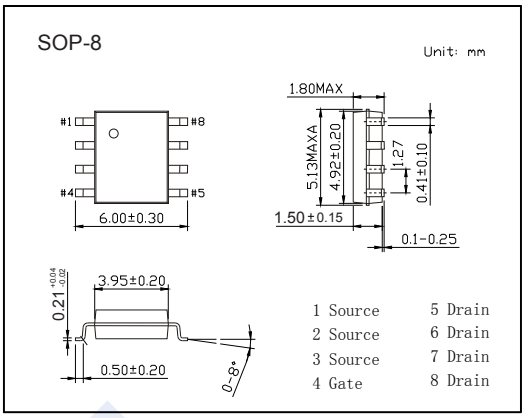
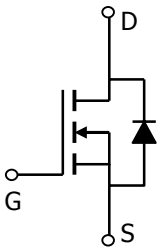
N-Channel MOSFET

AO4404 (KO4404)



■ Features

- $V_{DS\ (V)}$ = 30V
- I_D = 8.5 A (V_{GS} = 10V)
- $R_{DS(ON)}$ < 24mΩ (V_{GS} = 10V)
- $R_{DS(ON)}$ < 30mΩ (V_{GS} = 4.5V)
- $R_{DS(ON)}$ < 48mΩ (V_{GS} = 2.5V)



■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±12	
Continuous Drain Current	TA=25℃	I_D	8.5	A
	TA=70℃		7.1	
Pulsed Drain Current		I_{DM}	60	
Avalanche Current		I_{AS}	15	
Avalanche energy	L=0.1mH	E_{AS}	34	mJ
Power Dissipation	TA=25℃	P_D	3	W
	TA=70℃		2.1	
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=250 uA, 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}=±12V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} , I_D=250uA	0.7		1.4	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=8.5A			24	mΩ
		V_{GS}=10V, I_D=8.5A T_J=125℃			36	
		V_{GS}=4.5V, I_D=8.5A			30	
		V_{GS}=2.5V, I_D=5A			48	
On State Drain Current	$I_{D(ON)}$	V_{GS}=4.5V, V_{DS}=5V	40			A
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=5A	10			S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=15V, f=1MHz		857	1050	pF
Output Capacitance	C_{oss}			97		
Reverse Transfer Capacitance	C_{rss}			71	100	
Gate Resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz	0.7		2	Ω
Total Gate Charge	Q_g	V_{GS}=4.5V, V_{DS}=15V, I_D=8.5A		9.7	12	nC
Gate Source Charge	Q_{gs}			1.63		
Gate Drain Charge	Q_{gd}			3.1		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=10V, V_{DS}=15V, R_L=1.8Ω, R_{GEN}=6Ω		3.3	5	ns
Turn-On Rise Time	t_r			4.7	7	
Turn-Off DelayTime	$t_{d(off)}$			26	39	
Turn-Off Fall Time	t_f			4.1	6.2	
Body Diode Reverse Recovery Time	t_{rr}	I_F= 5A, dI/dt= 100A/us		15	20	
Body Diode Reverse Recovery Charge	Q_{rr}			8.6	12	nC
Maximum Body-Diode Continuous Current	I_S				4.3	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 μs pulses, duty cycle 0.5% max.

■ Marking

Marking	4404 KC****

N-Channel MOSFET

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■ Typical Characterisitics

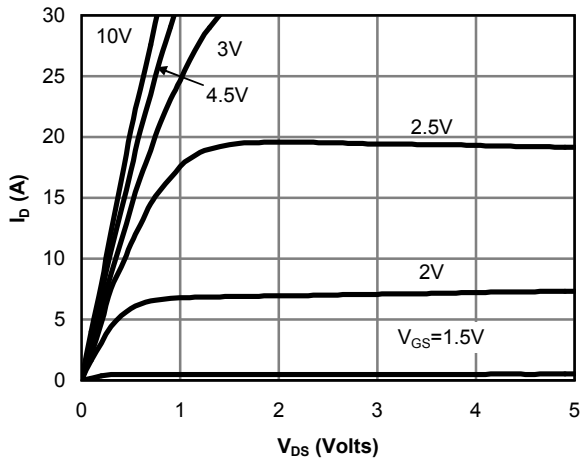

Fig 1: On-Region Characteristics

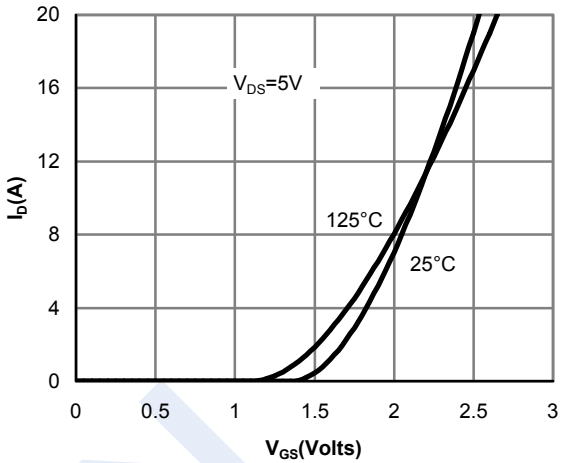

Figure 2: Transfer Characteristics

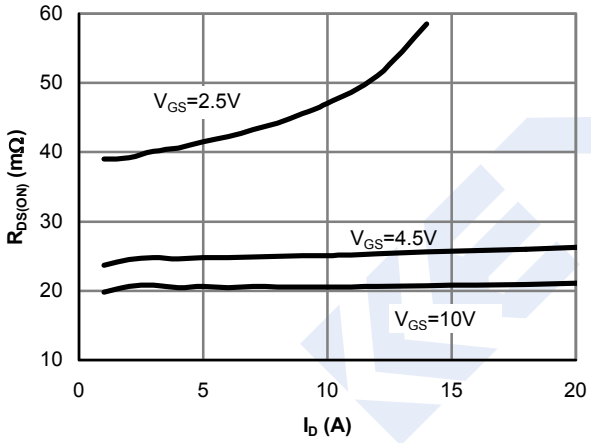

Figure 3: On-Resistance vs. Drain Current and Gate Voltage

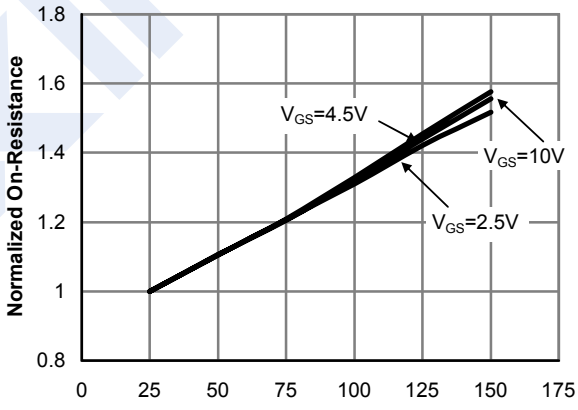

Figure 4: On-Resistance vs. Junction Temperature

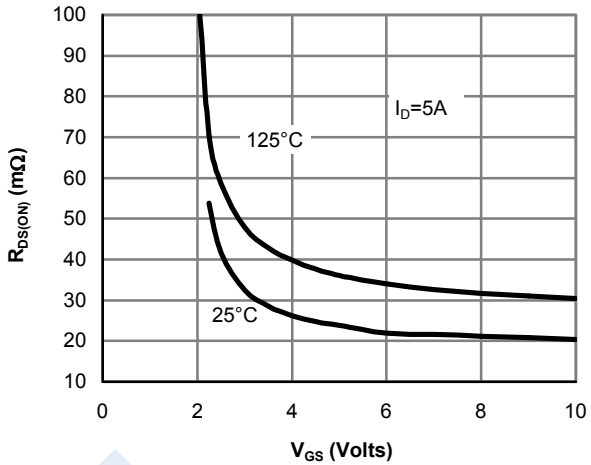

Figure 5: On-Resistance vs. Gate-Source Voltage

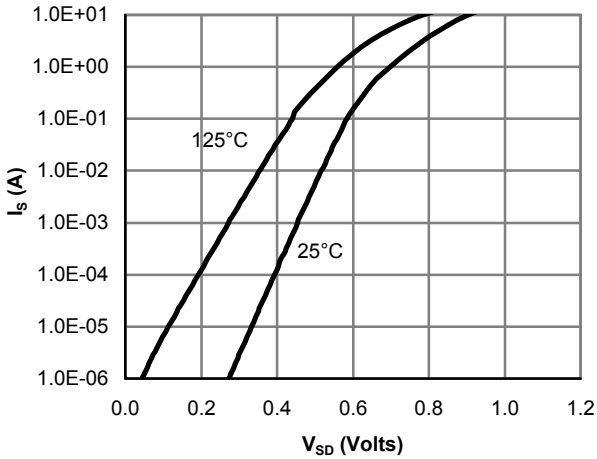

Figure 6: Body-Diode Characteristics

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■ Typical Characterisitics

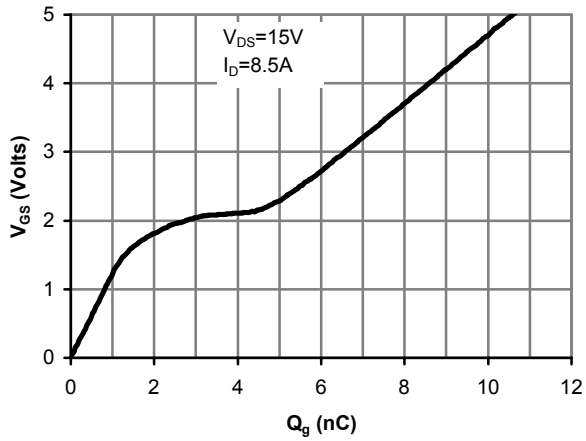

Figure 7: Gate-Charge Characteristics

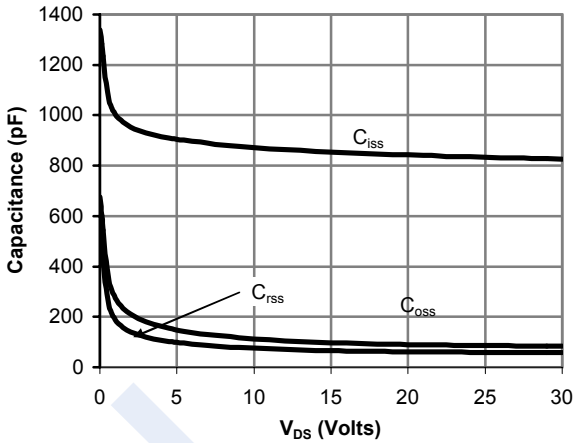

Figure 8: Capacitance Characteristics

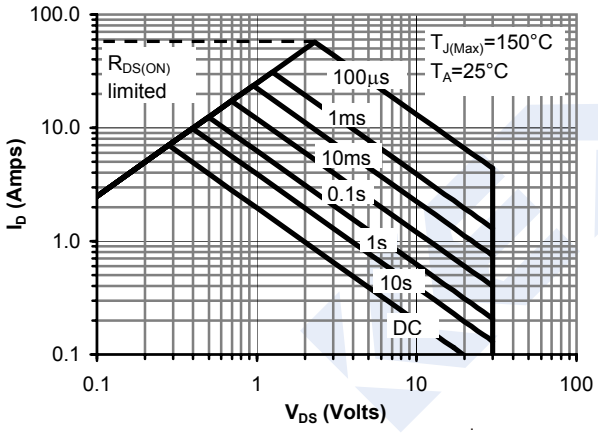

Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

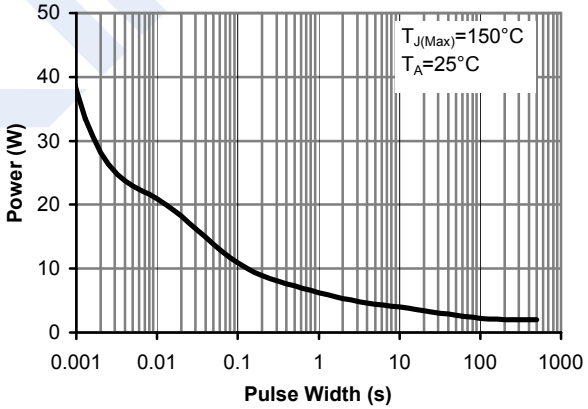

Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

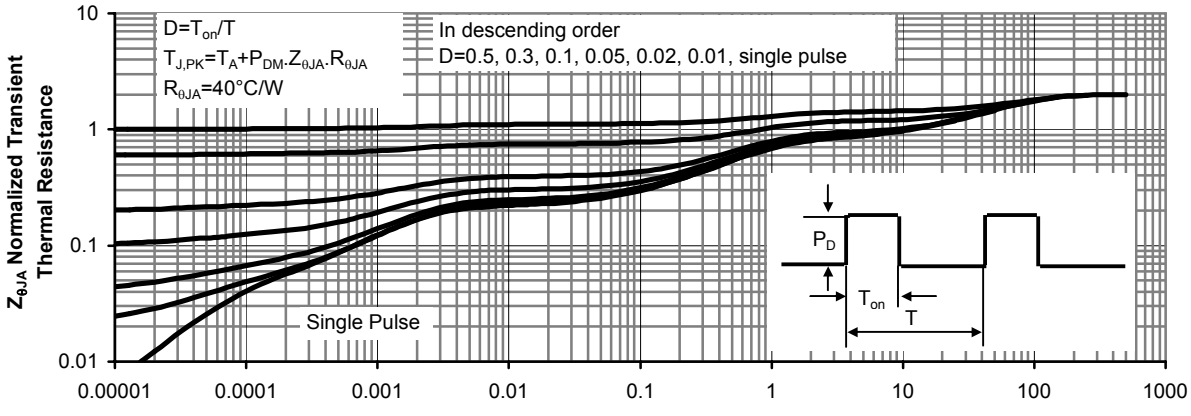

Figure 11: Normalized Maximum Transient Thermal Impedance