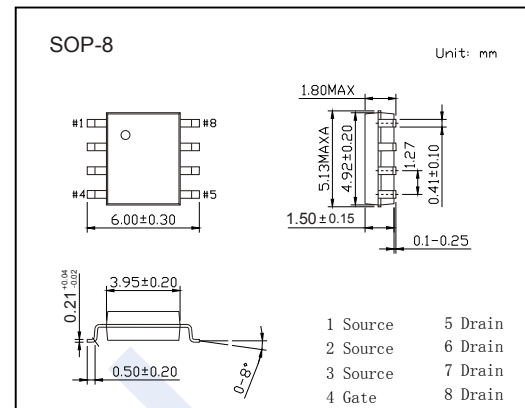
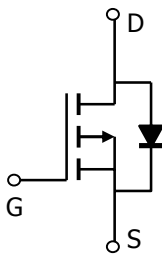


## P-Channel MOSFET

### AO4421 (KO4421)

#### ■ Features

- $V_{DS} (V) = -60V$
- $I_D = -6.2 A (V_{GS} = -10V)$
- $R_{DS(ON)} < 40m\Omega (V_{GS} = -10V)$
- $R_{DS(ON)} < 50m\Omega (V_{GS} = -4.5V)$



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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	-60	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	
Continuous Drain Current	$I_D$	$T_A = 25^\circ C$	-6.2
		$T_A = 70^\circ C$	-5
Pulsed Drain Current	$I_{DM}$	-40	A
Power Dissipation	$P_D$	$T_A = 25^\circ C$	3.1
		$T_A = 70^\circ C$	2
Thermal Resistance.Junction- to-Ambient	$R_{thJA}$	$t \leq 10s$	40
		Steady-State	75
Thermal Resistance.Junction- to-Lead	$R_{thJL}$	30	$^\circ C/W$
Junction Temperature	$T_J$	150	
Junction Storage Temperature Range	$T_{stg}$	-55 to 150	$^\circ C$

## P-Channel MOSFET

## AO4421 (KO4421)

## ■ 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	-60			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-48V, V <sub>GS</sub> =0V			-1	μA
		V <sub>DS</sub> =-48V, 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> =±20V			±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		-3	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =-10V, I <sub>D</sub> =-6.2A			40	mΩ
		V <sub>GS</sub> =-10V, I <sub>D</sub> =-6.2A T <sub>J</sub> =125°C			70	
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-5A			50	
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> =-6.2A		18		S
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =-30V, f=1MHz		2417	2900	pF
Output Capacitance	C <sub>oss</sub>			179		
Reverse Transfer Capacitance	C <sub>rss</sub>			120		
Gate resistance	R <sub>g</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, f=1MHz		1.9	2.3	Ω
Total Gate Charge (10V)	Q <sub>g</sub>	V <sub>GS</sub> =-10V, V <sub>DS</sub> =-30V, I <sub>D</sub> =-6.2A		46.5	55	nC
Total Gate Charge (4.5V)				22.7		
Gate Source Charge	Q <sub>gs</sub>			9.1		
Gate Drain Charge	Q <sub>gd</sub>			9.2		
Turn-On DelayTime	t <sub>d(on)</sub>		V <sub>GS</sub> =-10V, V <sub>DS</sub> =-30V, R <sub>L</sub> =4.7Ω, R <sub>GEN</sub> =3Ω		9.8	
Turn-On Rise Time	t <sub>r</sub>			6.1		
Turn-Off DelayTime	t <sub>d(off)</sub>			44		
Turn-Off Fall Time	t <sub>f</sub>			12.7		
Body Diode Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> =-6.2A, di/dt=100A/μs		34	42	nC
Body Diode Reverse Recovery Charge	Q <sub>rr</sub>			47		
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	4421
	KC****

### P-Channel MOSFET

### AO4421 (KO4421)

■ Typical Characteristics

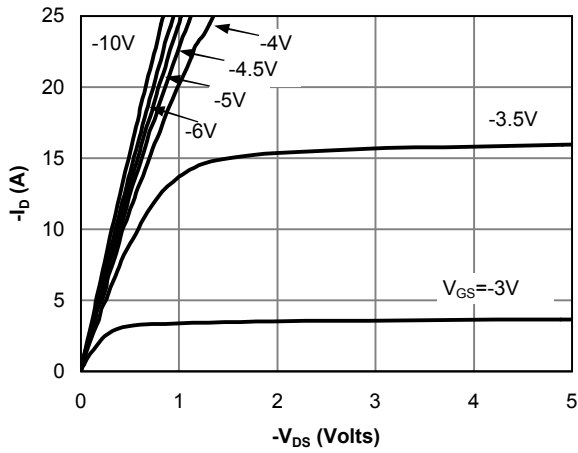


Fig 1: On-Region Characteristics

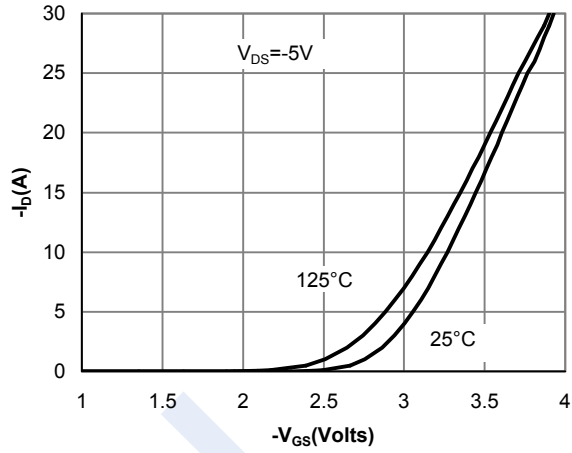


Figure 2: Transfer Characteristics

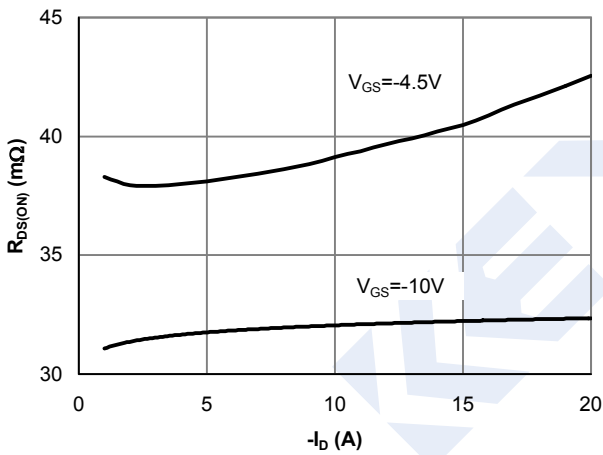


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

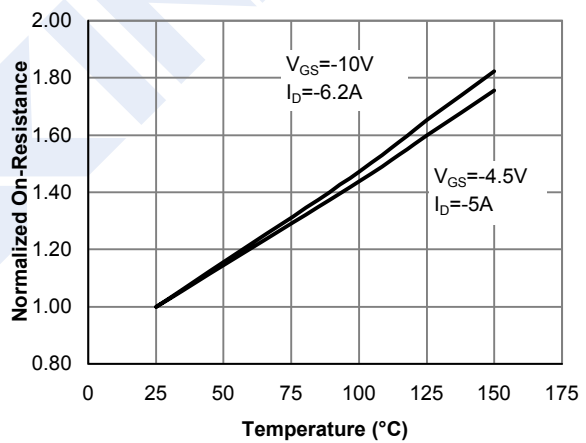


Figure 4: On-Resistance vs. Junction Temperature

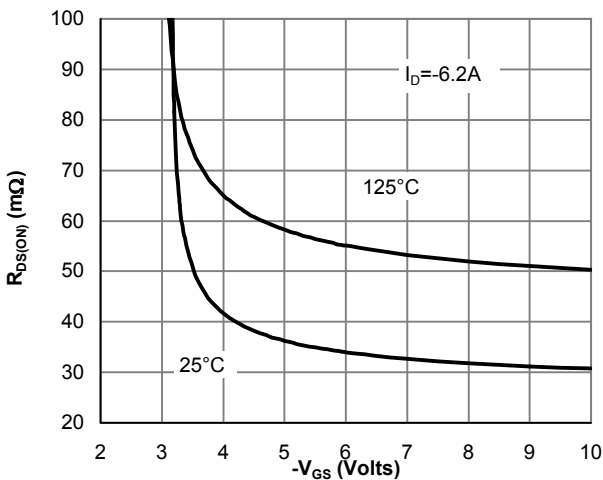


Figure 5: On-Resistance vs. Gate-Source Voltage

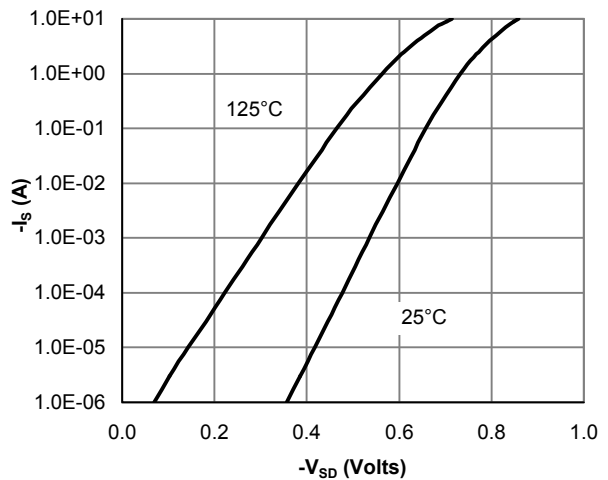


Figure 6: Body-Diode Characteristics

## P-Channel MOSFET AO4421 (KO4421)

■ Typical Characteristics

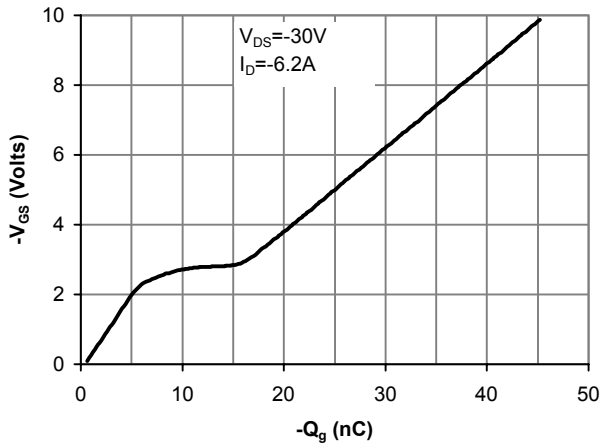


Figure 7: Gate-Charge Characteristics

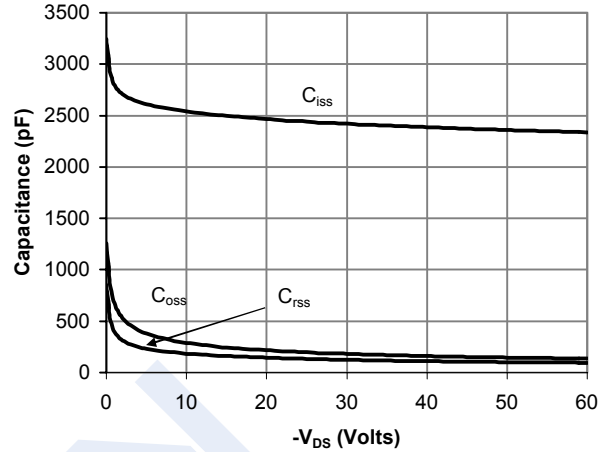


Figure 8: Capacitance Characteristics

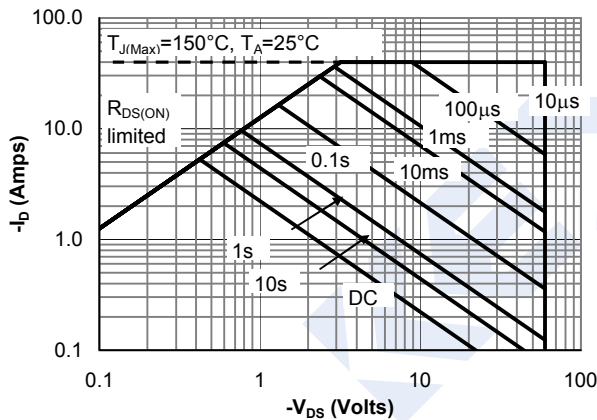


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

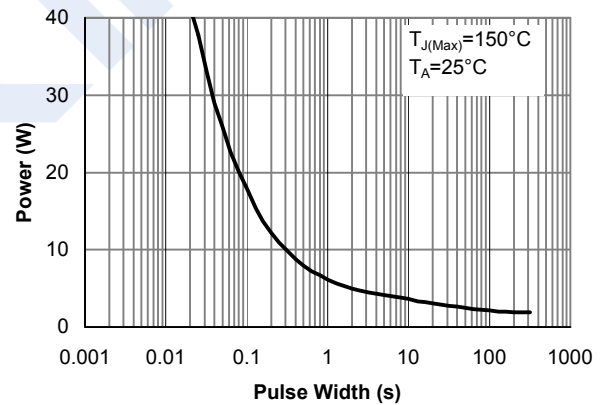


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

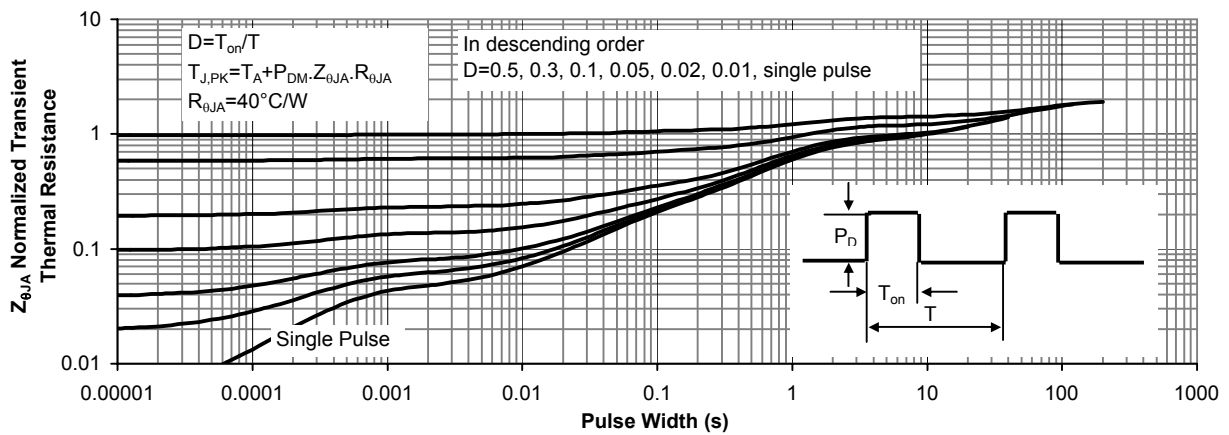


Figure 11: Normalized Maximum Transient Thermal Impedance