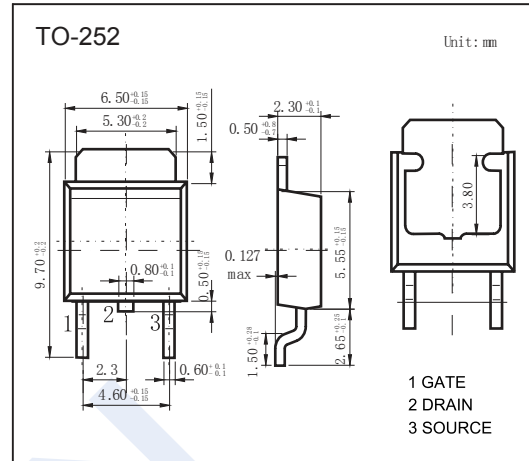
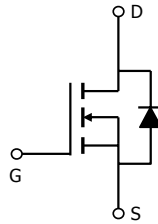


## N-Channel MOSFET AOD444 (KOD444)

### ■ Features

- $V_{DS} (V) = 60V$
- $I_D = 12 A (V_{GS} = 10V)$
- $R_{DS(ON)} < 60m\Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 85m\Omega (V_{GS} = 4.5V)$



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

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	$V_{DS}$	60	V	
Gate-Source Voltage	$V_{GS}$	$\pm 20$		
Continuous Drain Current	$I_D$	$T_c=25^\circ C$	12	A
		$T_c=100^\circ C$	9	
		$T_a=25^\circ C$	4	
		$T_a=70^\circ C$	3	
Pulsed Drain Current	$I_{DM}$	30		
Avalanche Current	$I_{AS}, I_{AR}$	19		
Avalanche energy $L=0.1mH$	$E_{AS}, E_{AR}$	18	mJ	
Power Dissipation	$P_D$	$T_c=25^\circ C$	20	W
		$T_c=100^\circ C$	10	
		$T_a=25^\circ C$	2.1	
		$T_a=70^\circ C$	1.3	
Thermal Resistance.Junction- to-Ambient	$R_{thJA}$	$t \leq 10s$	30	$^\circ C/W$
		Steady-State	60	
Thermal Resistance.Junction- to-Case	$R_{thJC}$	7.5		
Junction Temperature	$T_J$	175	$^\circ C$	
Storage Temperature Range	$T_{stg}$	-55 to 175		

## N-Channel MOSFET

### AOD444 (KOD444)

#### ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Drain-Source Breakdown Voltage	V <sub>BSS</sub>	I <sub>D</sub> =250 μA, V <sub>GS</sub> =0V	60			V	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =48V, V <sub>GS</sub> =0V			1	μA	
		V <sub>DS</sub> =48V, V <sub>GS</sub> =0V, T <sub>J</sub> =55°C			5		
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V			±100	nA	
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250 μA	1		3	V	
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =12A			60	mΩ	
		V <sub>GS</sub> =10V, I <sub>D</sub> =12A, T <sub>J</sub> =125°C			100		
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =6A			85		
On State Drain Current	I <sub>D(ON)</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =5V	30			A	
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =20A		14		S	
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =30V, f=1MHz	360	450	540	pF	
Output Capacitance	C <sub>oss</sub>		40	61	80		
Reverse Transfer Capacitance	C <sub>rss</sub>		16	27	40		
Gate Resistance	R <sub>g</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, f=1MHz	0.6		2	Ω	
Total Gate Charge (10V)	Q <sub>g</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =30V, I <sub>D</sub> =12A		7.5	10	nC	
Total Gate Charge (4.5V)				3.8	5		
Gate Source Charge			Q <sub>gs</sub>		1.2		
Gate Drain Charge			Q <sub>gd</sub>		1.9		
Turn-On DelayTime	t <sub>d(on)</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =30V, R <sub>L</sub> =2.5Ω, R <sub>G</sub> =3Ω		4.2		ns	
Turn-On Rise Time	t <sub>r</sub>			3.4			
Turn-Off DelayTime	t <sub>d(off)</sub>			16			
Turn-Off Fall Time	t <sub>f</sub>			2			
Body Diode Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> =12A, di/dt=100A/μs		27	35	nC	
Body Diode Reverse Recovery Charge	Q <sub>rr</sub>			30			
Maximum Body-Diode Continuous Current	I <sub>S</sub>				12	A	
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =1A, V <sub>GS</sub> =0V			1	V	

## N-Channel MOSFET AOD444 (KOD444)

■ Typical Characteristics

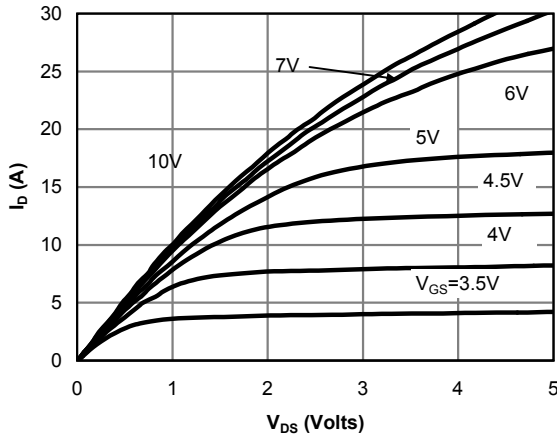


Figure 1: On-Region Characteristics (Note E)

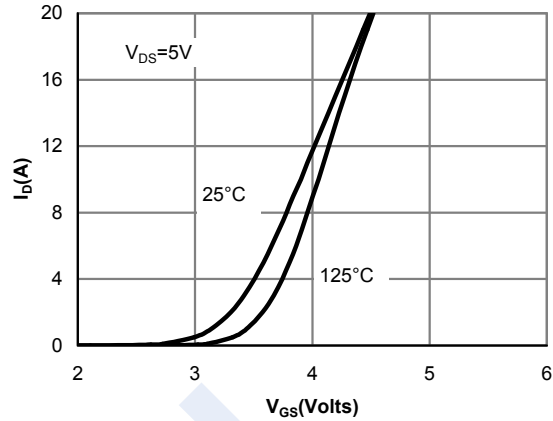


Figure 2: Transfer Characteristics (Note E)

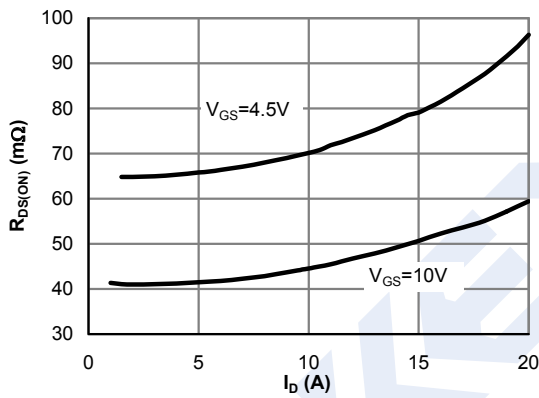


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

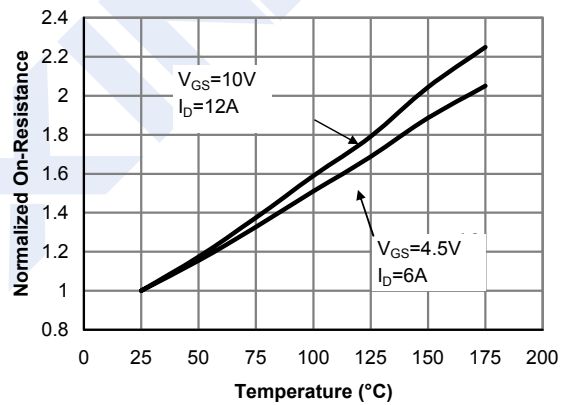


Figure 4: On-Resistance vs. Junction Temperature (Note E)

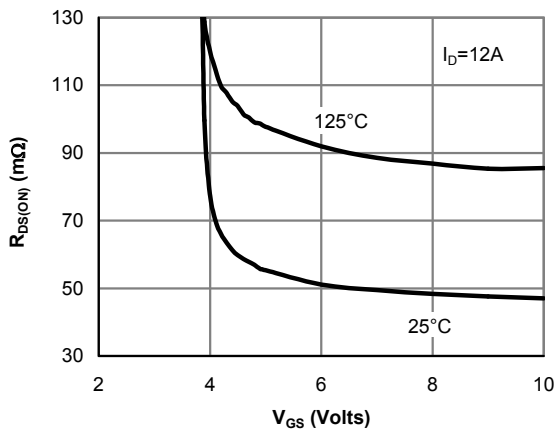


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

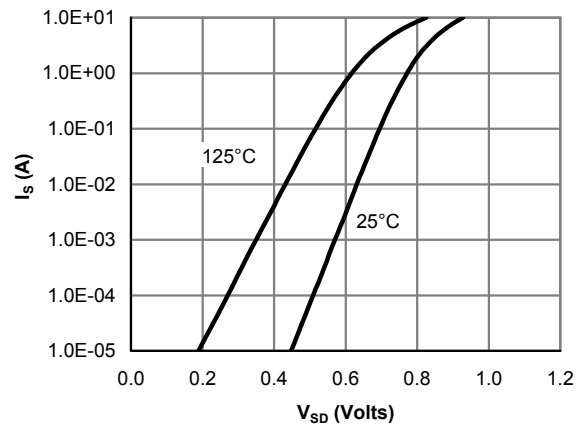


Figure 6: Body-Diode Characteristics (Note E)

## N-Channel MOSFET AOD444 (KOD444)

### ■ Typical Characteristics

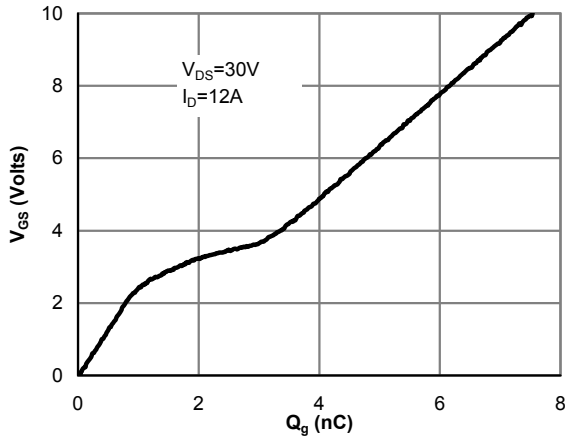


Figure 7: Gate-Charge Characteristics

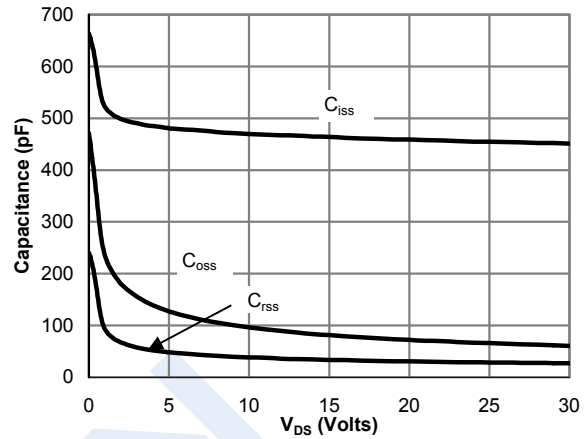


Figure 8: Capacitance Characteristics

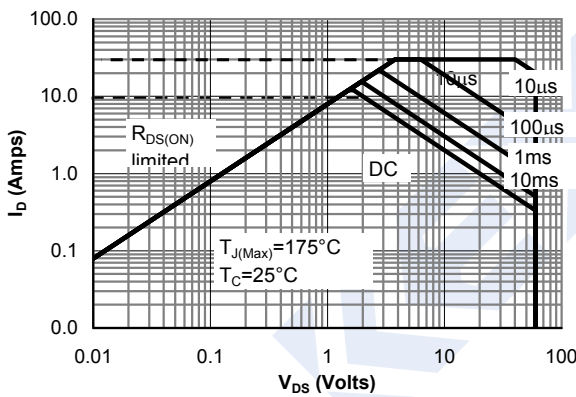


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

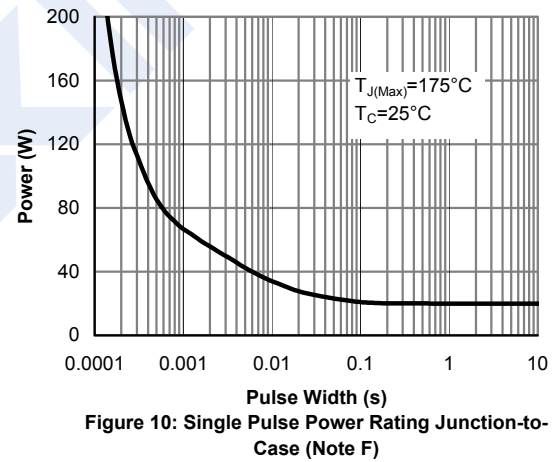


Figure 10: Single Pulse Power Rating Junction-to-Case (Note F)

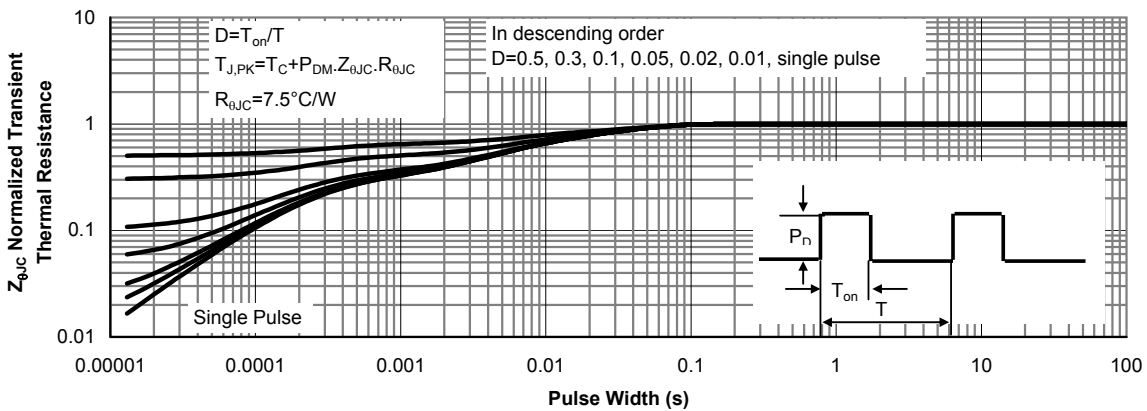


Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)

## N-Channel MOSFET AOD444 (KOD444)

■ Typical Characteristics

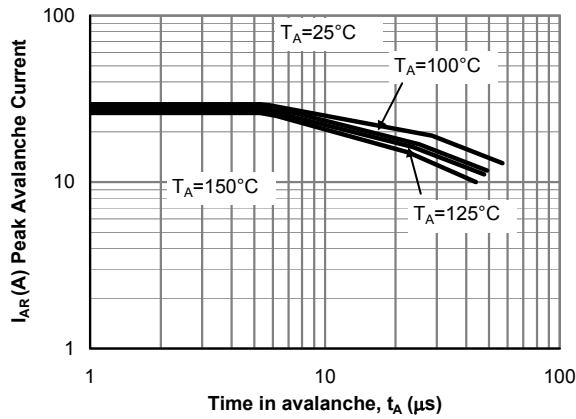


Figure 12: Single Pulse Avalanche capability (Note C)

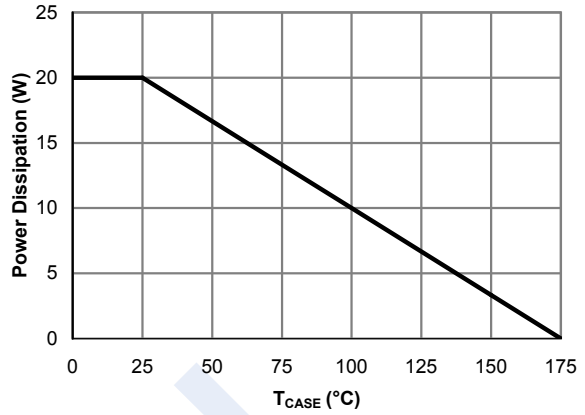


Figure 13: Power De-rating (Note F)

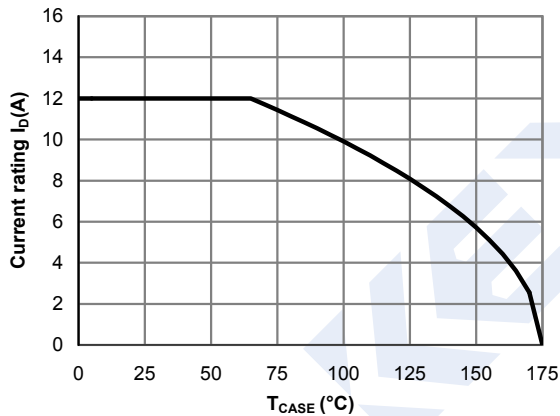


Figure 14: Current De-rating (Note F)

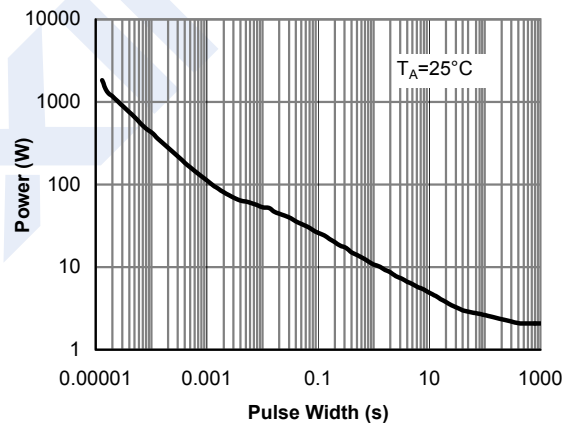


Figure 15: Single Pulse Power Rating Junction-to-Ambient (Note H)

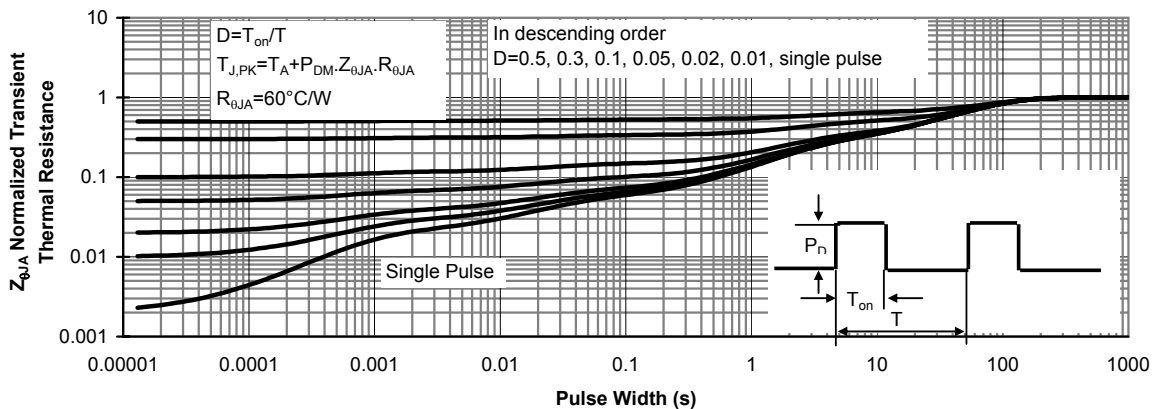


Figure 16: Normalized Maximum Transient Thermal Impedance (Note H)