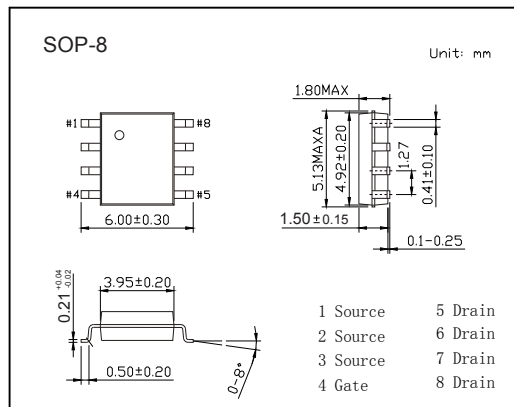
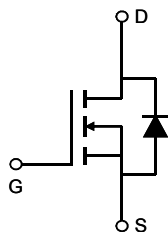


N-Channel MOSFET

AO4314 (KO4314)

■ Features

- $V_{DS}(V) = 36V$
- $I_D = 20\text{ A}$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 6\text{ m}\Omega$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 8.5\text{ m}\Omega$ ($V_{GS} = 4.5V$)

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

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	36	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current	$T_A = 25^\circ\text{C}$	I_D	20	A
	$T_A = 70^\circ\text{C}$		16	
Pulsed Drain Current		I_{DM}	219	
Avalanche Current		I_{AS}, I_{AR}	35	
Avalanche energy	$L = 0.1\text{mH}$	E_{AS}, E_{AR}	61	mJ
Power Dissipation	$T_A = 25^\circ\text{C}$	P_D	4.2	W
	$T_A = 70^\circ\text{C}$		2.7	
Thermal Resistance.Junction- to-Ambient	$t \leq 10\text{s}$	R_{thJA}	30	$^\circ\text{C/W}$
	Steady-State		60	
Thermal Resistance.Junction- to-Lead		R_{thJL}	15	$^\circ\text{C}$
Junction Temperature		T_J	150	
Storage Temperature Range		T_{stg}	-55 to 150	

N-Channel MOSFET

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■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =250 uA, V _{GS} =0V	36			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =36V, V _{GS} =0V			1	uA
		V _{DS} =36V, V _{GS} =0V, T _J =55°C			5	
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	1.2		2.3	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A			6	mΩ
		V _{GS} =10V, I _D =20A T _J =125°C			9.5	
		V _{GS} =4.5V, I _D =20A			8.5	
On State Drain Current	I _{D(ON)}	V _{GS} =10V, V _{DS} =5V	219			A
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =20A		90		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =18V, f=1MHz	980		1470	pF
Output Capacitance	C _{oss}		325		605	
Reverse Transfer Capacitance	C _{rss}		10		60	
Gate Resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz	0.5		1.6	Ω
Total Gate Charge (10V)	Q _g	V _{GS} =10V, V _{DS} =18V, I _D =20A	14		23	nC
Total Gate Charge (4.5V)			6		12	
Gate Source Charge	Q _{gs}			2.8		
Gate Drain Charge	Q _{gd}			3.2		
Turn-On DelayTime	t _{d(on)}			4.5		
Turn-On Rise Time	t _r	V _{GS} =10V, V _{DS} =18V, R _L =0.9Ω, R _{GEN} =3Ω		3.5		ns
Turn-Off DelayTime	t _{d(off)}			20.3		
Turn-Off Fall Time	t _f			3.5		
Body Diode Reverse Recovery Time	t _{rr}	I _F = 20A, dI/dt= 500A/us	12		18	nC
Body Diode Reverse Recovery Charge	Q _{rr}		24		36	
Maximum Body-Diode Continuous Current	I _S				5.5	A
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =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	4314 KC****
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N-Channel MOSFET

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■ Typical Characteristics

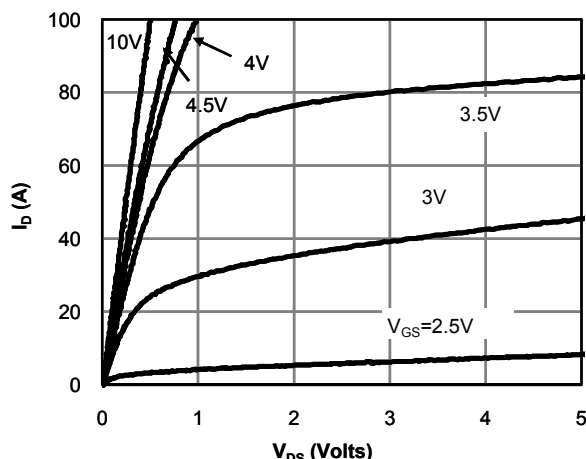


Fig 1: On-Region Characteristics (Note E)

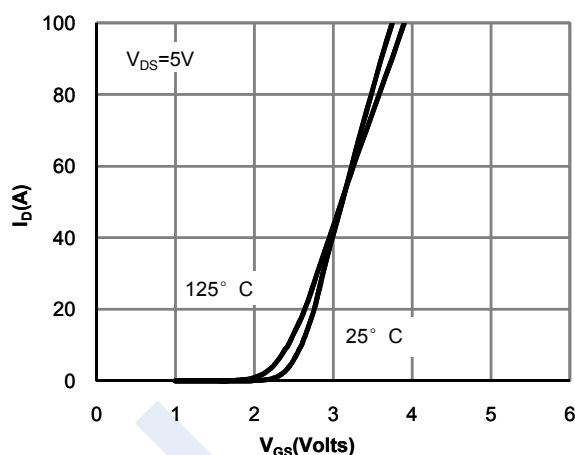


Figure 2: Transfer Characteristics (Note E)

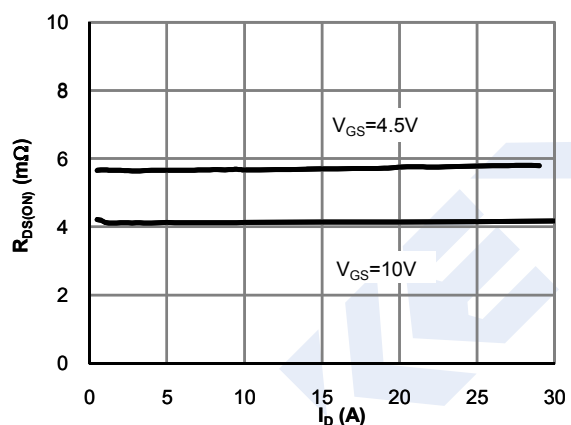


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

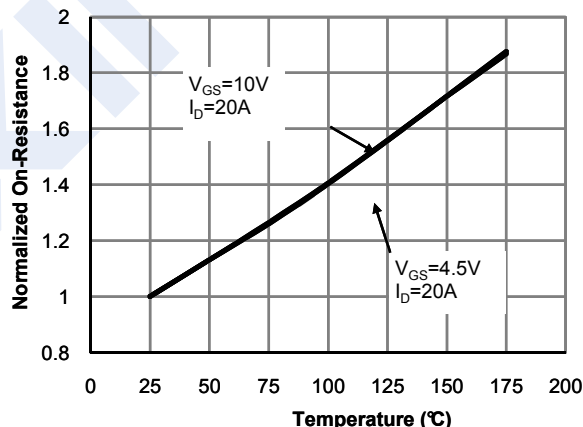


Figure 4: On-Resistance vs. Junction Temperature (Note E)

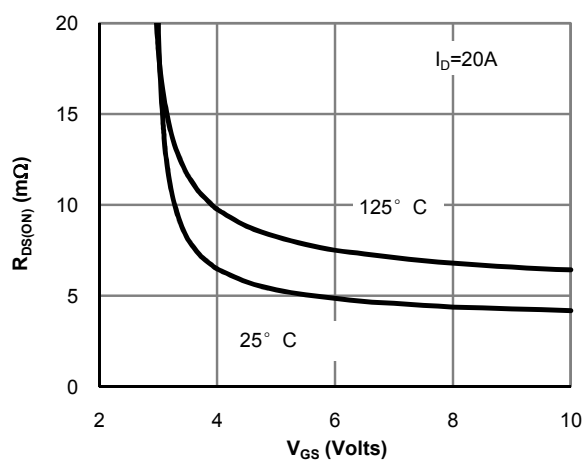


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

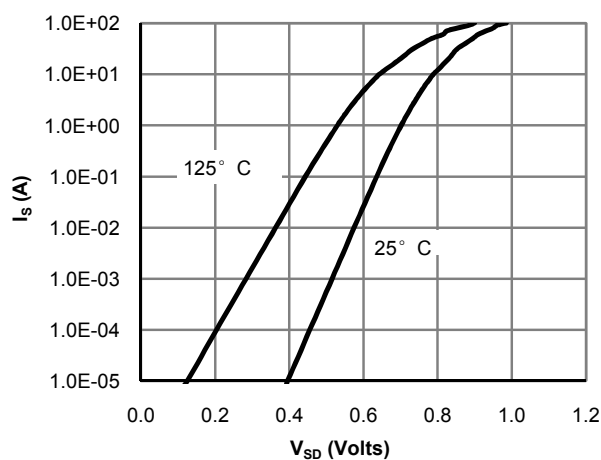


Figure 6: Body-Diode Characteristics (Note E)

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■ Typical Characteristics

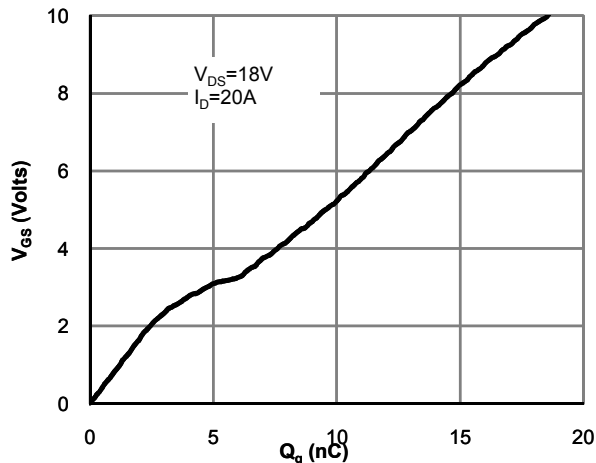


Figure 7: Gate-Charge Characteristics

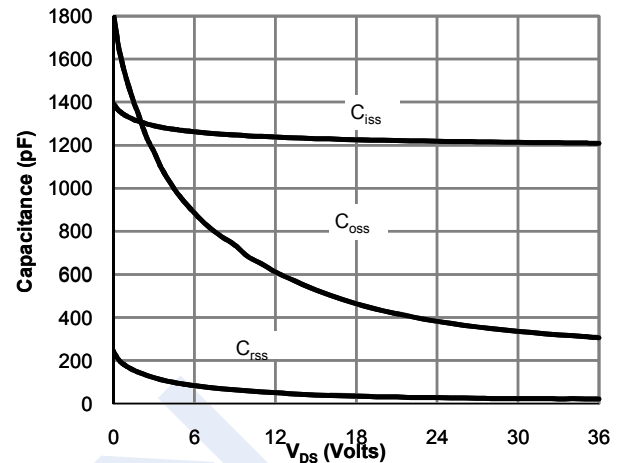


Figure 8: Capacitance Characteristics

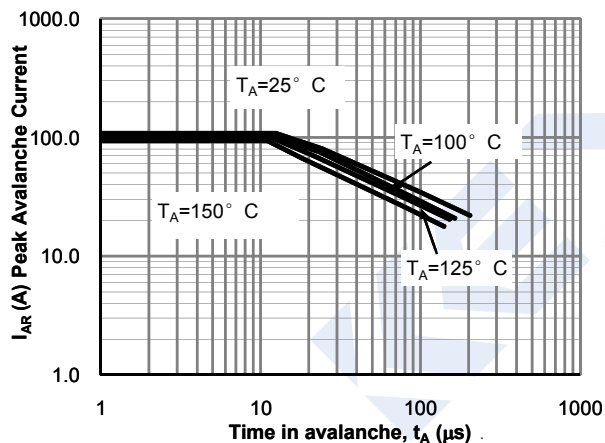


Figure 12: Single Pulse Avalanche capability (Note C)

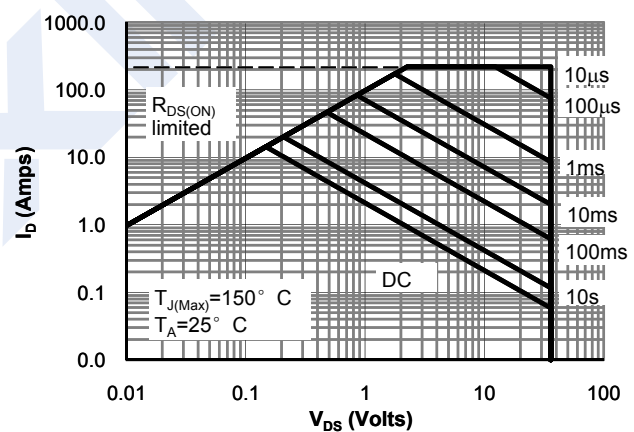


Figure 10: Maximum Forward Biased Safe Operating Area (Note F)

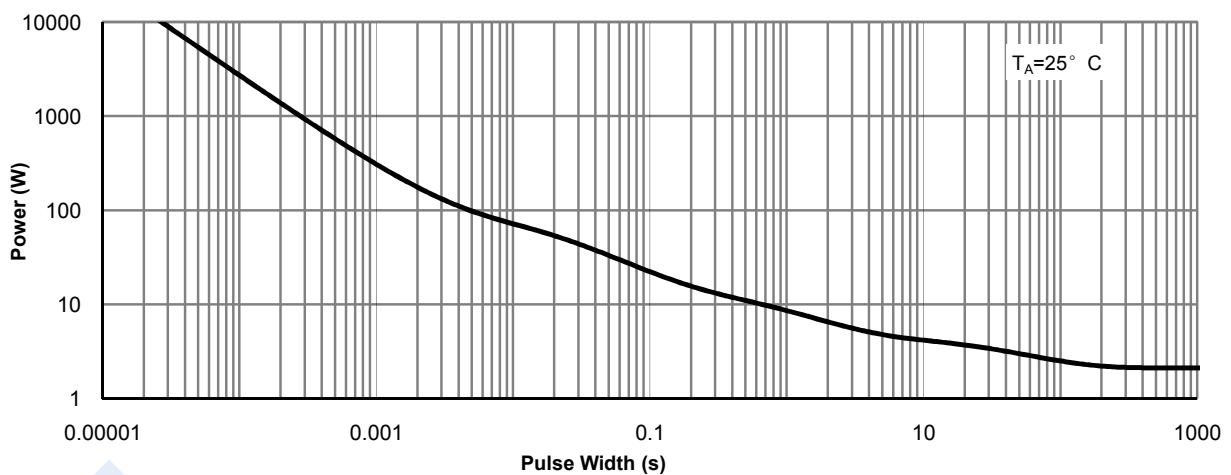


Figure 11: Single Pulse Power Rating Junction-to-Ambient (Note F)

N-Channel MOSFET

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■ Typical Characteristics

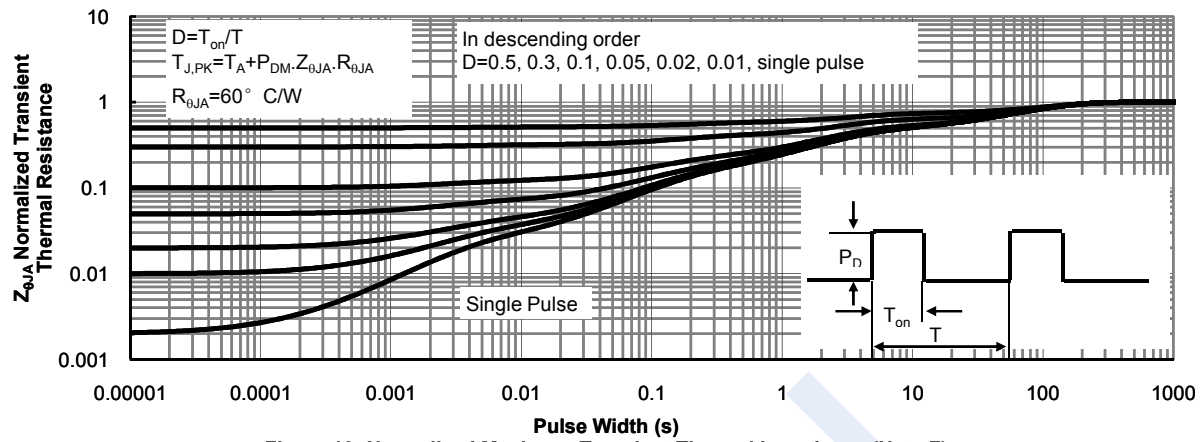


Figure 12: Normalized Maximum Transient Thermal Impedance (Note F)