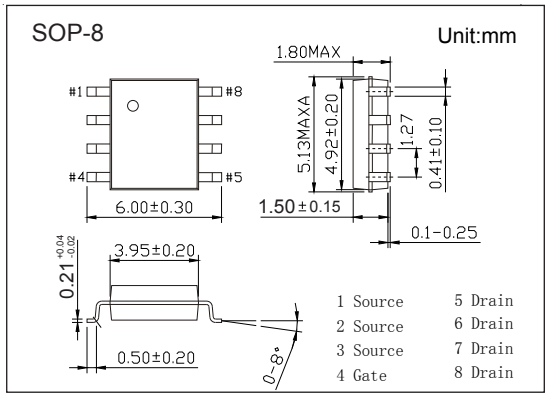
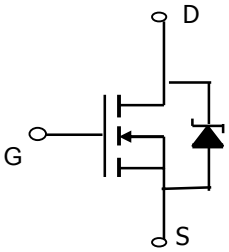
N-Channel MOSFET

AO4724 (KO4724)



■ Features

- $V_{DS\ (V)}$ = 30V
- I_D = 10.5 A (V_{GS} = 10V)
- $R_{DS(ON)}$ < 17.5mΩ (V_{GS} = 10V)
- $R_{DS(ON)}$ < 29mΩ (V_{GS} = 4.5V)
- SRFET™ Soft Recovery MOSFET:Integrated Schottky Diode



■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	10 Sec	Steady State	Unit
Drain-Source Voltage		V_{DS}	30		V
Gate-Source Voltage		V_{GS}	±20		
Continuous Drain Current	T_A=25℃	I_D	10.5	7.7	A
	T_A=70℃		8.5	6.2	
Pulsed Drain Current		I_{DM}	80		
Avalanche Current		I_{AR}	13		
Repetitive Avalanche Energy	L=0.3mH	E_{AR}	25		mJ
Power Dissipation	T_A=25℃	P_D	3.1	1.7	W
	T_A=70℃		2	1.1	
Thermal Resistance.Junction- to-Ambient		R_{thJA}	40	75	℃/W
Thermal Resistance.Junction- to-Lead		R_{thJL}	-	24	
Junction Temperature		T_J	150		℃
Storage Temperature Range		T_{stg}	-55 to 150		

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250uA, 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	1.3		2	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=10.5A			17.5	mΩ
		V_{GS}=10V, I_D=10.5A T_J=125℃			25.8	
		V_{GS}=4.5V, I_D=8A			29	
On State Drain Current	$I_{D(ON)}$	V_{GS}=10V, V_{DS}=5V	80			A
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=10.5A		23		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=15V, f=1MHz		696	900	pF
Output Capacitance	C_{oss}			199		
Reverse Transfer Capacitance	C_{rss}			81		
Gate Resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz		1.2	1.8	Ω
Total Gate Charge (10V)	Q_g	V_{GS}=10V, V_{DS}=15V, I_D=10.5A		12.4	16	nC
Total Gate Charge (4.5V)				6.1	8	
Gate Source Charge	Q_{gs}			2.04		
Gate Drain Charge	Q_{gd}			2.7		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=10V, V_{DS}=15V, R_L=1.43Ω, R_{GEN}=3Ω		2.6		ns
Turn-On Rise Time	t_r			6.8		
Turn-Off DelayTime	$t_{d(off)}$			17		
Turn-Off Fall Time	t_f			3.6		
Body Diode Reverse Recovery Time	t_{rr}	I_F= 10.5A, dI/dt= 300A/us		20.2	26	
Body Diode Reverse Recovery Charge	Q_{rr}			7.9		nC
Maximum Body-Diode Continuous Current	I_S				4.8	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	4724 KC****

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■ Typical Characterisitics

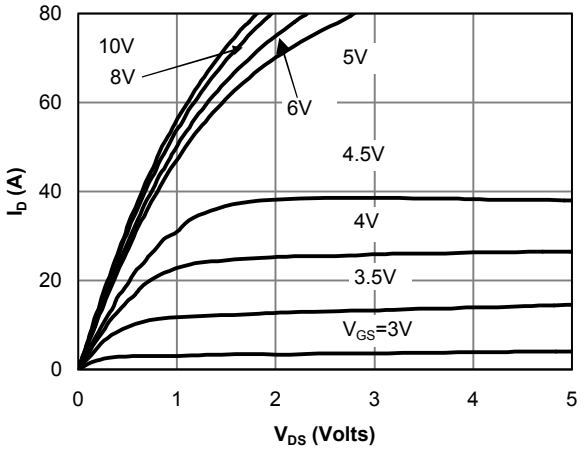

Fig 1: On-Region Characteristics

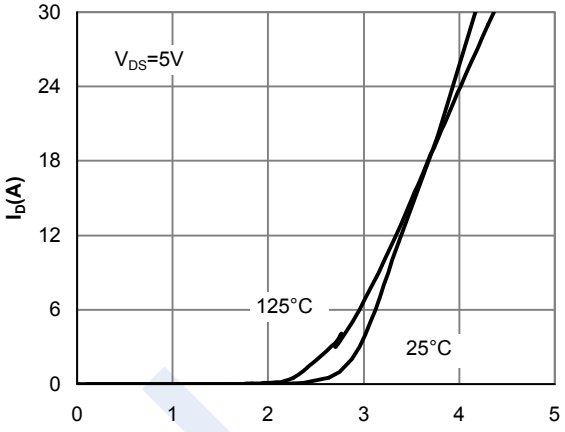

Figure 2: Transfer Characteristics

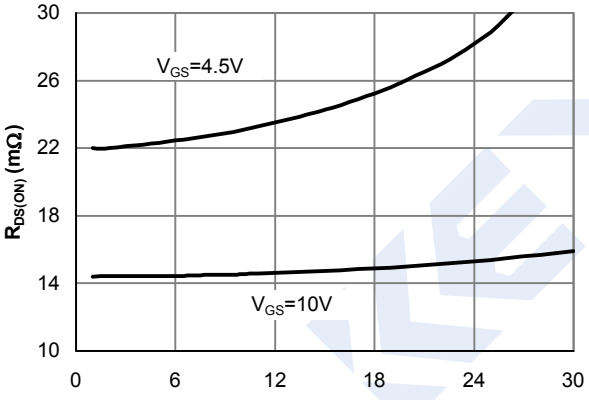

Figure 3: On-Resistance vs. Drain Current and Gate Voltage

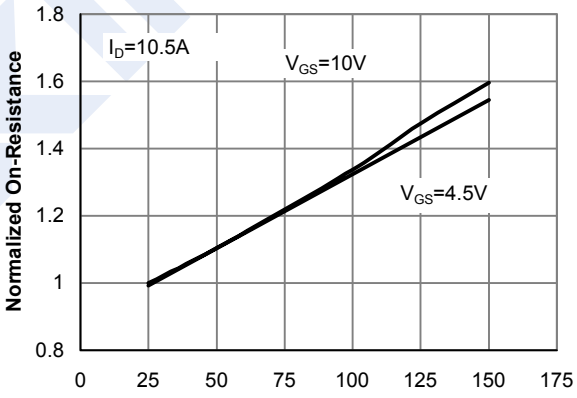

Figure 4: On-Resistance vs. Junction Temperature

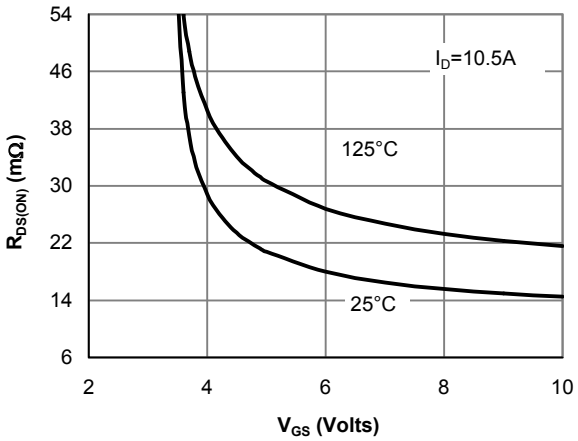

Figure 5: On-Resistance vs. Gate-Source Voltage

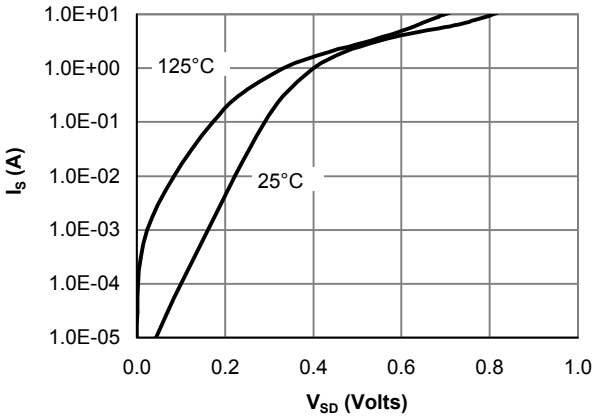

Figure 6: Body-Diode Characteristics

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■ Typical Characterisitics

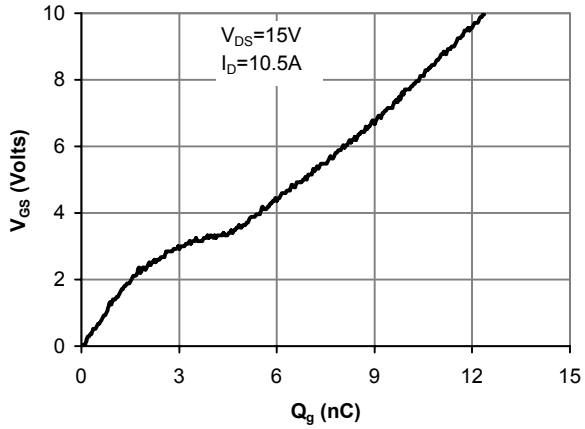

Figure 7: Gate-Charge Characteristics

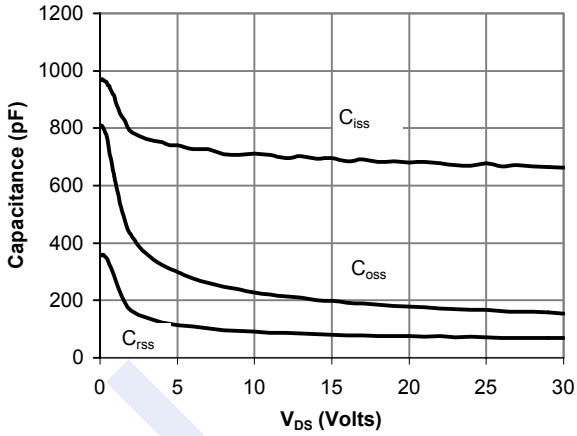

Figure 8: Capacitance Characteristics

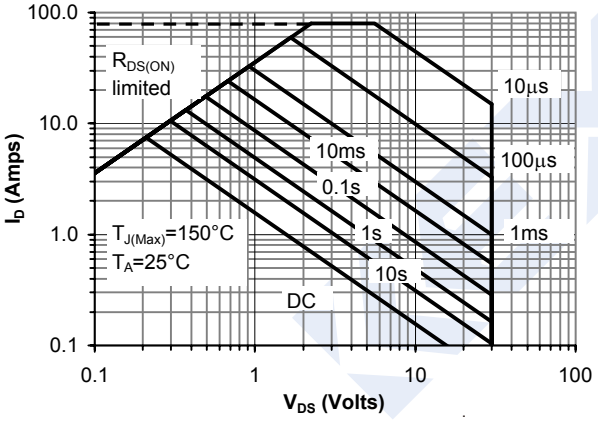

Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

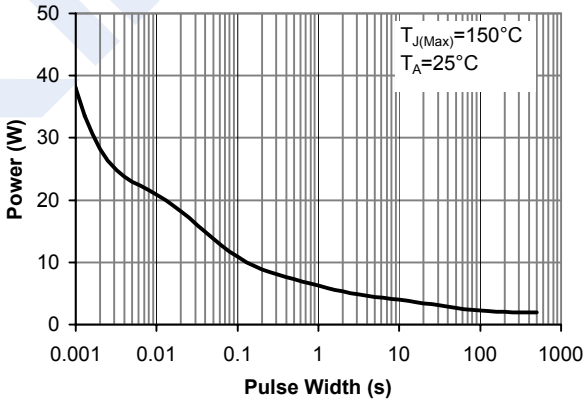

Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

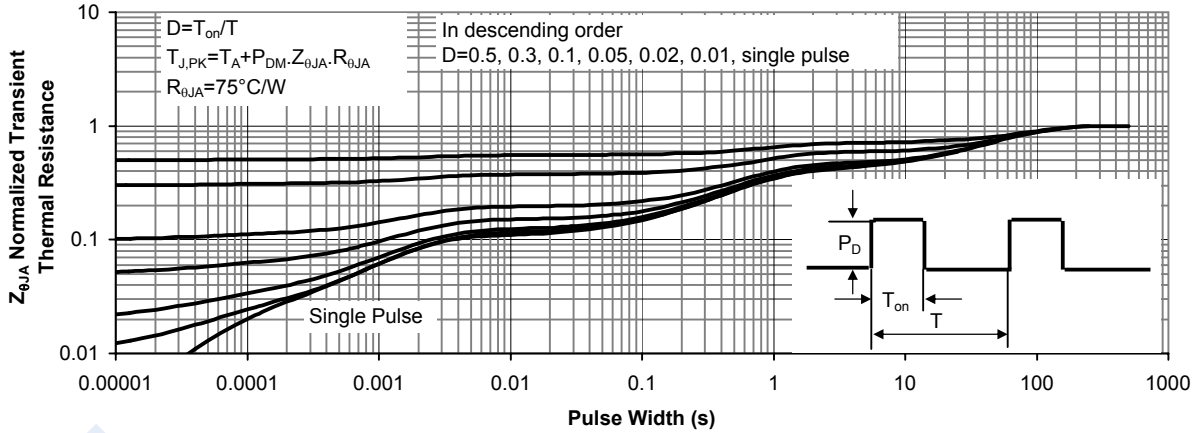

Figure 11: Normalized Maximum Transient Thermal Impedance