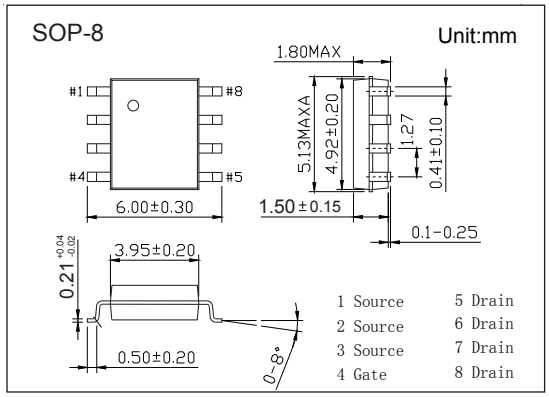
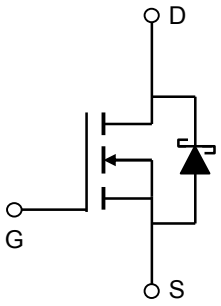
N-Channel MOSFET

AO4714 (KO4714)



■ Features

- V_{DS} (V) = 30V
- I_D = 20 A (V_{GS} = 10V)
- $R_{DS(ON)}$ < 4.7mΩ (V_{GS} = 10V)
- $R_{DS(ON)}$ < 6.7mΩ (V_{GS} = 4.5V)
- SRFET™ Soft Recovery MOSFET:Integrated Schottky Diode



■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current	T_A=25℃	I_D	20	A
	T_A=70℃		16	
Pulsed Drain Current		I_{DM}	100	
Avalanche Current		I_{AR}	30	
Repetitive Avalanche Energy	L=0.3mH	E_{AR}	135	mJ
Power Dissipation	T_A=25℃	P_D	3	W
	T_A=70℃		2	
Thermal Resistance.Junction- to-Ambient	t ≤ 10s	R_{thJA}	40	℃/W
	Steady-State		75	
Thermal Resistance.Junction- to-Lead		R_{thJL}	24	
Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{stg}	-55 to 150	

N-Channel MOSFET

AO4714 (KO4714)

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=1mA, V_{GS}=0V	30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V			0.1	mA
		V_{DS}=30V, V_{GS}=0V, T_J=125℃			20	
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=250μA	1.2		2.2	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=20A			4.7	mΩ
		V_{GS}=10V, I_D=20A T_J=125℃			7.3	
		V_{GS}= 4.5V, I_D=16A			6.7	
On State Drain Current	$I_{D(ON)}$	V_{GS}=10V, V_{DS}=5V	100			A
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=20A		90		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=15V, f=1MHz		3760	4512	pF
Output Capacitance	C_{oss}			682		
Reverse Transfer Capacitance	C_{rss}			314		
Gate Resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz		0.75	1.5	Ω
Total Gate Charge (10V)	Q_g	V_{GS}=10V, V_{DS}=15V, I_D=20A		62	74	nC
Total Gate Charge (4.5V)				29	35	
Gate Source Charge	Q_{gs}			12		
Gate Drain Charge	Q_{gd}			12		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=10V, V_{DS}=15V, R_L=0.75Ω, R_{GEN}=3Ω		9.5		ns
Turn-On Rise Time	t_r			8.5		
Turn-Off DelayTime	$t_{d(off)}$			34		
Turn-Off Fall Time	t_f			9		
Body Diode Reverse Recovery Time	t_{rr}	I_F= 20A, dI/dt= 300A/us		18	27	
Body Diode Reverse Recovery Charge	Q_{rr}			22		nC
Maximum Body-Diode Continuous Current	I_S				6	A
Diode Forward Voltage	V_{SD}	I_S=1A,V_{GS}=0V			0.5	V

Note.The static characteristics in Figures 1 to 6 are obtained using <300 us pulses, duty cycle 0.5% max.

■ Marking

Marking	4714 KC****

N-Channel MOSFET

AO4714 (KO4714)

■ Typical Characterisitics

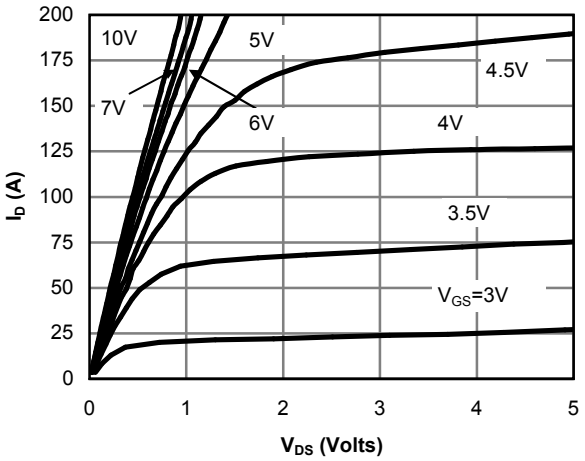


Figure 1: On-Region Characteristics

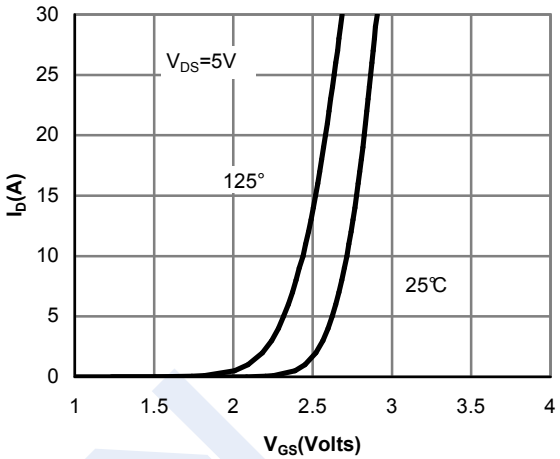


Figure 2: Transfer Characteristics

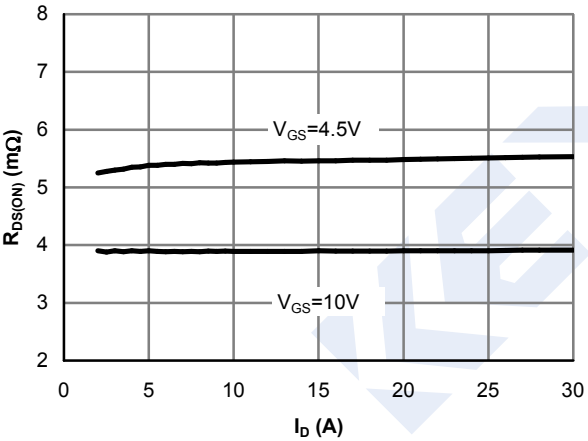


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

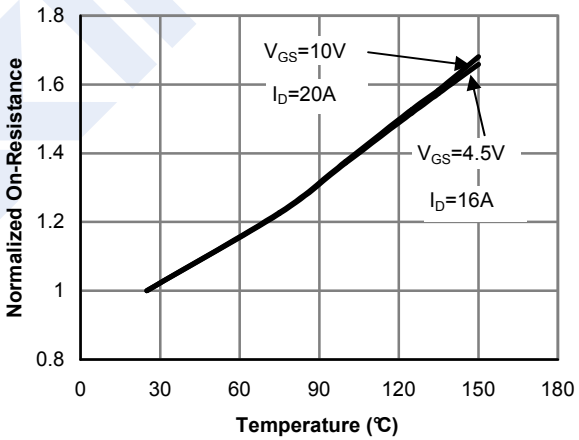


Figure 4: On-Resistance vs. Junction Temperature

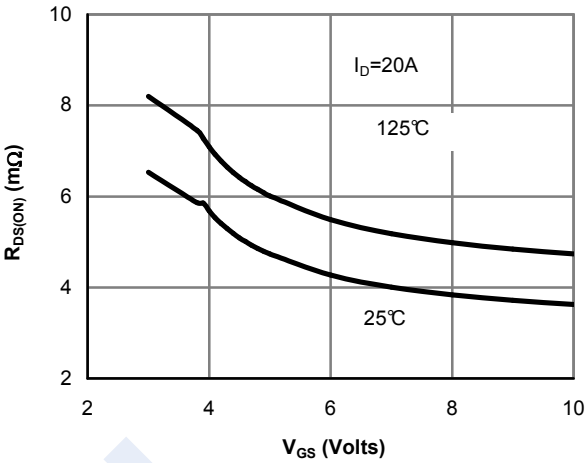


Figure 5: On-Resistance vs. Gate-Source Voltage

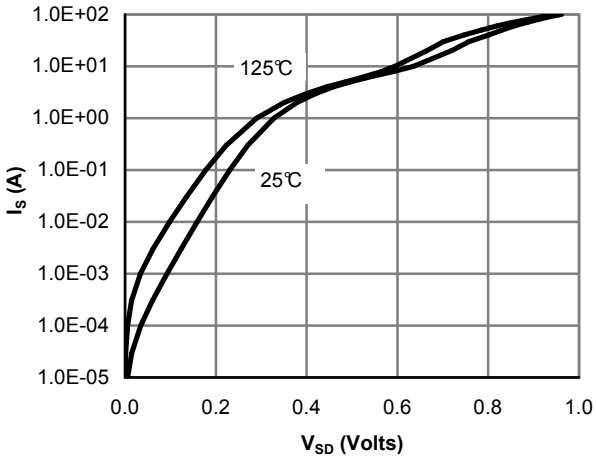


Figure 6: Body-Diode Characteristics

N-Channel MOSFET

AO4714 (KO4714)

■ Typical Characterisitics

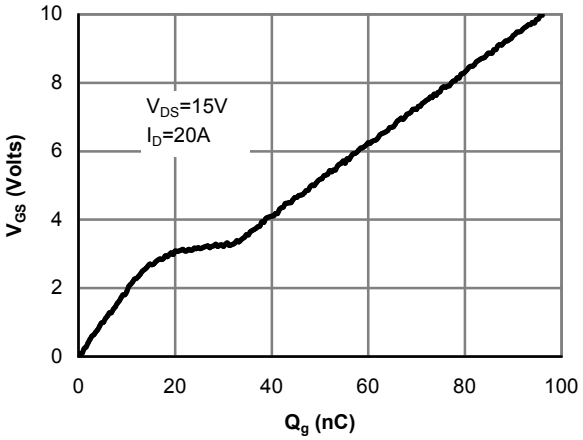


Figure 7: Gate-Charge Characteristics

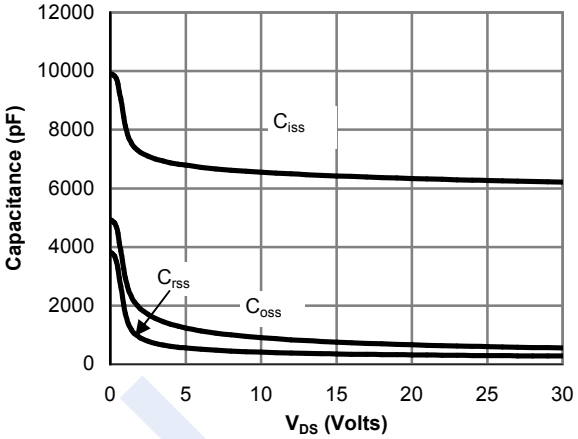


Figure 8: Capacitance Characteristics

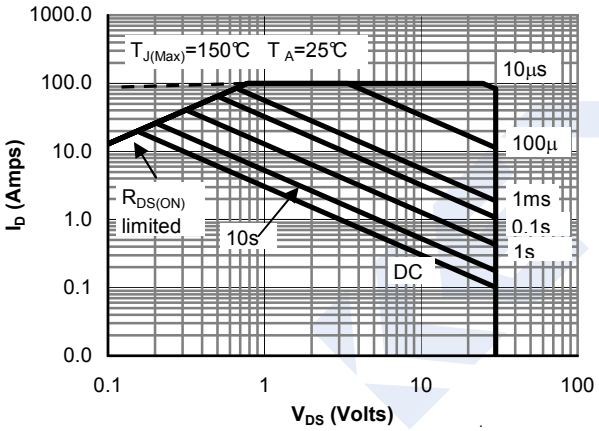


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

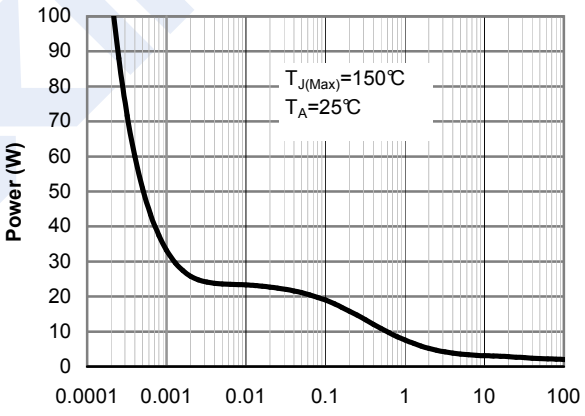


Figure10: Single Pulse Power Rating Junction-to-Ambient (Note E)

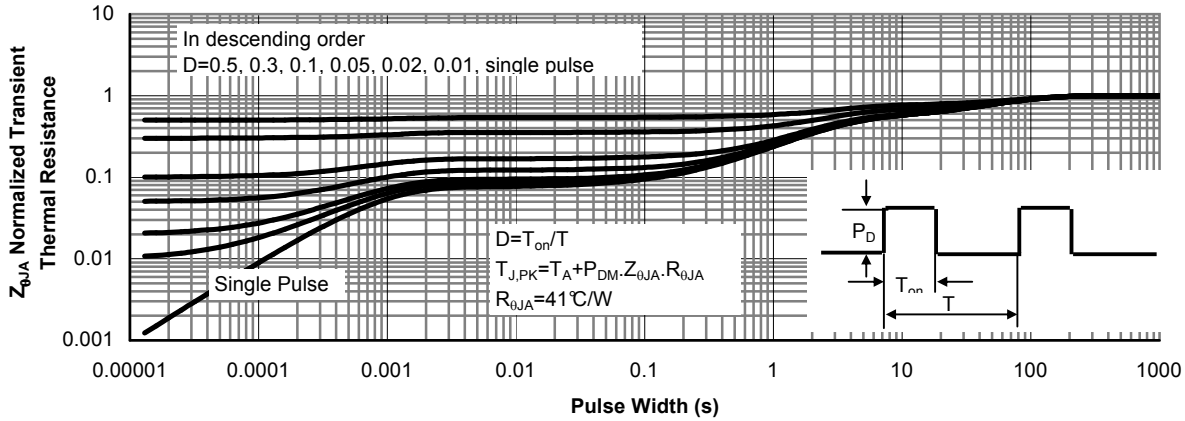


Figure 11: Normalized Maximum Transient Thermal Impedance (Note E)