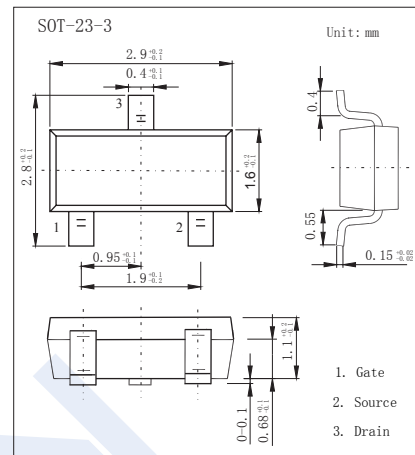
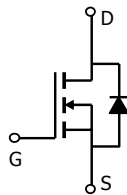


## P-Channel Enhancement MOSFET

## AO3419 (KO3419)

## ■ Features

- $V_{DS} (V) = -20V$
- $I_D = -3.5 A$
- $R_{DS(ON)} < 75m\Omega$  ( $V_{GS} = -10V$ )
- $R_{DS(ON)} < 95m\Omega$  ( $V_{GS} = -4.5V$ )
- $R_{DS(ON)} < 145m\Omega$  ( $V_{GS} = -2.5V$ )

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	-20	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Continuous Drain Current *1 $T_A=25^\circ C$	$I_D$	-3.5	A
Current *1 $T_A=70^\circ C$		-2.8	
Pulsed Drain Current *2		$I_{DM}$	
Power Dissipation *1 $T_A=25^\circ C$	$P_D$	1.4	W
$T_A=70^\circ C$		0.9	
Thermal Resistance.Junction-to-Ambient	$R_{\theta JA}$	125	$^\circ C/W$
Thermal Resistance.Junction-to-Case	$R_{\theta JC}$	60	$^\circ C/W$
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to 150	$^\circ C$

\*1The value of  $R_{\theta JA}$  is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz.

Copper, in a still air environment with  $T_A = 25^\circ C$

\*2 Repetitive rating, pulse width limited by junction temperature.

## AO3419 (K03419)

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V <sub>DSS</sub>	I <sub>D</sub> =250 μA, V <sub>GS</sub> =0V	-20			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-16V, V <sub>GS</sub> =0V			-0.5	μA
		V <sub>DS</sub> =-16V, V <sub>GS</sub> =0V, T <sub>J</sub> =55°C			-2.5	
Gate-Body leakage current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±10V			±1	μA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> I <sub>D</sub> =-250 μA	-0.7	-0.9	-1.4	V
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =-10V, I <sub>D</sub> =-3.5A		59	75	mΩ
		V <sub>GS</sub> =-10V, I <sub>D</sub> =-3.5A T <sub>J</sub> =125°C		83	105	
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-3A		76	95	
		V <sub>GS</sub> =-2.5V, I <sub>D</sub> =-1A		111	145	
On state drain current	I <sub>D(ON)</sub>	V <sub>GS</sub> =-4.5V, V <sub>DS</sub> =-5V	-15			A
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =-5V, I <sub>D</sub> =-3.5A		6.8		S
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =-10V, f=1MHz		512	620	pF
Output Capacitance	C <sub>oss</sub>			77		pF
Reverse Transfer Capacitance	C <sub>rss</sub>			62		pF
Gate resistance	R <sub>g</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, f=1MHz		9.2	13	Ω
Total Gate Charge	Q <sub>g</sub>	V <sub>GS</sub> =-4.5V, V <sub>DS</sub> =-10V, I <sub>D</sub> =-3.5A		5.5	6.6	nC
Gate Source Charge	Q <sub>gs</sub>			0.8		nC
Gate Drain Charge	Q <sub>gd</sub>			1.9		nC
Turn-On DelayTime	t <sub>d(on)</sub>	V <sub>GS</sub> =-10V, V <sub>DS</sub> =-10V, R <sub>L</sub> =2.8 Ω, R <sub>GEN</sub> =3 Ω		5		ns
Turn-On Rise Time	t <sub>r</sub>			6.7		ns
Turn-Off DelayTime	t <sub>d(off)</sub>			28		ns
Turn-Off Fall Time	t <sub>f</sub>			13.5		ns
Body Diode Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> =-3.5A, di/dt=100A/μs		9.8	12	ns
Body Diode Reverse Recovery Charge	Q <sub>rr</sub>	I <sub>F</sub> =-3.5A, di/dt=100A/μs		2.7		nC
Maximum Body-Diode Continuous Current	I <sub>S</sub>				-2	A
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =-1A, V <sub>GS</sub> =0V	-0.65	-0.81	-0.95	V

## ■ Marking

Marking	AL*
---------	-----

**AO3419 (KO3419)**

■ Typical Characteristics

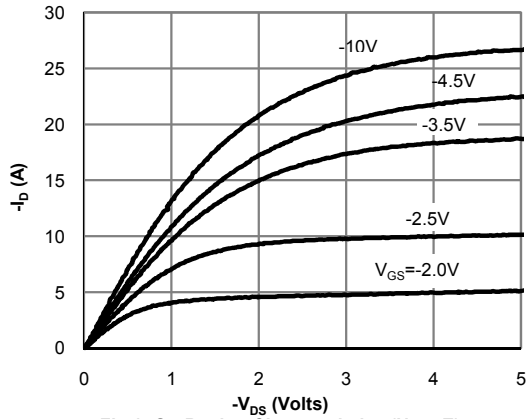


Fig 1: On-Region Characteristics (Note E)

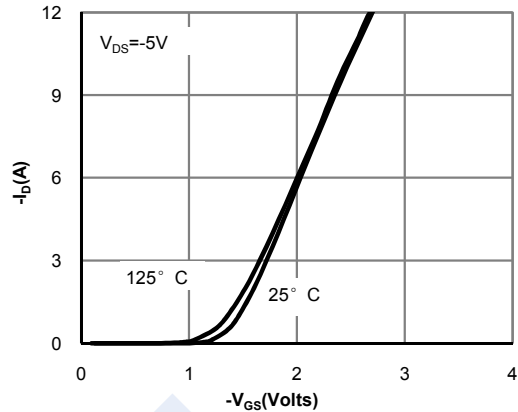


Figure 2: Transfer Characteristics (Note E)

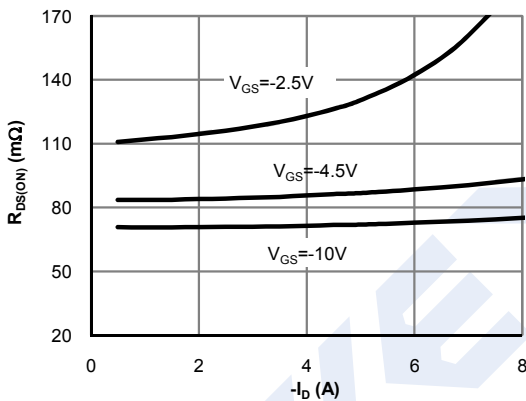


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

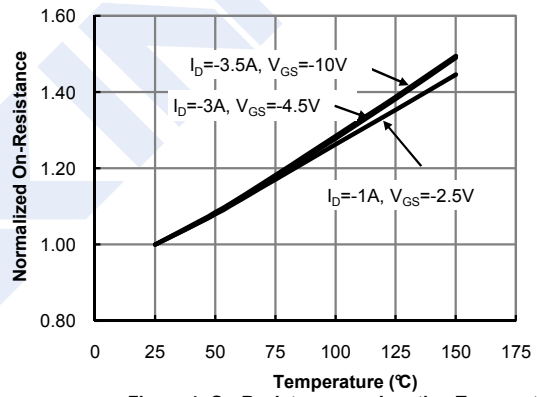


Figure 4: On-Resistance vs. Junction Temperature (Note E)

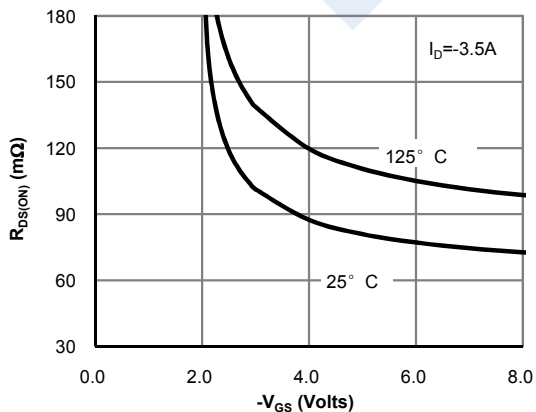


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

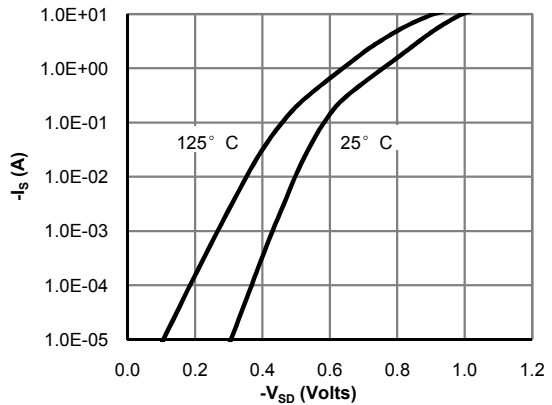


Figure 6: Body-Diode Characteristics (Note E)

# AO3419 (KO3419)

## Typical Characteristics

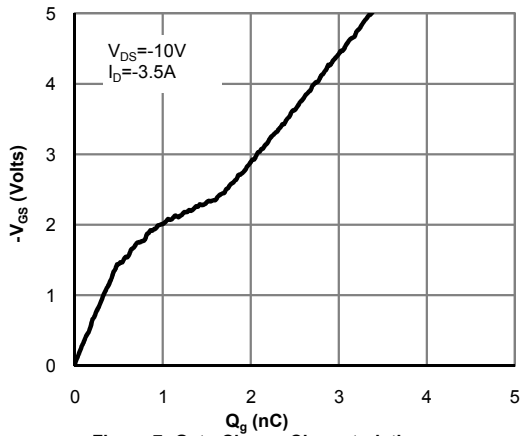


Figure 7: Gate-Charge Characteristics

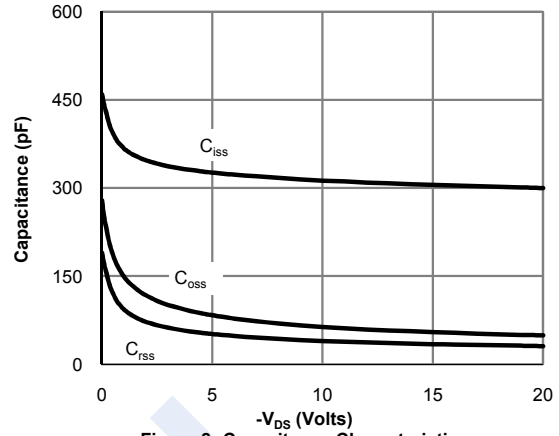


Figure 8: Capacitance Characteristics

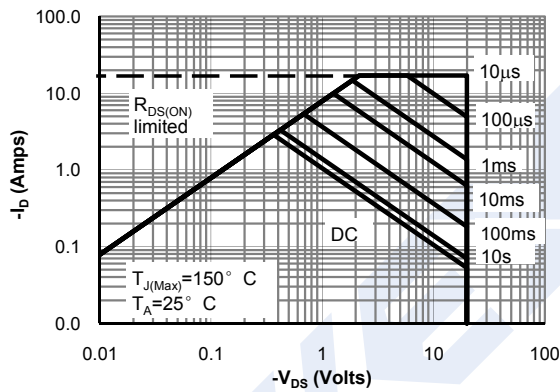


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

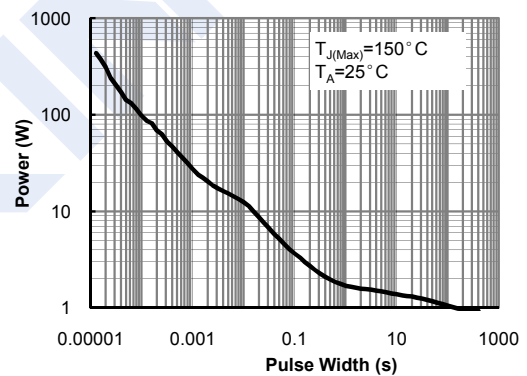


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note F)

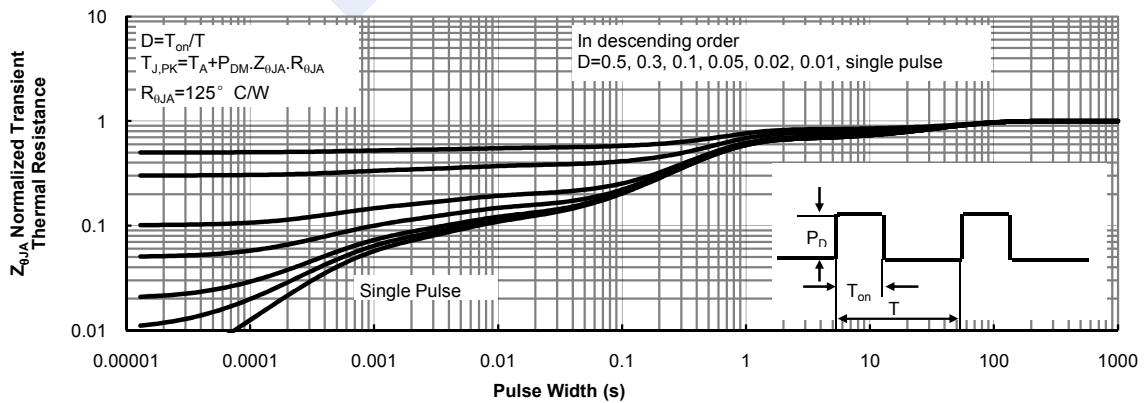


Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)