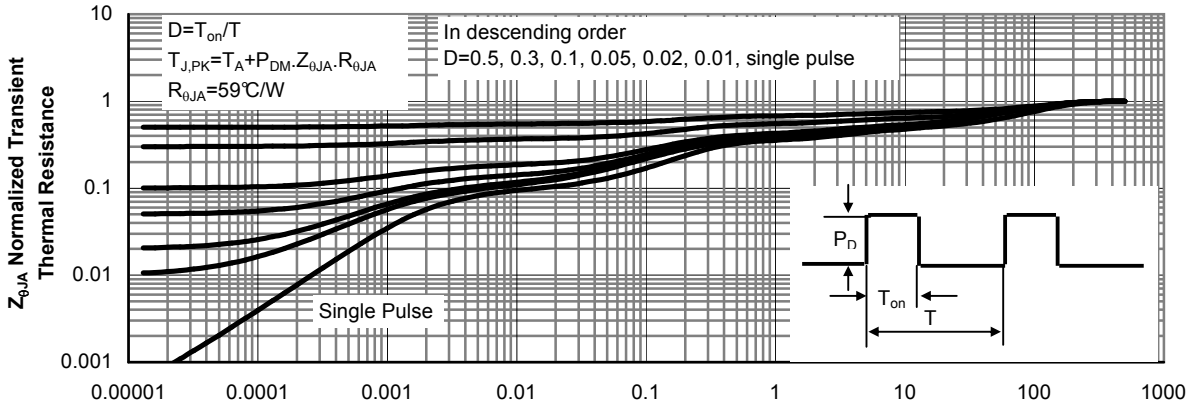

Figure 11: Normalized Maximum Transient Thermal Impedance(Note E)