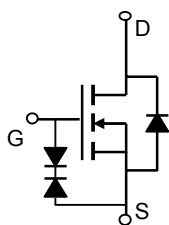
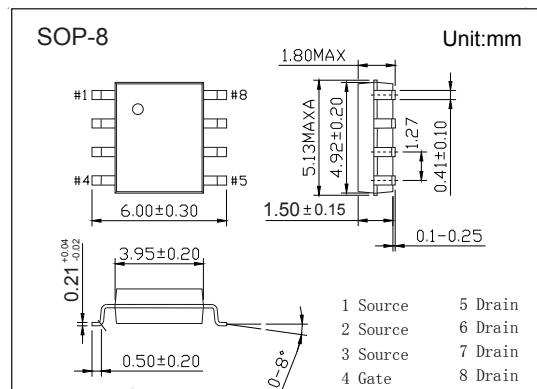


N-Channel MOSFET

AO4490 (KO4490)

■ Features

- $V_{DS} (V) = 30V$
- $I_D = 16 A$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 7.2m\Omega$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 10m\Omega$ ($V_{GS} = 4.5V$)
- ESD Rating: 2KV HBM



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

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current	$T_A = 25^\circ C$	I_D	16	A
	$T_A = 70^\circ C$		13	
Pulsed Drain Current		I_{DM}	120	
Avalanche Current		I_{AR}	30	
Repetitive Avalanche Energy	$L = 0.3mH$	E_{AR}	135	mJ
Power Dissipation	$T_A = 25^\circ C$	P_D	2.8	W
	$T_A = 70^\circ C$		1.8	
Thermal Resistance.Junction- to-Ambient	$t \leq 10s$	R_{thJA}	45	$^\circ C/W$
	Steady-State		75	
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

AO4490 (KO4490)

■ 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			1	μA
		V _{DS} =30V, V _{GS} =0V, T _J =55°C			5	
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±16V			±10	μA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.4		2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =16A			7.2	mΩ
		V _{GS} =10V, I _D =16A, T _J =125°C			10	
		V _{GS} =4.5V, I _D =12A			10	
On State Drain Current	I _{D(on)}	V _{GS} =10V, V _{DS} =5V	120			A
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =16A		55		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =15V, f=1MHz		1803	2170	pF
Output Capacitance	C _{oss}			387		
Reverse Transfer Capacitance	C _{rss}			238		
Gate Resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz		1.3	2	Ω
Total Gate Charge (10V)	Q _g	V _{GS} =10V, V _{DS} =15V, I _D =16A		36	48	nC
Total Gate Charge (4.5V)				19		
Gate Source Charge	Q _{gs}			3.9		
Gate Drain Charge	Q _{gd}			8.7		
Turn-On DelayTime	t _{d(on)}	V _{GS} =10V, V _{DS} =15V, R _L =1Ω, R _{GEN} =3Ω		7.6		ns
Turn-On Rise Time	t _r			6.4		
Turn-Off DelayTime	t _{d(off)}			27		
Turn-Off Fall Time	t _f			8.5		
Body Diode Reverse Recovery Time	t _{rr}	I _F = 16A, dI/dt= 100A/us		27	33	nC
Body Diode Reverse Recovery Charge	Q _{rr}			17		
Maximum Body-Diode Continuous Current	I _S				4	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 us pulses, duty cycle 0.5% max.

■ Marking

Marking	4490 KC****
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N-Channel MOSFET

AO4490 (KO4490)

■ Typical Characteristics

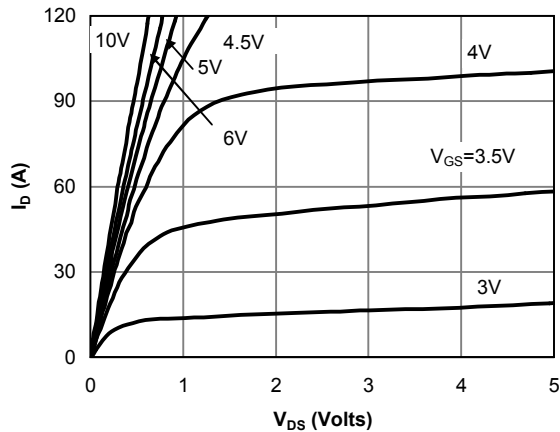


Figure 1: On-Region Characteristics

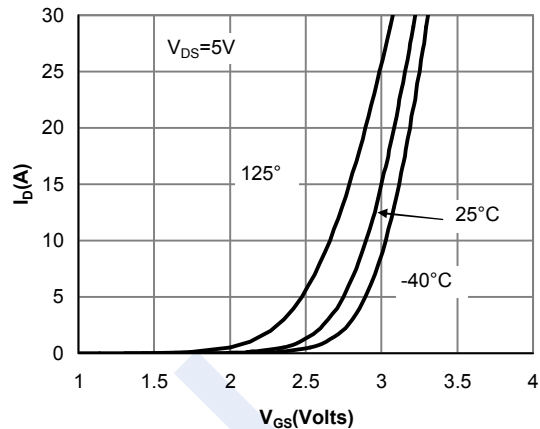


Figure 2: Transfer Characteristics

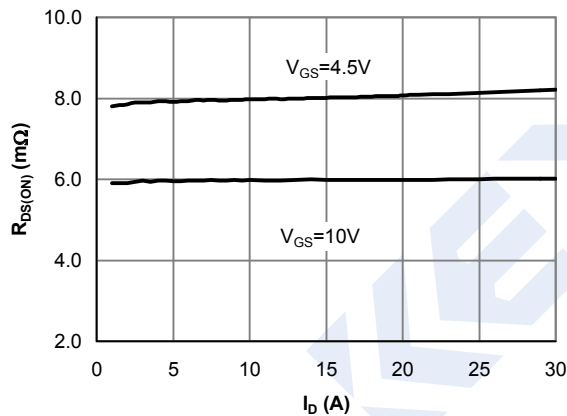


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

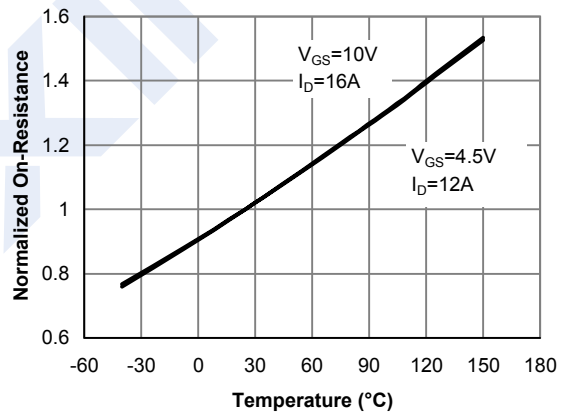


Figure 4: On-Resistance vs. Junction Temperature

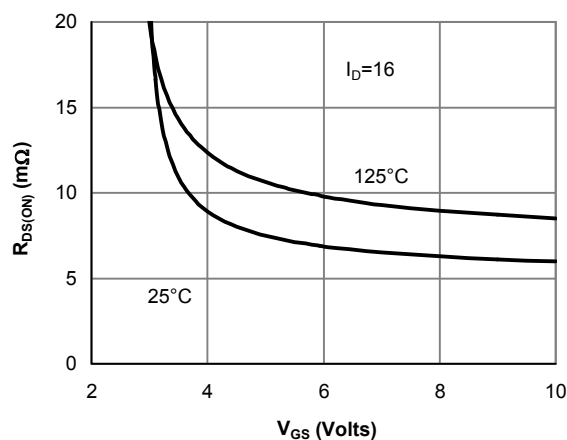


Figure 5: On-Resistance vs. Gate-Source Voltage

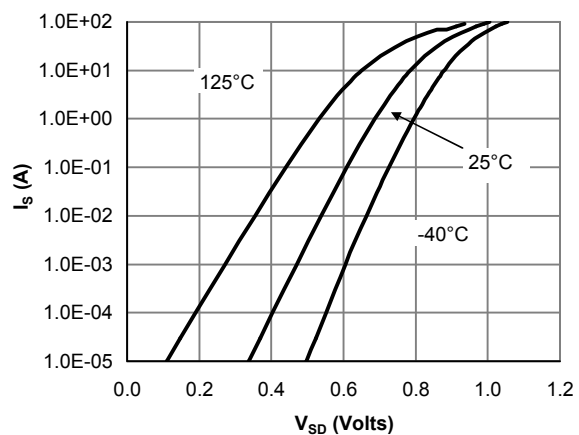


Figure 6: Body-Diode Characteristics

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■ Typical Characteristics

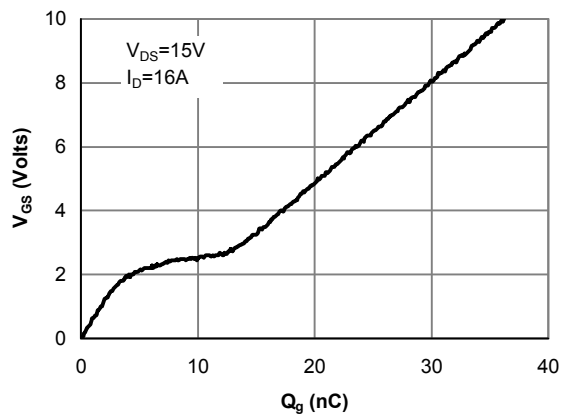


Figure 7: Gate-Charge Characteristics

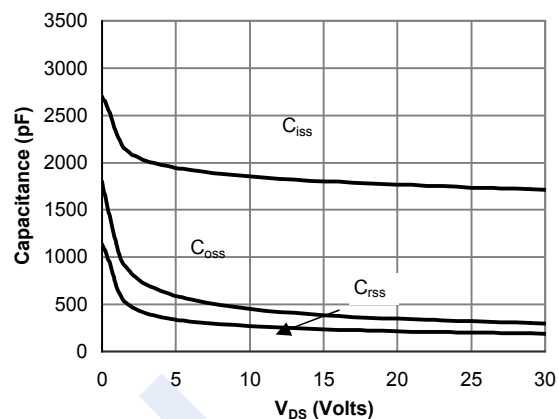


Figure 8: Capacitance Characteristics

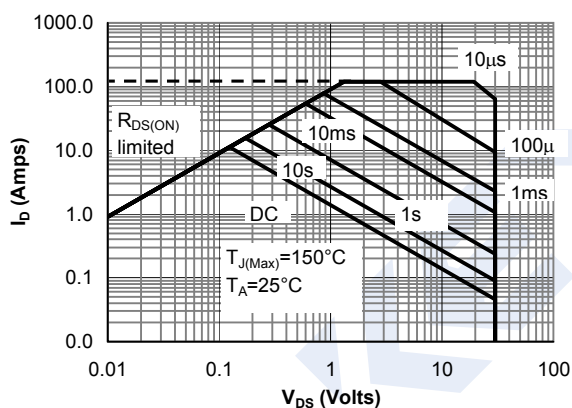


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

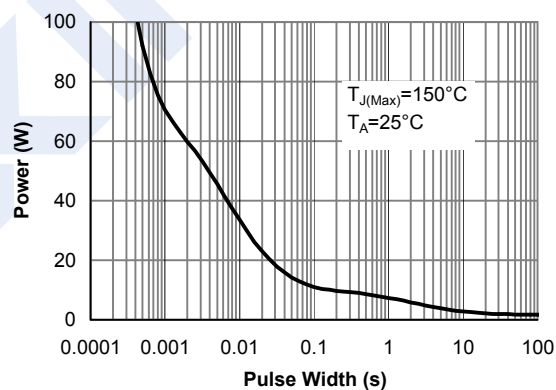


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

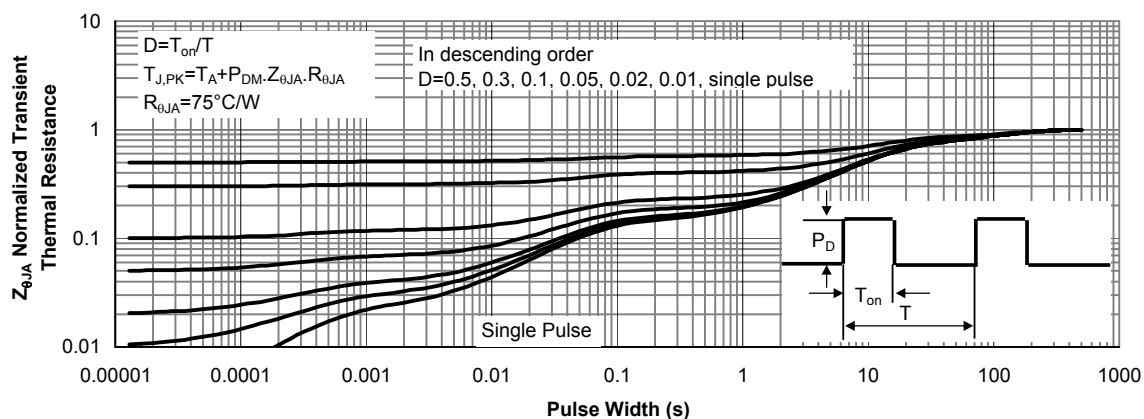


Figure 11: Normalized Maximum Transient Thermal Impedance (Note E)

N-Channel MOSFET

AO4490 (KO4490)

■ Typical Characteristics

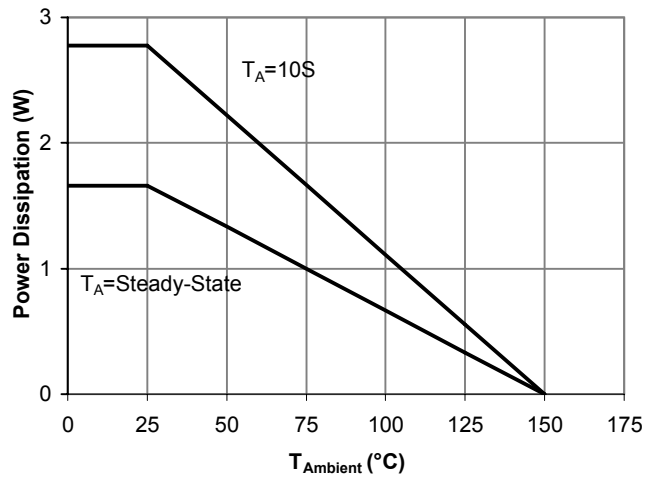


Figure 12: Power De-rating (Note A)