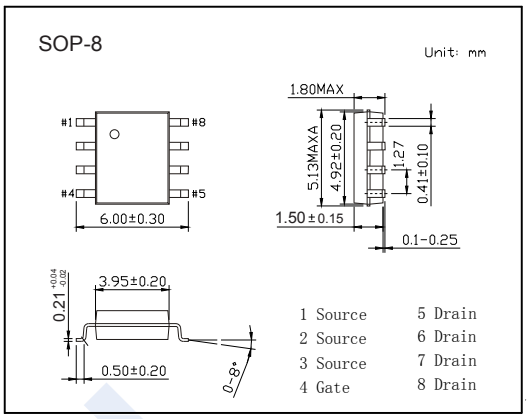
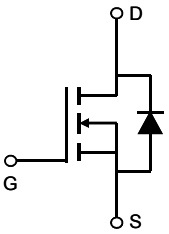
N-Channel MOSFET

AO4304-HF (KO4304-HF)



■ Features

- $V_{DS\ (V)}$ = 30V
- I_D = 18 A (V_{GS} = 10V)
- $R_{DS(ON)}$ < 6mΩ (V_{GS} = 10V)
- $R_{DS(ON)}$ < 7.6mΩ (V_{GS} = 4.5V)
- Pb−Free Package May be Available. The G−Suffix Denotes a Pb−Free Lead Finish



■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current	TA=25℃	I_D	18	A
	TA=70℃		14	
Pulsed Drain Current		I_{DM}	200	
Avalanche Current		I_{AS},I_{AR}	35	
Avalanche energy	L=0.1mH	E_{AS},E_{AR}	61	mJ
Power Dissipation	TA=25℃	P_D	3.6	W
	TA=70℃		2.3	
Thermal Resistance.Junction- to-Ambient	t ≤ 10s	R_{thJA}	35	℃/W
	Steady-State		65	
Thermal Resistance.Junction- to-Lead		R_{thJL}	15	
Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{stg}	-55 to 150	

N-Channel MOSFET

AO4304-HF (KO4304-HF)

■ 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}=±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} , I_D=250uA	1.4		2.4	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=15A			6	mΩ
		V_{GS}=10V, I_D=15A T_J=125℃			9.5	
		V_{GS}=4.5V, I_D=10A			7.6	
On State Drain Current	$I_{D(ON)}$	V_{GS}=10V, V_{DS}=5V	200			A
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=15A		90		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=15V, f=1MHz	1275		1920	pF
Output Capacitance	C_{oss}		215		400	
Reverse Transfer Capacitance	C_{rss}		90		215	
Gate Resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz	0.7		2.3	Ω
Total Gate Charge (10V)	Q_g	V_{GS}=10V, V_{DS}=15V, I_D=15A	19		29	nC
Total Gate Charge (4.5V)			8.5		14	
Gate Source Charge	Q_{gs}		4		6.5	
Gate Drain Charge	Q_{gd}		3		8	
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=10V, V_{DS}=15V, R_L=1Ω, R_{GEN}=3Ω		7.3		ns
Turn-On Rise Time	t_r			3		
Turn-Off DelayTime	$t_{d(off)}$			25		
Turn-Off Fall Time	t_f			5.3		
Body Diode Reverse Recovery Time	t_{rr}	I_F= 15A, dI/dt= 500A/us	7		12	
Body Diode Reverse Recovery Charge	Q_{rr}		14		21	nC
Maximum Body-Diode Continuous Current	I_S				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	4304 KC**** F

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AO4304-HF (KO4304-HF)

■ Typical Characterisitics

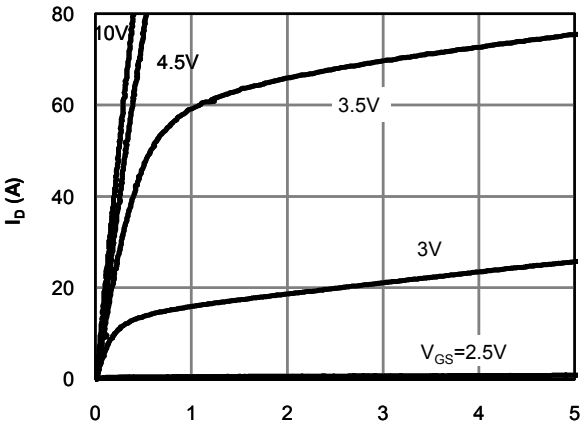


Fig 1: On-Region Characteristics (Note E)

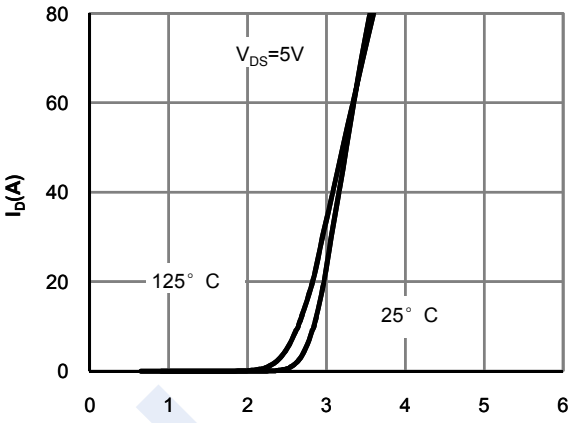


Figure 2: Transfer Characteristics (Note E)

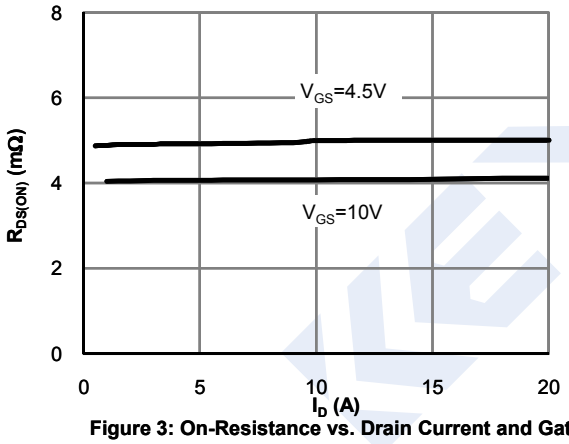


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

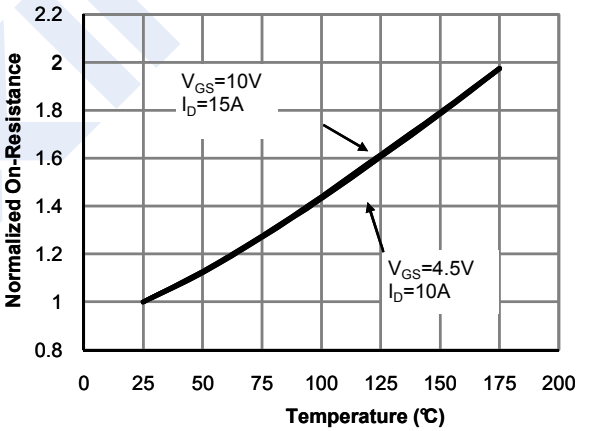


Figure 4: On-Resistance vs. Junction Temperature

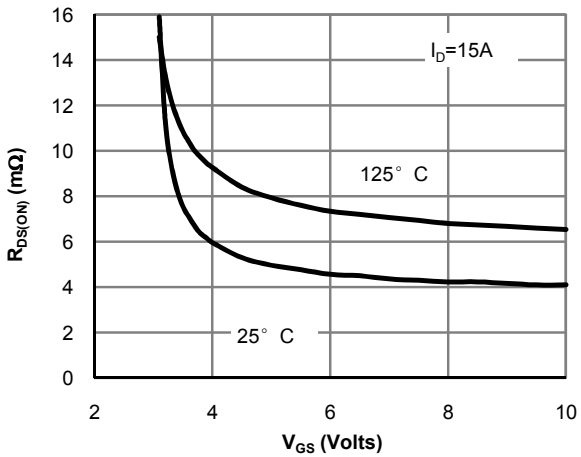


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

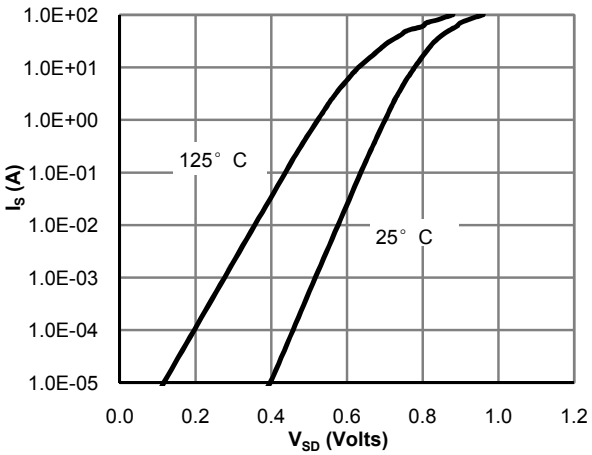


Figure 6: Body-Diode Characteristics (Note E)

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AO4304-HF (KO4304-HF)

■ Typical Characterisitics

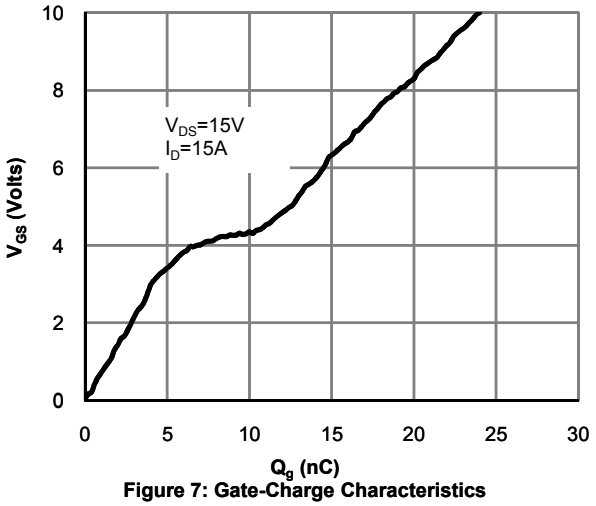


Figure 7: Gate-Charge Characteristics

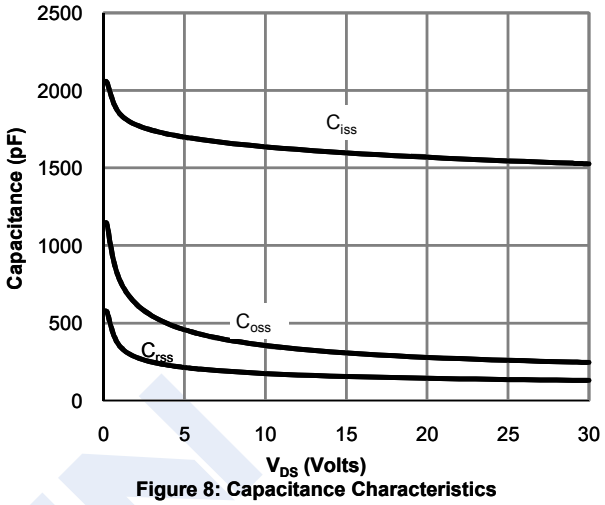


Figure 8: Capacitance Characteristics

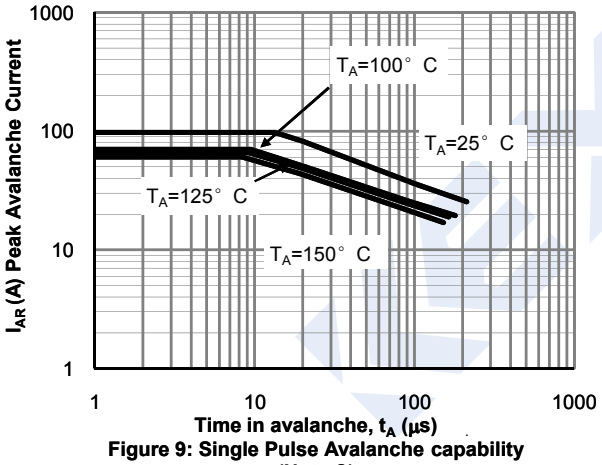


Figure 9: Single Pulse Avalanche capability (Note C)

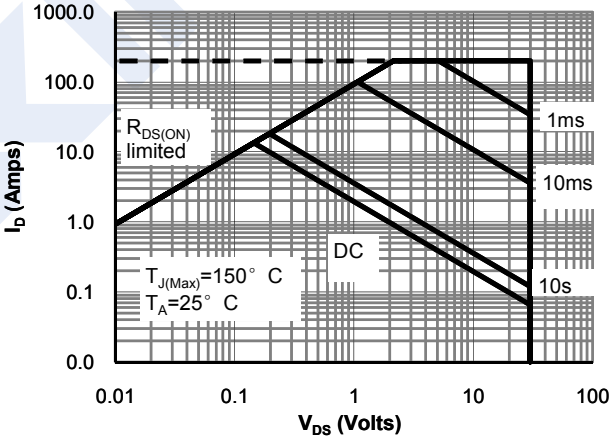


Figure 10: Maximum Forward Biased Safe Operating Area (Note F)

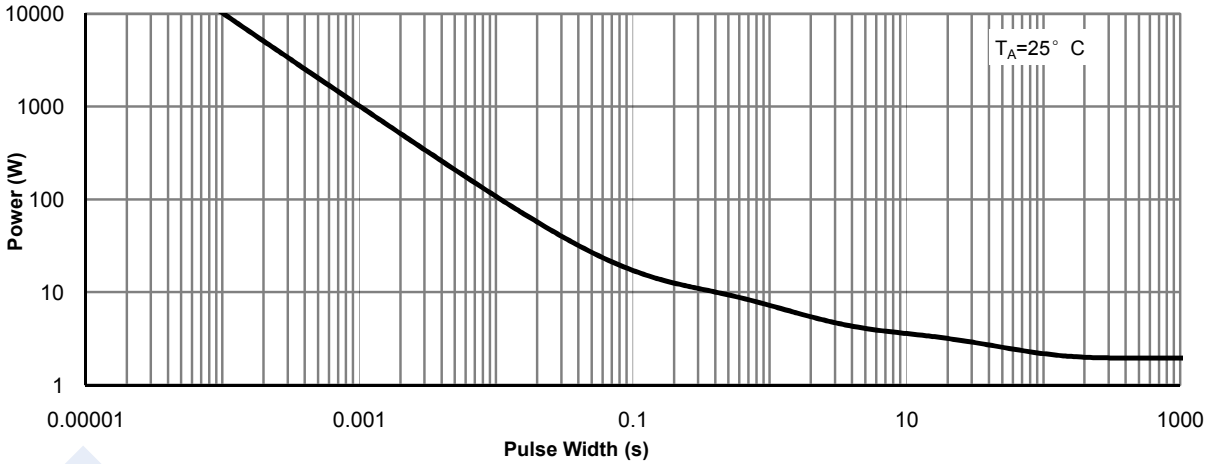


Figure 11: Single Pulse Power Rating Junction-to-Ambient (Note F)

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■ Typical Characterisitics

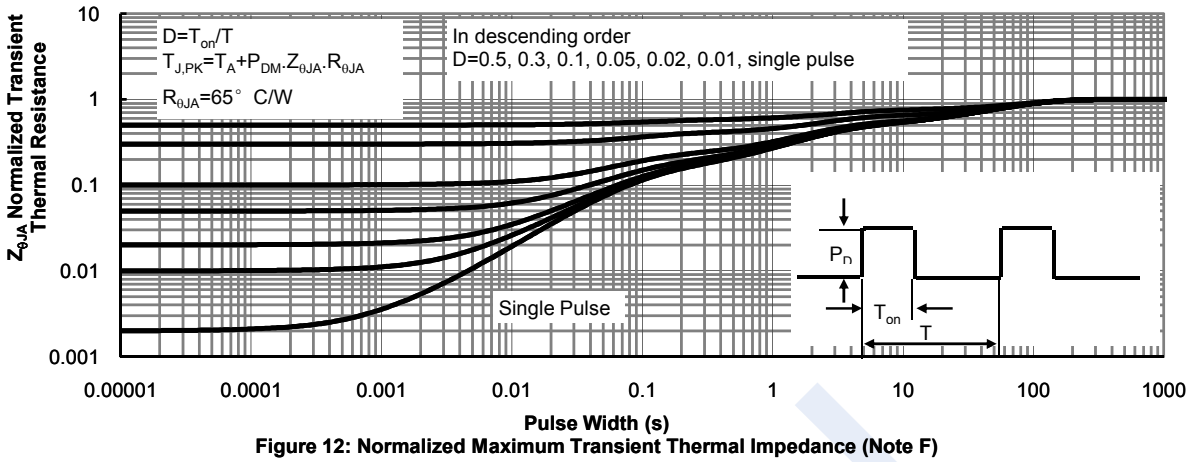


Figure 12: Normalized Maximum Transient Thermal Impedance (Note F)