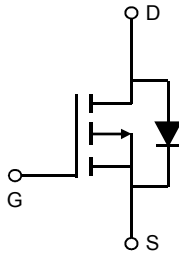
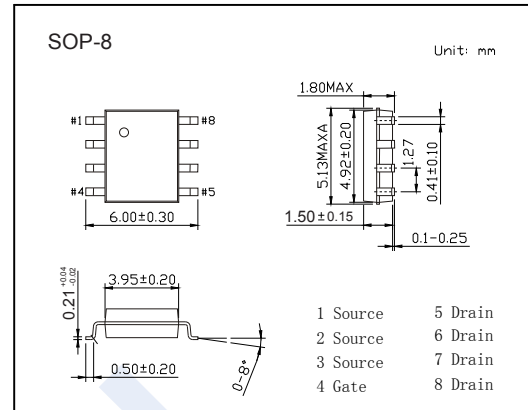


## P-Channel MOSFET

### AO4453-HF (K04453-HF)

#### ■ Features

- $V_{DS} = -12V$
- $I_D = -9 A$  ( $V_{GS} = -4.5V$ )
- $R_{DS(ON)} < 19m\Omega$  ( $V_{GS} = -4.5V$ )
- $R_{DS(ON)} < 22m\Omega$  ( $V_{GS} = -3.3V$ )
- $R_{DS(ON)} < 26m\Omega$  ( $V_{GS} = -2.5V$ )
- $R_{DS(ON)} < 36m\Omega$  ( $V_{GS} = -1.8V$ )
- $R_{DS(ON)} < 50m\Omega$  ( $V_{GS} = -1.5V$ )
- Pb-Free Package May be Available. The G-Suffix Denotes a Pb-Free Lead Finish



#### ■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	$V_{DS}$	-12	V	
Gate-Source Voltage	$V_{GS}$	$\pm 8$		
Continuous Drain Current	$I_D$	$T_A = 25^\circ C$	-9	A
		$T_A = 70^\circ C$	-7	
Pulsed Drain Current	$I_{DM}$	-55		
Avalanche Current	$I_{AS}$	20		
Avalanche Energy	$L = 0.1mH$	$E_{AS}$	20	mJ
Power Dissipation	$P_D$	$T_A = 25^\circ C$	2.5	W
		$T_A = 70^\circ C$	1.6	
Thermal Resistance.Junction- to-Ambient	$R_{thJA}$	$t \leq 10s$	50	$^\circ C/W$
		Steady-State	85	
Thermal Resistance.Junction- to-Lead	$R_{thJL}$	30		
Junction Temperature	$T_J$	150	$^\circ C$	
Junction Storage Temperature Range	$T_{stg}$	-55 to 150		

## P-Channel MOSFET AO4453-HF (KO4453-HF)

### ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V <sub>DSS</sub>	I <sub>D</sub> =-250 μA, V <sub>GS</sub> =0V	-12			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-12V, V <sub>GS</sub> =0V			-1	μA
		V <sub>DS</sub> =-12V, V <sub>GS</sub> =0V, T <sub>J</sub> =55°C			-5	
Gate-Body leakage current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±8V			±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250μA	-0.3		-0.9	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-9A			19	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-9A T <sub>J</sub> =125°C			25	
		V <sub>GS</sub> =-3.3V, I <sub>D</sub> =-7A			22	
		V <sub>GS</sub> =-2.5V, I <sub>D</sub> =-6A			26	
		V <sub>GS</sub> =-1.8V, I <sub>D</sub> =-4A			36	
		V <sub>GS</sub> =-1.5V, I <sub>D</sub> =-1A			50	
On state drain current	I <sub>D(ON)</sub>	V <sub>GS</sub> =-4.5V, V <sub>DS</sub> =-5V	-55			A
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =-5V, I <sub>D</sub> =-9A		33		S
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =-6V, f=1MHz		1370		pF
Output Capacitance	C <sub>oss</sub>			350		
Reverse Transfer Capacitance	C <sub>rss</sub>			258		
Gate resistance	R <sub>g</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, f=1MHz		10	20	Ω
Total Gate Charge	Q <sub>g</sub>	V <sub>GS</sub> =-4.5V, V <sub>DS</sub> =-6V, I <sub>D</sub> =-9A		12.7	18	nC
Gate Source Charge	Q <sub>gs</sub>			1.7		
Gate Drain Charge	Q <sub>gd</sub>			3.4		
Turn-On DelayTime	t <sub>d(on)</sub>	V <sub>GS</sub> =-4.5V, V <sub>DS</sub> =-6V, R <sub>L</sub> =0.67Ω, R <sub>GEN</sub> =3Ω		11		ns
Turn-On Rise Time	t <sub>r</sub>			25		
Turn-Off DelayTime	t <sub>d(off)</sub>			70		
Turn-Off Fall Time	t <sub>f</sub>			41.5		
Body Diode Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> =-9A, di/dt=100A/us		20.7		nC
Body Diode Reverse Recovery Charge	Q <sub>rr</sub>			5.2		
Maximum Body-Diode Continuous Current	I <sub>S</sub>				-3.5	A
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =-1A, V <sub>GS</sub> =0V			-1	V

Note :The static characteristics in Figures 1 to 6 are obtained using <300us pulses, duty cycle 0.5% max.

### ■ Marking

Marking	4453
	KC**** F

## P-Channel MOSFET AO4453-HF (KO4453-HF)

■ Typical Characteristics

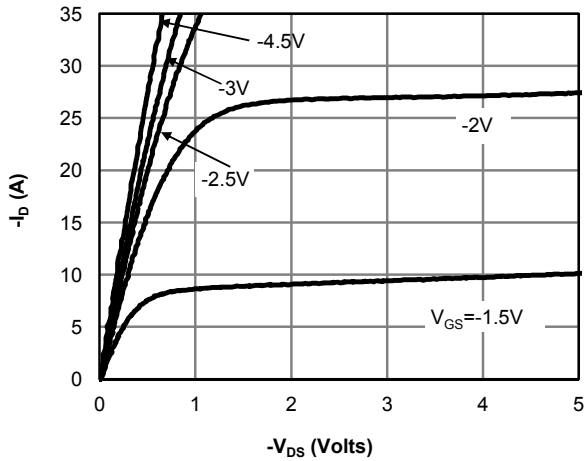


Fig 1: On-Region Characteristics (Note E)

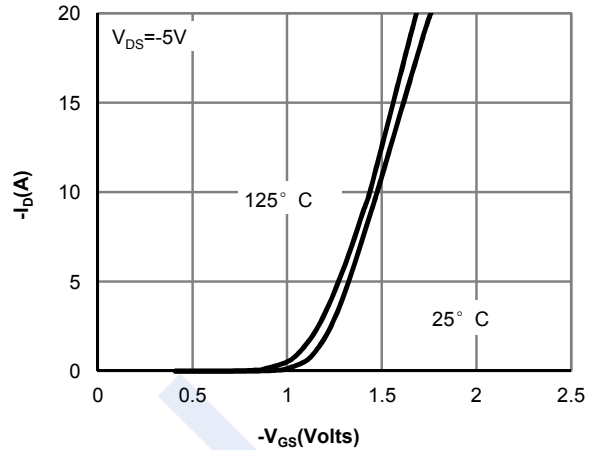


Figure 2: Transfer Characteristics (Note E)

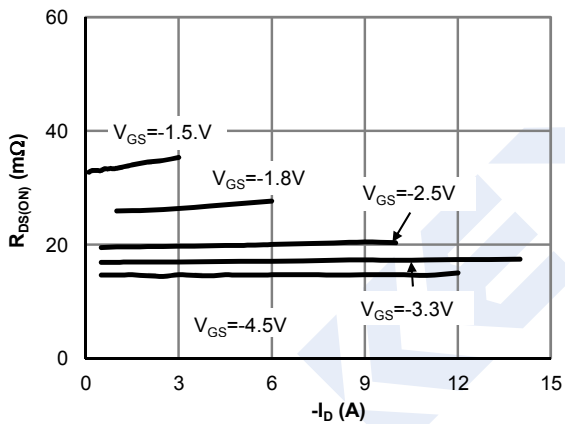


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

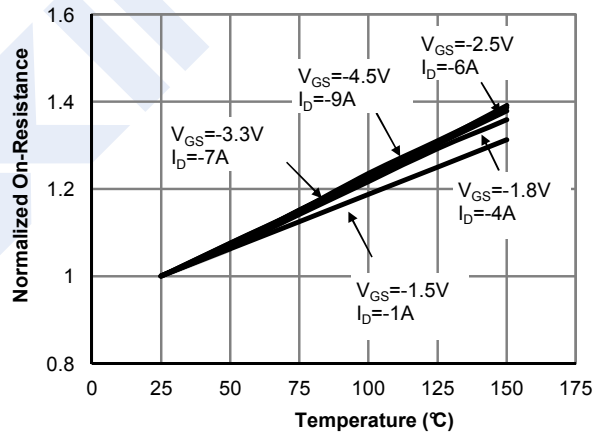


Figure 4: On-Resistance vs. Junction Temperature (Note E)

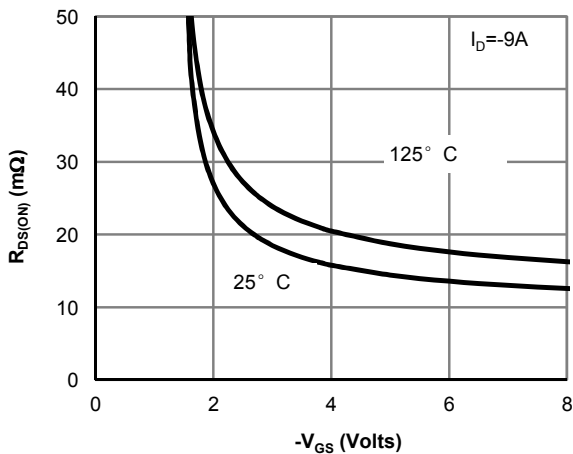


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

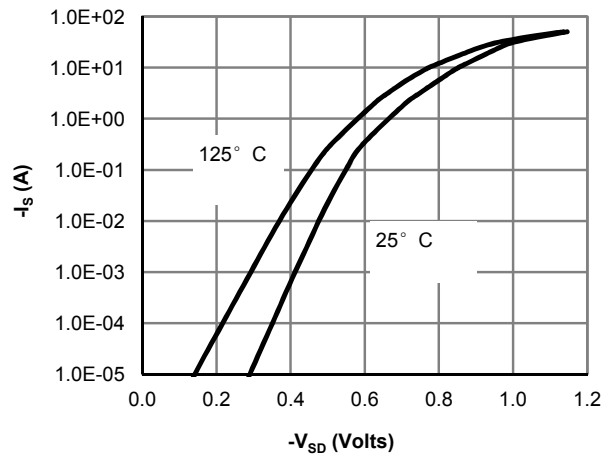


Figure 6: Body-Diode Characteristics (Note E)

## P-Channel MOSFET AO4453-HF (KO4453-HF)

■ Typical Characteristics

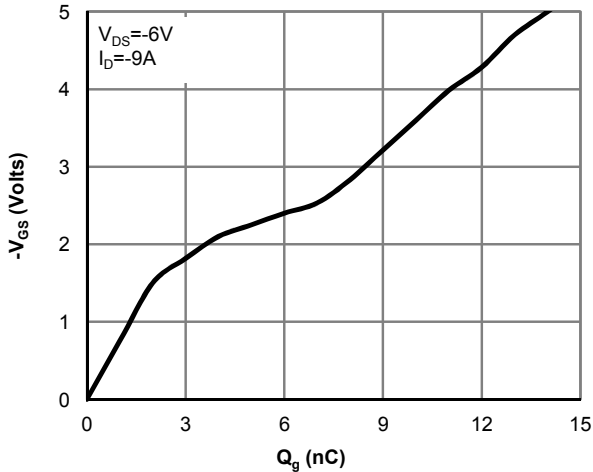


Figure 7: Gate-Charge Characteristics

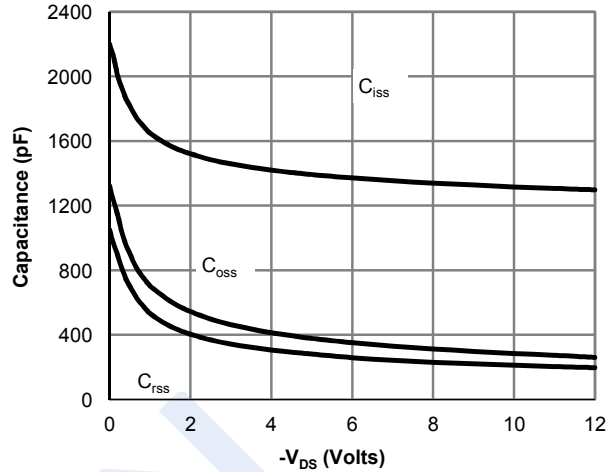


Figure 8: Capacitance Characteristics

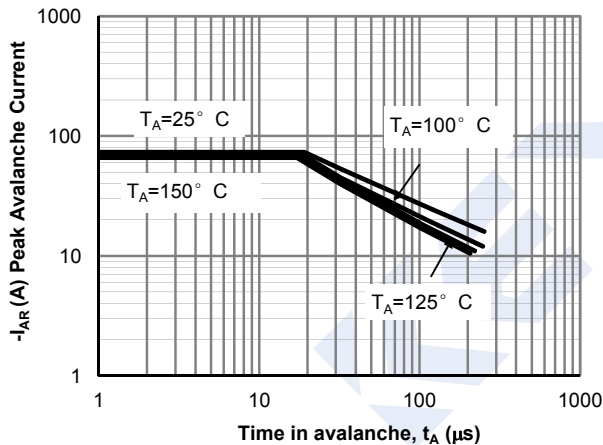


Figure 9: Single Pulse Avalanche capability (Note C)

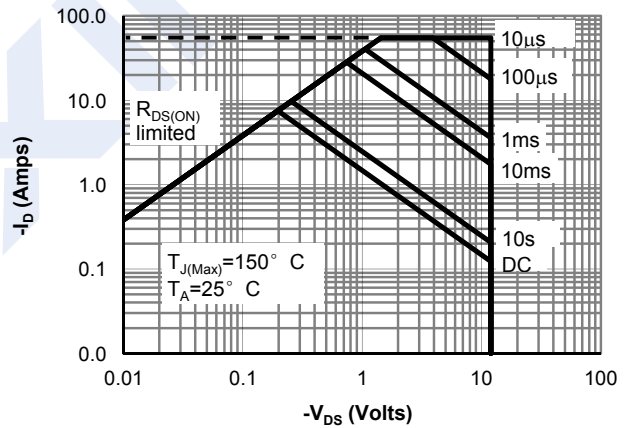


Figure 10: Maximum Forward Biased Safe Operating Area (Note F)

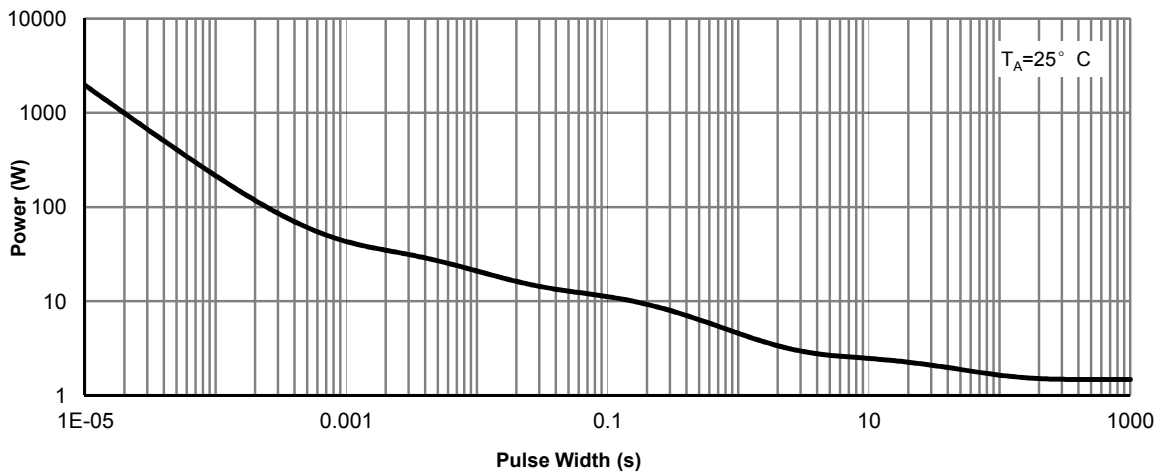


Figure 11: Single Pulse Power Rating Junction-to-Ambient (Note F)

### P-Channel MOSFET AO4453-HF (KO4453-HF)

■ Typical Characteristics

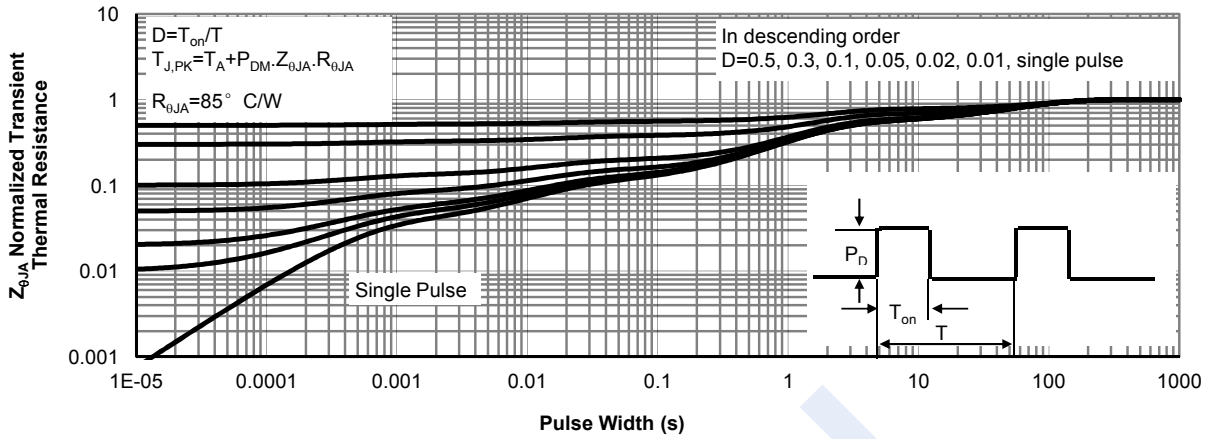


Figure 12: Normalized Maximum Transient Thermal Impedance (Note F)