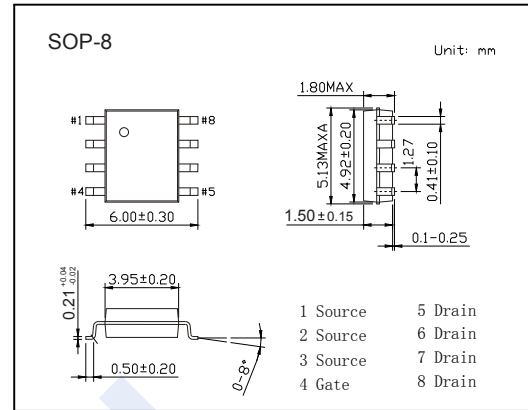
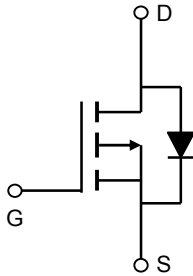


## P-Channel MOSFET AO4415-HF (KO4415-HF)

### ■ Features

- $V_{DS} (V) = -30V$
- $I_D = -8 A (V_{GS} = -20V)$
- $R_{DS(ON)} < 26m\Omega (V_{GS} = -20V)$
- $R_{DS(ON)} < 35m\Omega (V_{GS} = -10V)$
- 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	$V_{DS}$	-30	V	
Gate-Source Voltage	$V_{GS}$	$\pm 25$		
Continuous Drain Current	$I_D$	$T_A = 25^\circ C$	-8	A
		$T_A = 70^\circ C$	-6.6	
Pulsed Drain Current	$I_{DM}$	-40		
Power Dissipation	$P_D$	$T_A = 25^\circ C$	3	W
		$T_A = 70^\circ C$	2.1	
Thermal Resistance.Junction- to-Ambient	$R_{thJA}$	$t \leq 10s$	40	$^\circ C/W$
		Steady-State	75	
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 AO4415-HF (KO4415-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	-30			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-24V, V <sub>GS</sub> =0V			-1	μA
		V <sub>DS</sub> =-24V, 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> =±25V			±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250 μA	-1.7		-3.5	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =-20V, I <sub>D</sub> =-8A			26	mΩ
		V <sub>GS</sub> =-20V, I <sub>D</sub> =-8A T <sub>J</sub> =125°C			35	
		V <sub>GS</sub> =-10V, I <sub>D</sub> =-8A			35	
		V <sub>GS</sub> =-6V, I <sub>D</sub> =-5A		41		
On state drain current	I <sub>D(ON)</sub>	V <sub>GS</sub> =-10V, V <sub>DS</sub> =-5V	-40			A
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =-5V, I <sub>D</sub> =-8A		11.5		S
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =-15V, f=1MHz		893	1100	pF
Output Capacitance	C <sub>oss</sub>			204		
Reverse Transfer Capacitance	C <sub>rss</sub>			151		
Gate resistance	R <sub>g</sub>		V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, f=1MHz		4	
Total Gate Charge	Q <sub>g</sub>	V <sub>GS</sub> =-10V, V <sub>DS</sub> =-15V, I <sub>D</sub> =-8A		16.6	21	nC
Gate Source Charge	Q <sub>gs</sub>			3.2		
Gate Drain Charge	Q <sub>gd</sub>			5.2		
Turn-On DelayTime	t <sub>d(on)</sub>		V <sub>GS</sub> =-10V, V <sub>DS</sub> =-15V, R <sub>L</sub> =1.8Ω, R <sub>GEN</sub> =3Ω		10.5	
Turn-On Rise Time	t <sub>r</sub>			7.3		
Turn-Off DelayTime	t <sub>d(off)</sub>			15.1		
Turn-Off Fall Time	t <sub>f</sub>			8.6		
Body Diode Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> =-8A, di/dt=100A/us		21	26	nC
Body Diode Reverse Recovery Charge	Q <sub>rr</sub>			10.7		
Maximum Body-Diode Continuous Current	I <sub>S</sub>				-4.2	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 <300 μs pulses, duty cycle 0.5% max.

### ■ Marking

Marking	4415
	KC**** F

## P-Channel MOSFET AO4415-HF (KO4415-HF)

■ Typical Characteristics

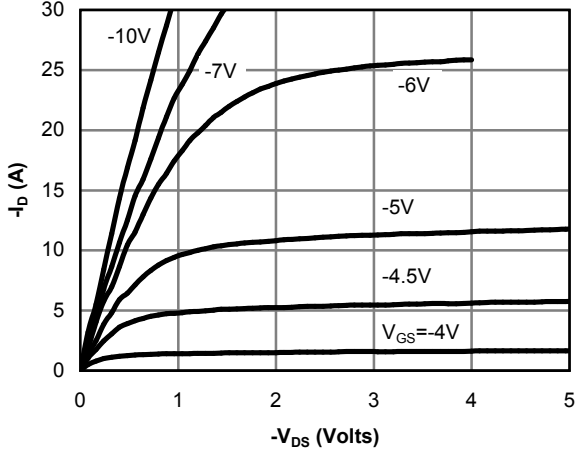


Fig 1: On-Region Characteristics

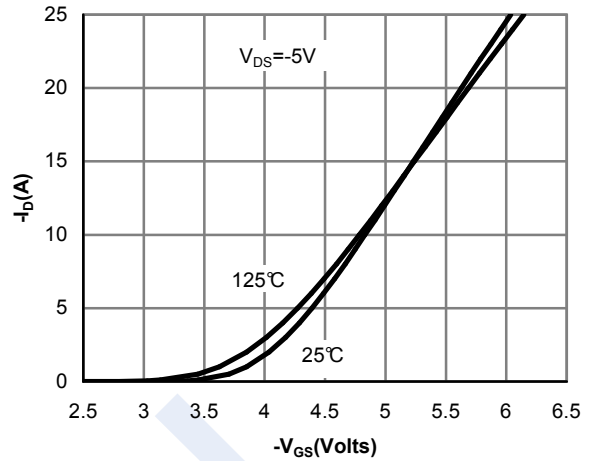


Figure 2: Transfer Characteristics

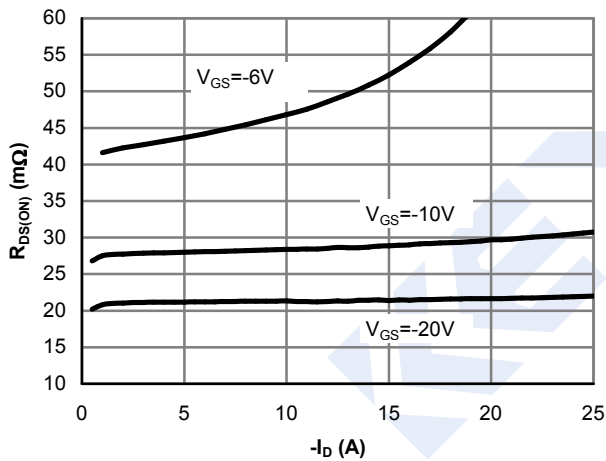


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

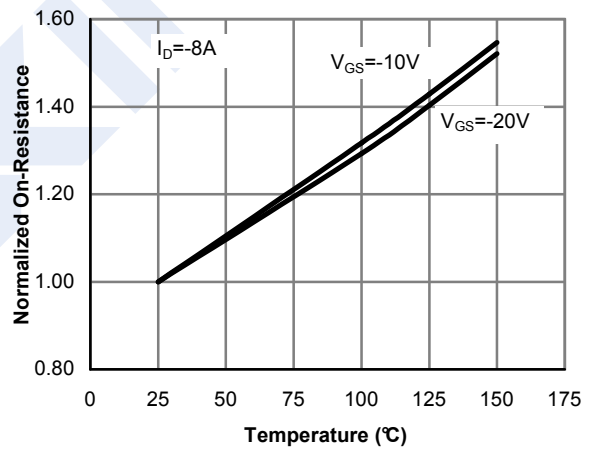


Figure 4: On-Resistance vs. Junction Temperature

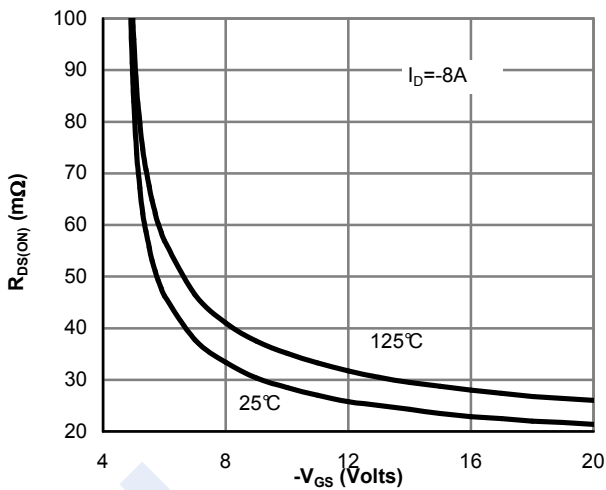


Figure 5: On-Resistance vs. Gate-Source Voltage

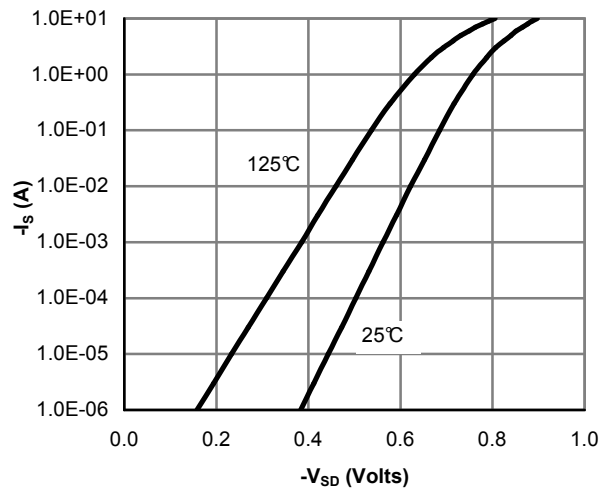


Figure 6: Body-Diode Characteristics

## P-Channel MOSFET AO4415-HF (KO4415-HF)

■ Typical Characteristics

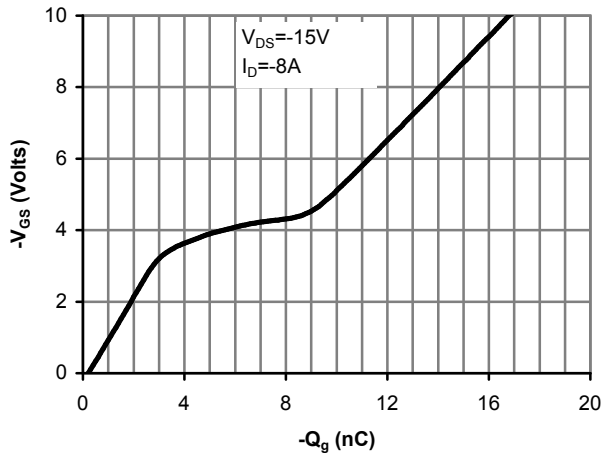


Figure 7: Gate-Charge Characteristics

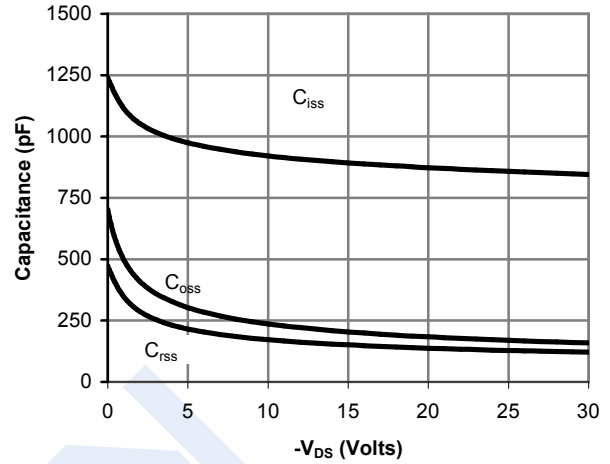


Figure 8: Capacitance Characteristics

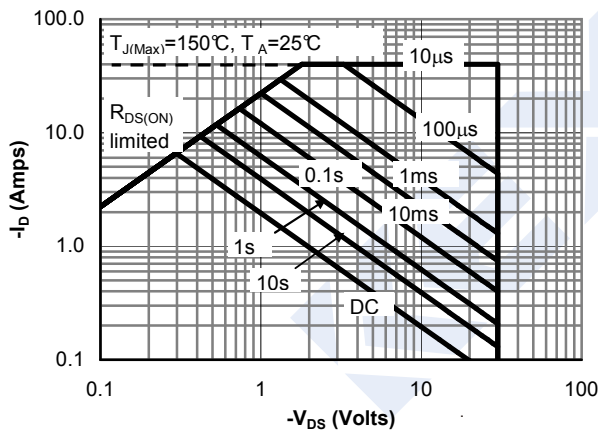


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

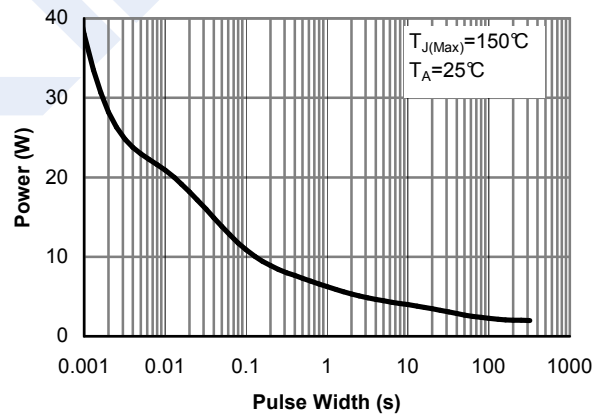


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

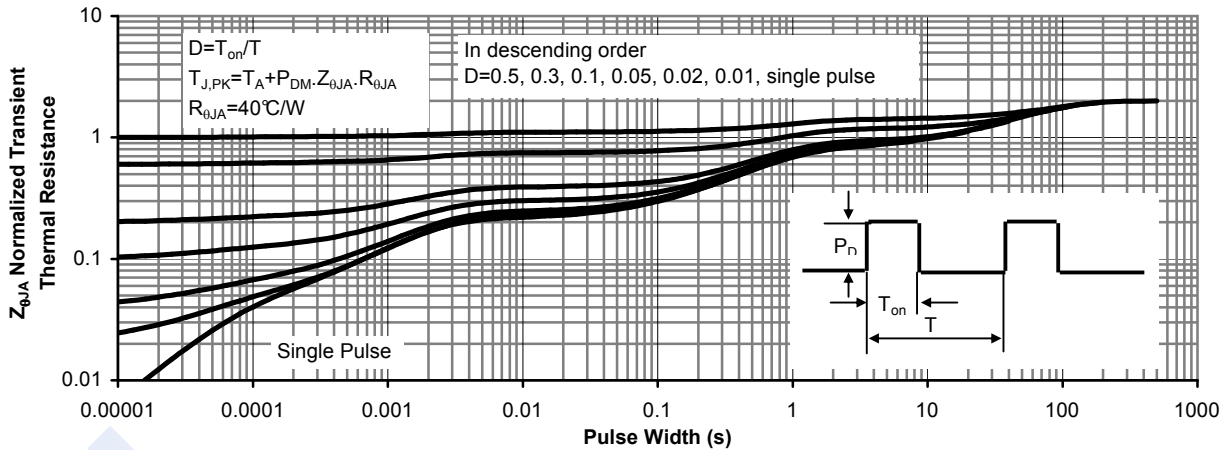


Figure 11: Normalized Maximum Transient Thermal Impedance