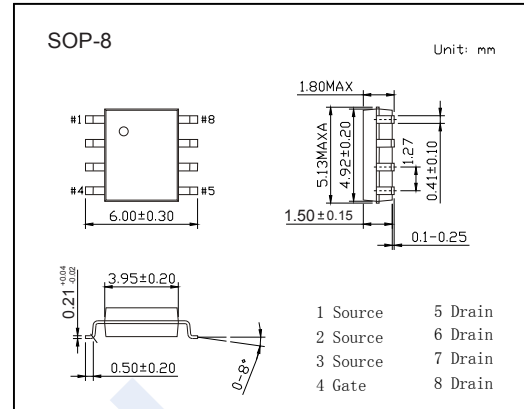
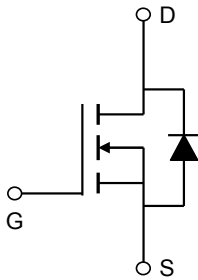


## N-Channel MOSFET

### AO4454 (KO4454)

#### ■ Features

- $V_{DS} (V) = 100V$
- $I_D = 6.5 A (V_{GS} = 10V)$
- $R_{DS(ON)} < 36m\Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 43m\Omega (V_{GS} = 7V)$



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

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	$V_{DS}$	100	V	
Gate-Source Voltage	$V_{GS}$	$\pm 25$		
Continuous Drain Current	$I_D$	$T_A=25^\circ C$	A	
		$T_A=70^\circ C$		6.5
Pulsed Drain Current	$I_{DM}$	46	A	
Avalanche Current	$I_{AS}, I_{AR}$	28		
Avalanche Energy	$L=0.1mH$	$E_{AS}, E_{AR}$	39	mJ
Power Dissipation	$P_D$	$T_A=25^\circ C$	W	
		$T_A=70^\circ C$		3.1
Thermal Resistance.Junction- to-Ambient	$R_{thJA}$	$t \leq 10s$	$^\circ C/W$	
		Steady-State		40
Thermal Resistance.Junction- to-Lead	$R_{thJL}$	24	$^\circ C$	
Junction Temperature	$T_J$	150		
Storage Temperature Range	$T_{stg}$	-55 to 150		

## N-Channel MOSFET

## AO4454 (KO4454)

## ■ 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> =250μA, V <sub>GS</sub> =0V	100			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =100V, V <sub>GS</sub> =0V			10	μA
		V <sub>DS</sub> =100V, V <sub>GS</sub> =0V, T <sub>J</sub> =55°C			50	
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> =250μA	2.8		4	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =6.5A			36	mΩ
		V <sub>GS</sub> =10V, I <sub>D</sub> =6.5A, T <sub>J</sub> =125°C			67	
		V <sub>GS</sub> =7V, I <sub>D</sub> =6A			43	
On State Drain Current	I <sub>D(ON)</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =5V	46			A
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =6.5A		20		S
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =50V, f=1MHz	950		1450	pF
Output Capacitance	C <sub>oss</sub>		77		145	
Reverse Transfer Capacitance	C <sub>rss</sub>		21		50	
Gate Resistance	R <sub>g</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, f=1MHz	0.35		1.05	Ω
Total Gate Charge	Q <sub>g</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =50V, I <sub>D</sub> =6.5A	15		23	nC
Gate Source Charge	Q <sub>gs</sub>		5.5		8.5	
Gate Drain Charge	Q <sub>gd</sub>		3.5		9	
Turn-On DelayTime	t <sub>d(on)</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =50V, R <sub>L</sub> =6.7Ω, R <sub>GEN</sub> =3Ω		10		ns
Turn-On Rise Time	t <sub>r</sub>			7.2		
Turn-Off DelayTime	t <sub>d(off)</sub>			15		
Turn-Off Fall Time	t <sub>f</sub>			7		
Body Diode Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 6.5A, di/dt= 500A/μs	11		21	nC
Body Diode Reverse Recovery Charge	Q <sub>rr</sub>		35		65	
Maximum Body-Diode Continuous Current	I <sub>S</sub>				4	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	4454 KC****
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## N-Channel MOSFET

### AO4454 (KO4454)

#### ■ Typical Characteristics

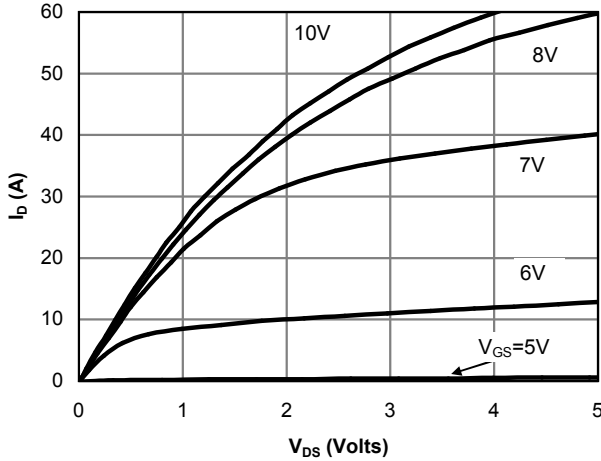


Fig 1: On-Region Characteristics (Note E)

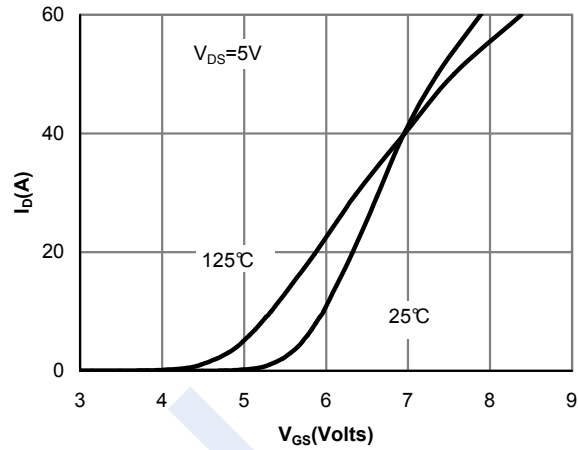


Figure 2: Transfer Characteristics (Note E)

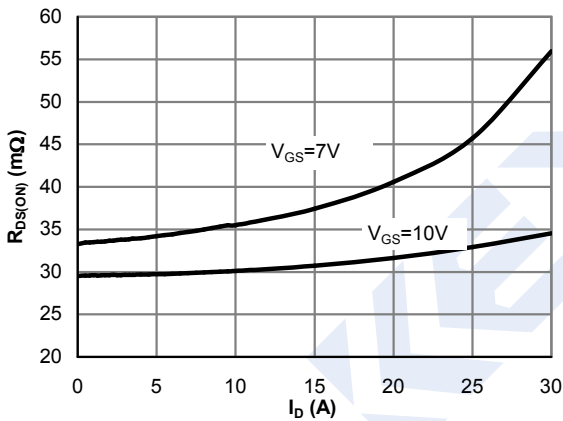


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

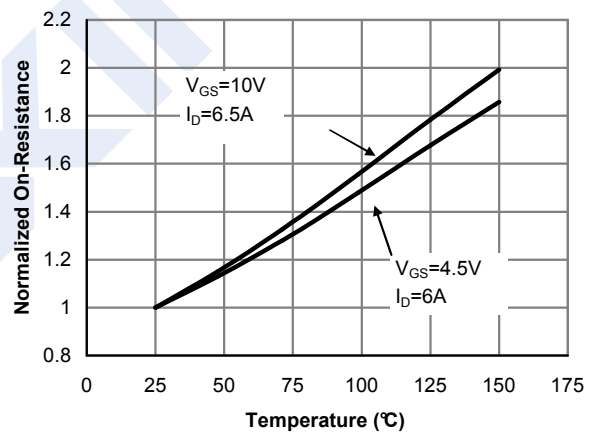


Figure 4: On-Resistance vs. Junction Temperature (Note E)

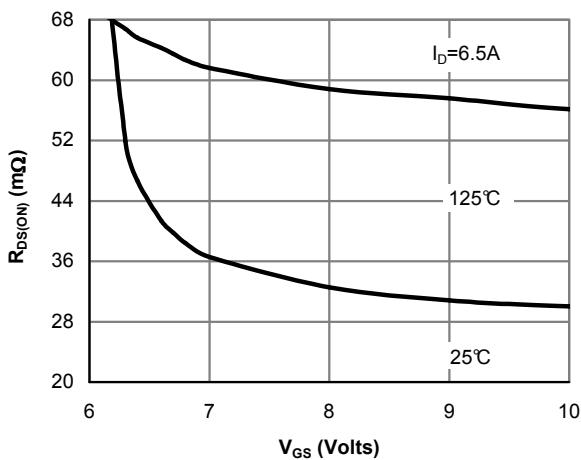


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

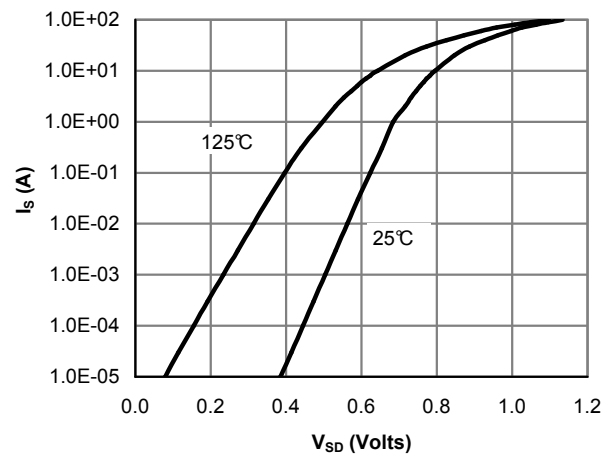


Figure 6: Body-Diode Characteristics (Note E)

### N-Channel MOSFET

### AO4454 (KO4454)

■ Typical Characteristics

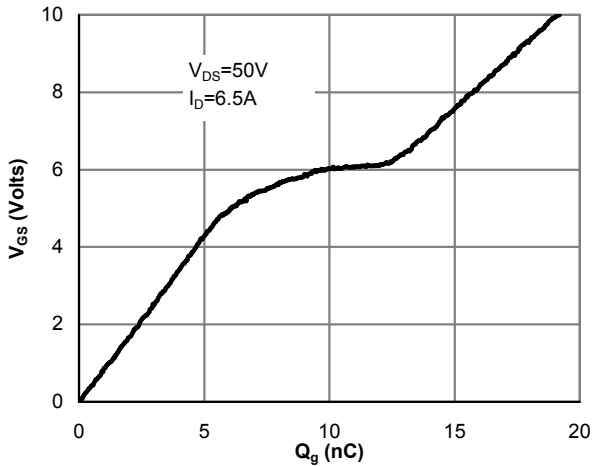


Figure 7: Gate-Charge Characteristics

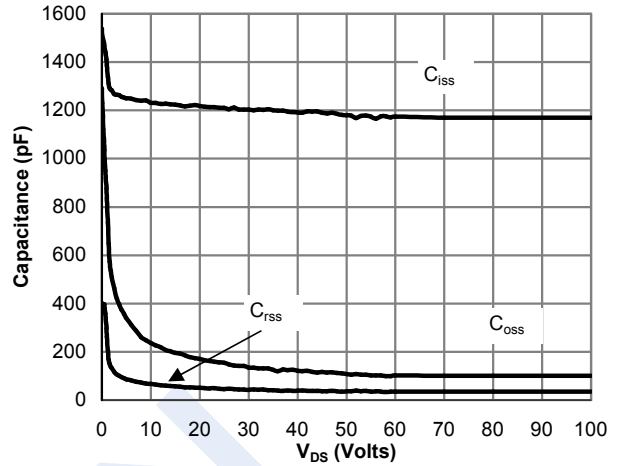


Figure 8: Capacitance Characteristics

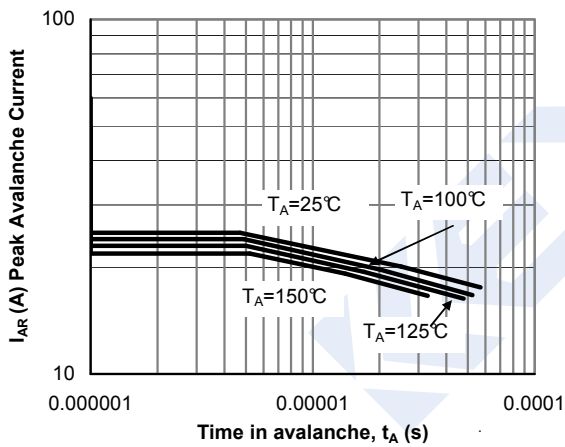


Figure 9: Single Pulse Avalanche capability (Note C)

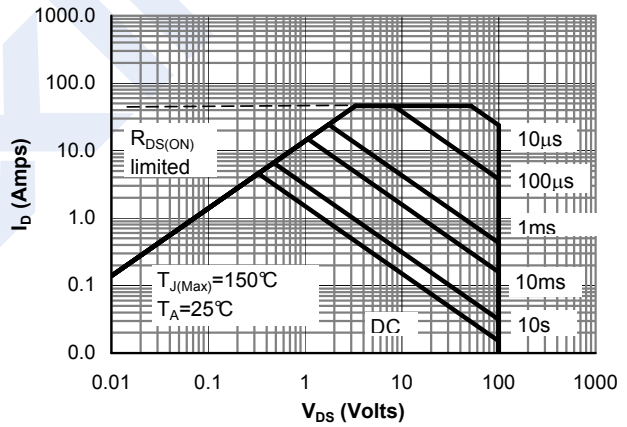


Figure 10: Maximum Forward Biased Safe Operating Area (Note F)

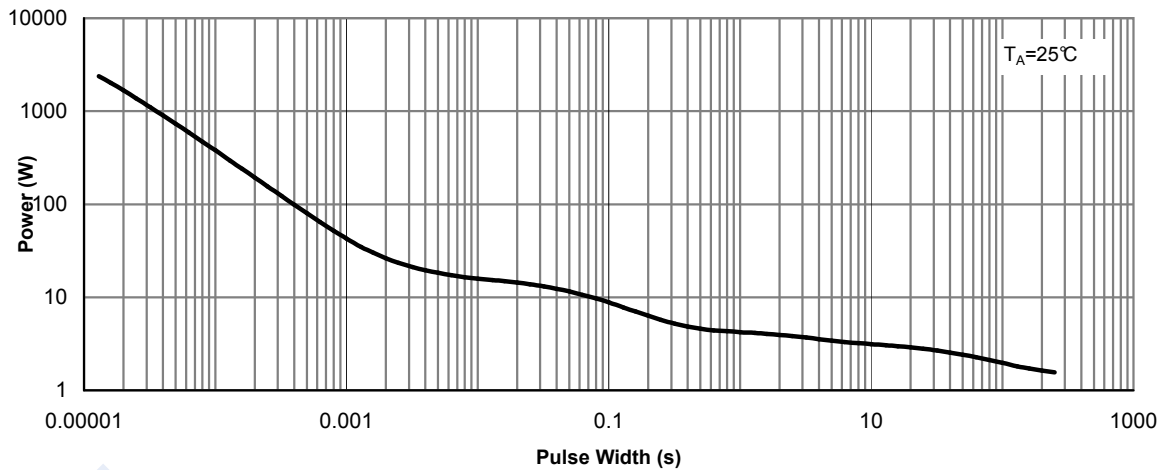


Figure 11: Single Pulse Power Rating Junction-to-Ambient (Note F)

## N-Channel MOSFET AO4454 (KO4454)

■ Typical Characteristics

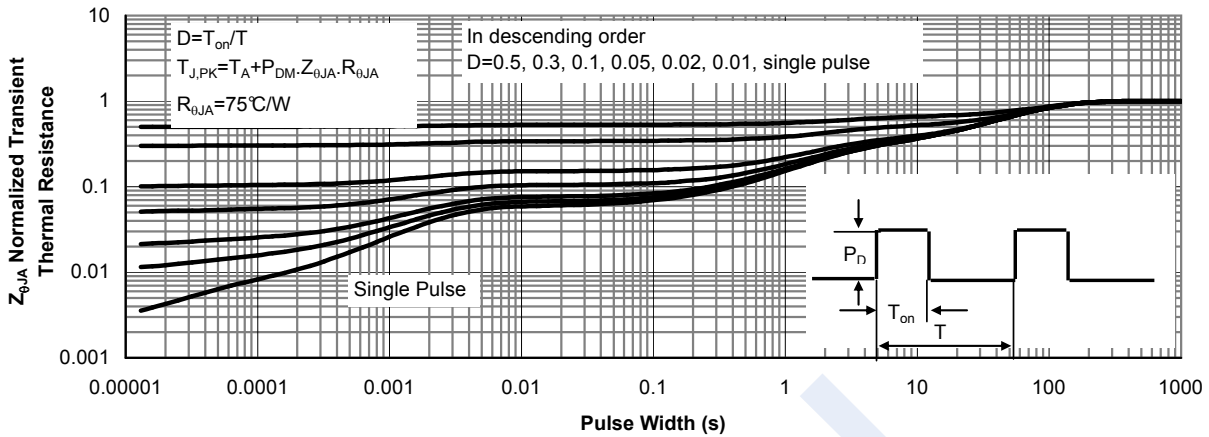


Figure 12: Normalized Maximum Transient Thermal Impedance (Note F)

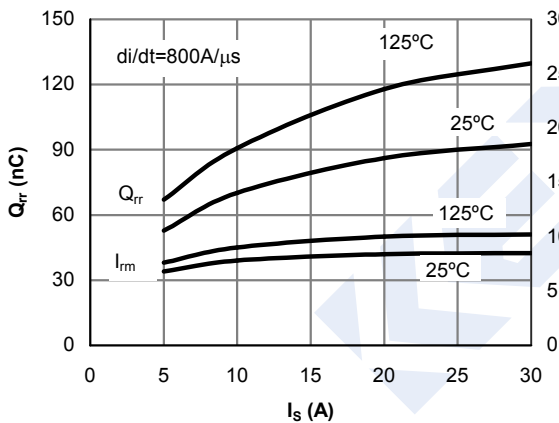


Figure 13: Diode Reverse Recovery Charge and Peak Current vs. Conduction Current

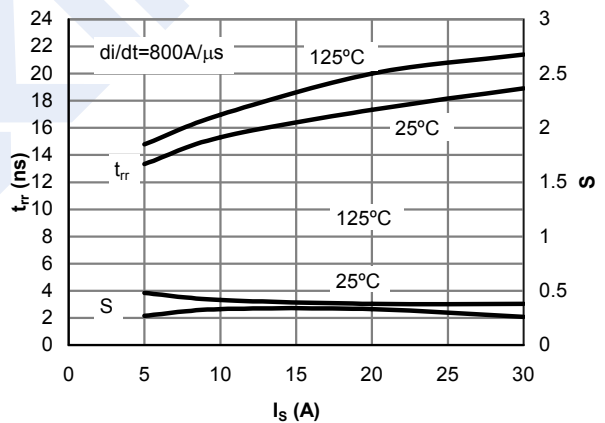


Figure 14: Diode Reverse Recovery Time and Softness Factor vs. Conduction Current

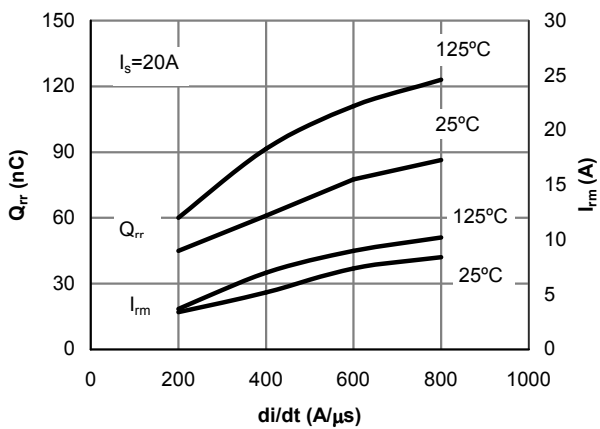


Figure 15: Diode Reverse Recovery Charge and Peak Current vs. di/dt

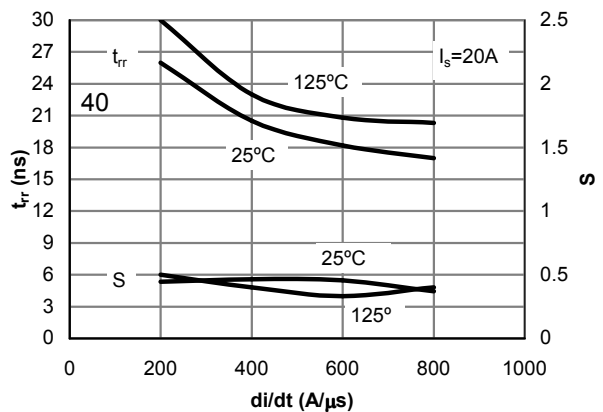


Figure 16: Diode Reverse Recovery Time and Softness Factor vs. di/dt