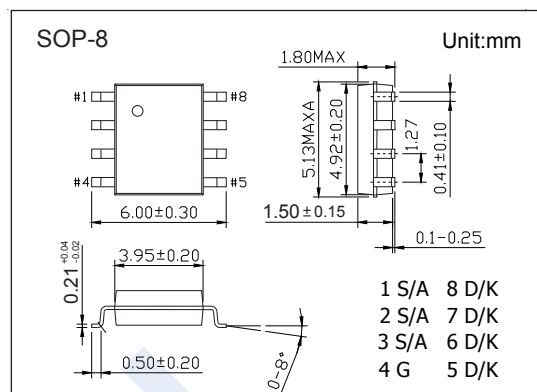
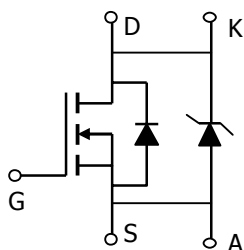


N-Channel MOSFET

AO4704 (KO4704)

■ Features

- $V_{DS} (V) = 30V$
- $I_D = 13 A$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 11.5m\Omega$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 13m\Omega$ ($V_{GS} = 4.5V$)
- $V_{DS} (V) = 30V$, $I_F = 3A$, $V_F < 0.5V @ 1A$

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

Parameter		Symbol	MOSFET	Schottky	Unit
Drain-Source Voltage		V _{DS}	30		V
Gate-Source Voltage		V _{GS}	±12		
Schottky Reverse Voltage		V _{KA}		30	
Continuous Drain Current	T _A =25℃	I _D	13		A
	T _A =70℃		10.4		
Pulsed Drain Current		I _{DM}	40		
Continuous Forward Current	T _A =25℃	I _F		4.4	
	T _A =70℃			3.2	
Pulsed Diode Forward Current		I _{FM}		30	
Power Dissipation	T _A =25℃	P _D	3.1		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}	30		℃
Junction Temperature		T _J	150		
Storage Temperature Range		T _{stg}	-55 to 150		

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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 μA, V _{GS} =0V	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			0.05	mA
		V _{DS} =30V, V _{GS} =0V, T _J =125°C			10	
		V _{DS} =30V, V _{GS} =0V, T _J =150°C			20	
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250 μA	0.6		2	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =13A			11.5	mΩ
		V _{GS} =10V, I _D =13A, T _J =125°C			16.5	
		V _{GS} =4.5V, I _D =12.2A			13	
On State Drain Current	I _{D(ON)}	V _{GS} =4.5V, V _{DS} =5V	40			A
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =13A	30	37		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =15V, f=1MHz		3656	4050	pF
Output Capacitance	C _{oss}			322		
Reverse Transfer Capacitance	C _{rss}			168		
Gate Resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz		0.86	1.1	Ω
Total Gate Charge (4.5V)	Q _g	V _{GS} =10V, V _{DS} =15V, I _D =13A		30.5	36	nC
Gate Source Charge	Q _{gs}			4.6		
Gate Drain Charge	Q _{gd}			8.6		
Turn-On DelayTime	t _{d(on)}	V _{GS} =10V, V _{DS} =15V, R _L =1.1Ω, R _{GEN} =0Ω		6.2	9	ns
Turn-On Rise Time	t _r			4.8	7	
Turn-Off DelayTime	t _{d(off)}			55	75	
Turn-Off Fall Time	t _f			7.3	11	
Body Diode+Schottky Reverse Recovery Time	t _{rr}	I _F =13A, di/dt=100A/us		20.3	25	nC
Body Diode+Schottky Reverse Recovery Charge	Q _{rr}			8.4	12.5	
Body-Diode + Schottky Continuous Current	I _S				5	A
Diode + Schottky 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 μs pulses, duty cycle 0.5% max.

■ Marking

Marking	4704 KC****
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N-Channel MOSFET

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■ Typical Characteristics

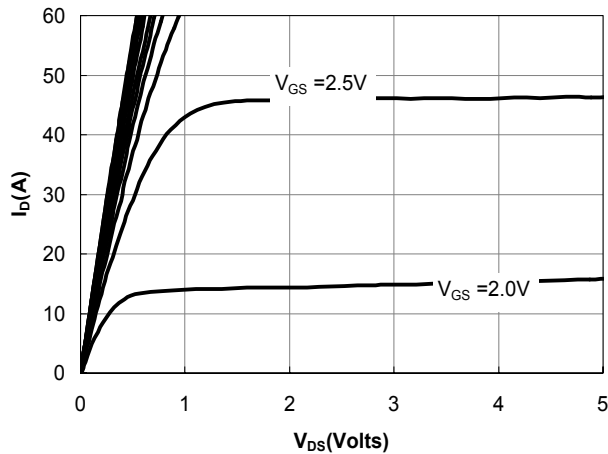


Figure 1: On-Regions Characteristics

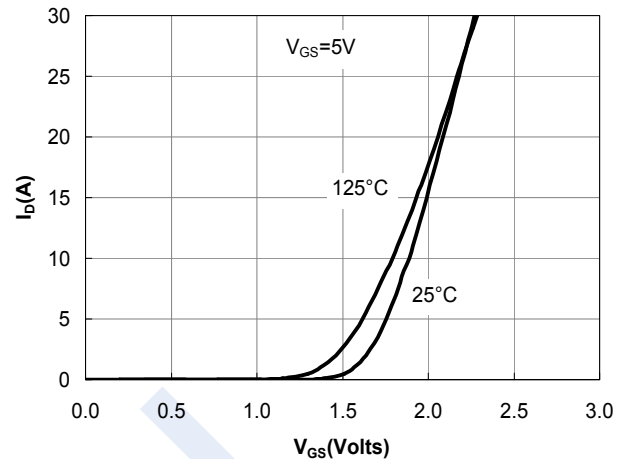


Figure 2: Transfer Characteristics

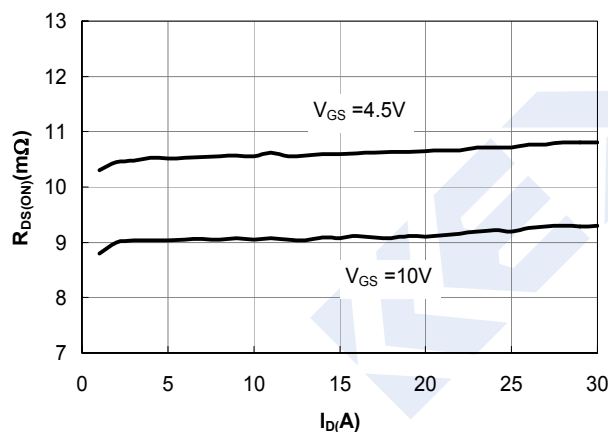


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

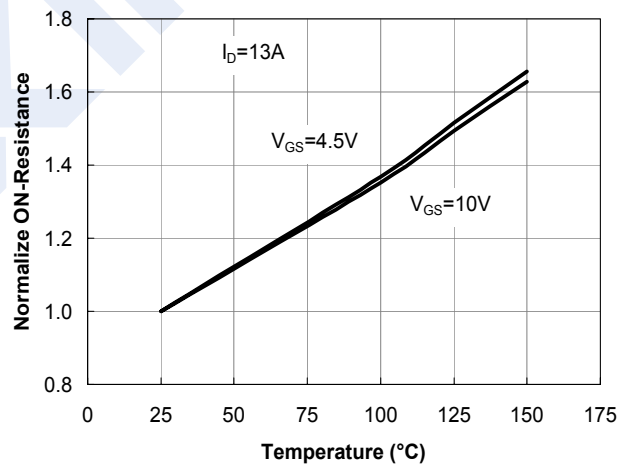


Figure 4: On-Resistance vs. Junction Temperature

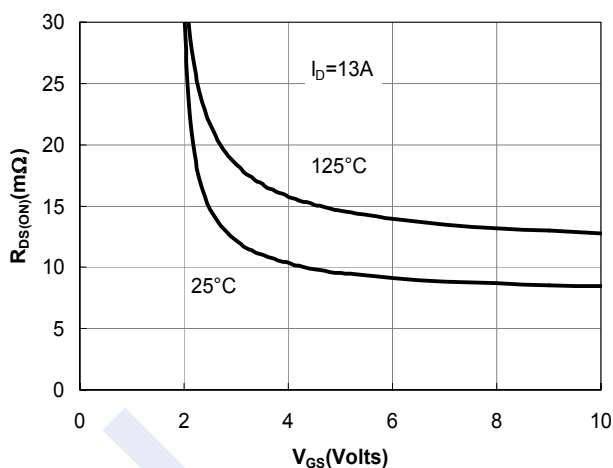
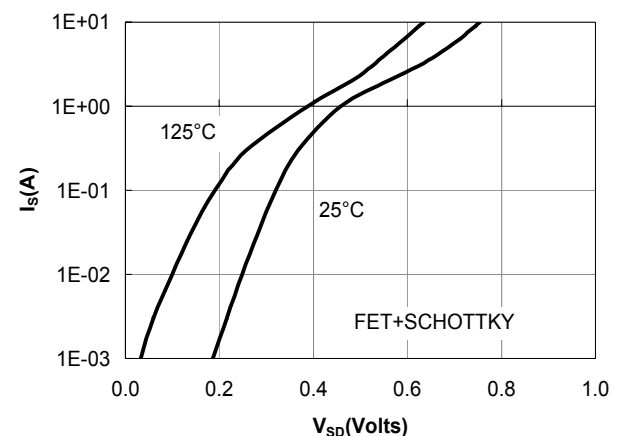


Figure 5: On-Resistance vs. Gate-Source Voltage

Figure 6: Body-Diode Characteristics
(Note F)

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■ Typical Characteristics

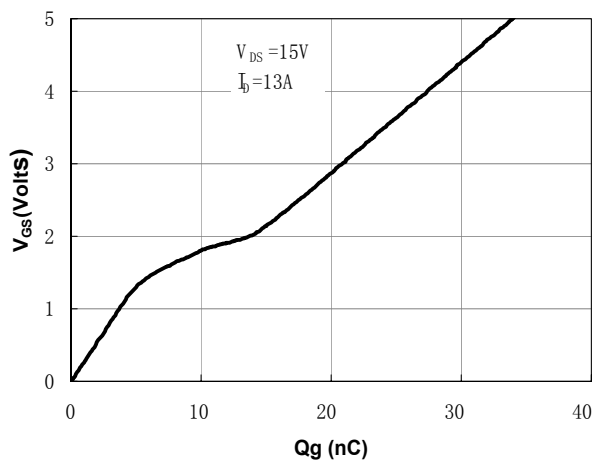


Figure 7: Gate-Charge Characteristics

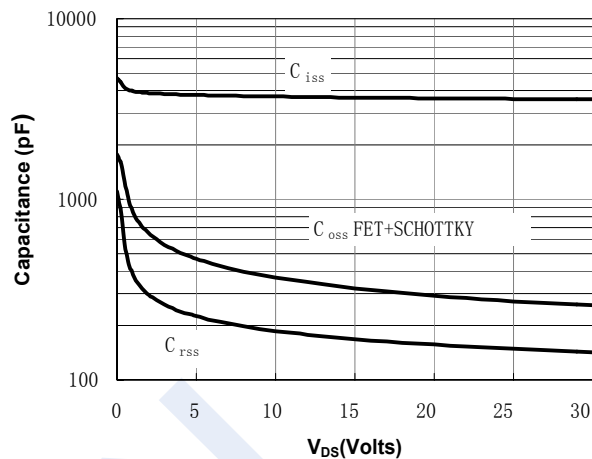


Figure 8: Capacitance Characteristics

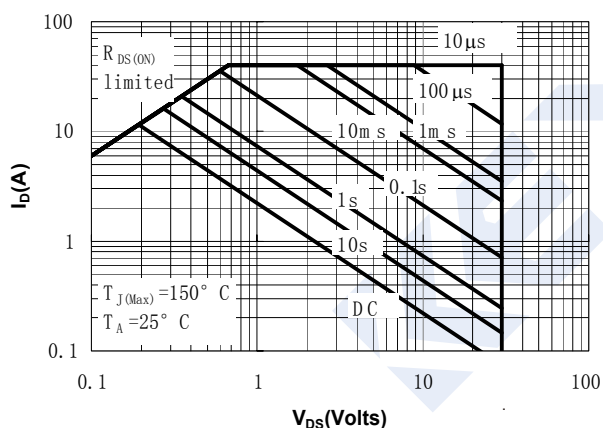


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

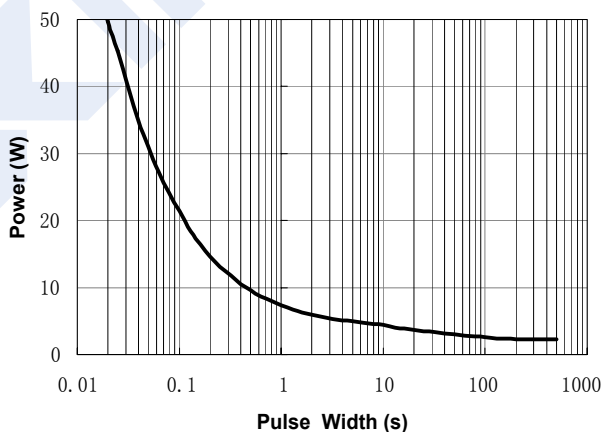


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

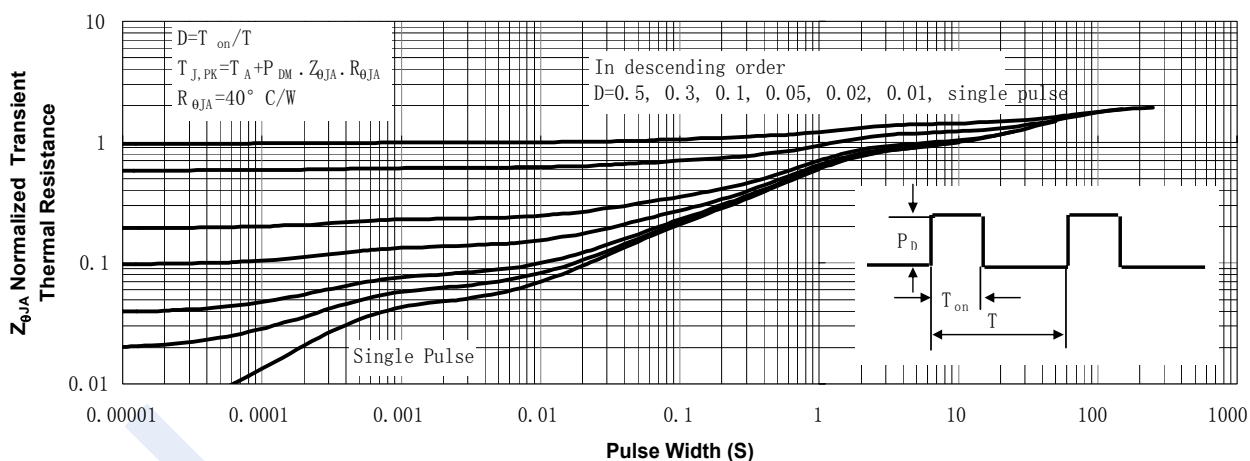


Figure 11: Normalized Maximum Transient Thermal Impedance