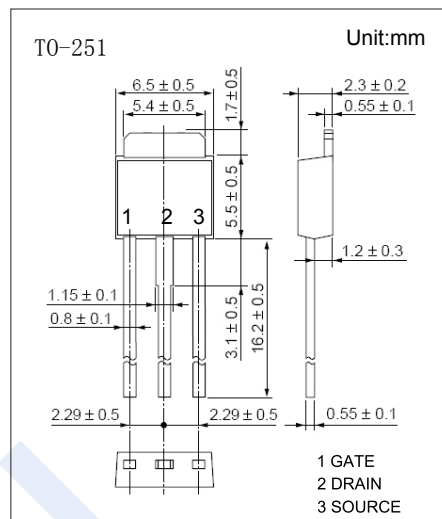
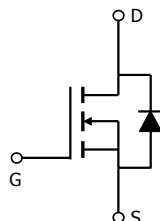


N-Channel MOSFET

AOI444 (KOI444)

■ 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}	± 20	
Continuous Drain Current	$T_c = 25^\circ C$	I_D	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	A
Avalanche Current		I_{AS}, I_{AR}	19	
Avalanche energy $L=0.1mH$		E_{AS}, E_{AR}	18	mJ
Power Dissipation	$T_c = 25^\circ C$	P_D	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	$t \leq 10s$	R_{thJA}	30	$^\circ C/W$
	Steady-State		60	
Thermal Resistance.Junction- to-Case		R_{thJC}	7.5	$^\circ C$
Junction Temperature		T_J	175	
Storage Temperature Range		T_{stg}	-55 to 175	$^\circ C$

N-Channel MOSFET

AOI444 (KOI444)

■ Electrical Characteristics Ta = 25°C

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

N-Channel MOSFET

AOI444 (KOI444)

■ Typical Characteristics

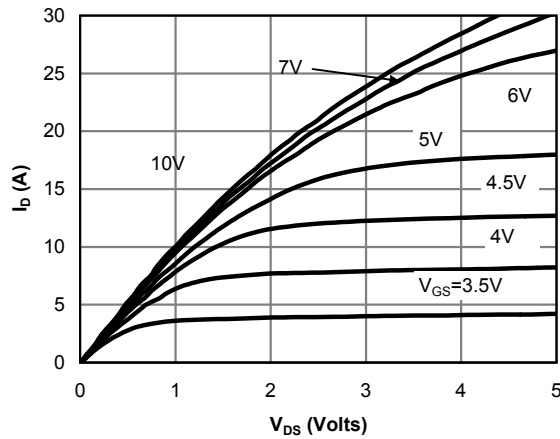


Figure 1: On-Region Characteristics (Note E)

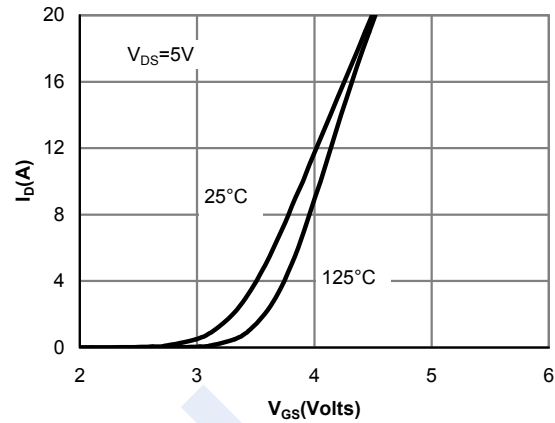


Figure 2: Transfer Characteristics (Note E)

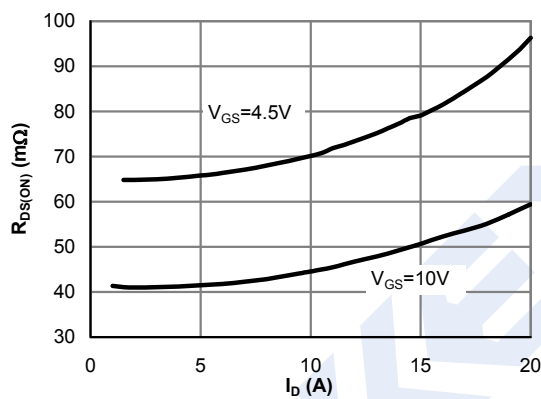


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

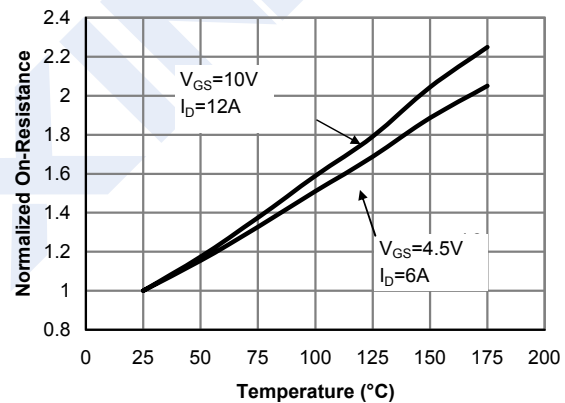


Figure 4: On-Resistance vs. Junction Temperature (Note E)

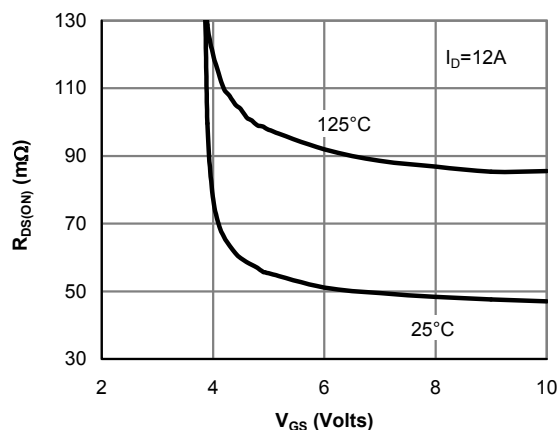


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

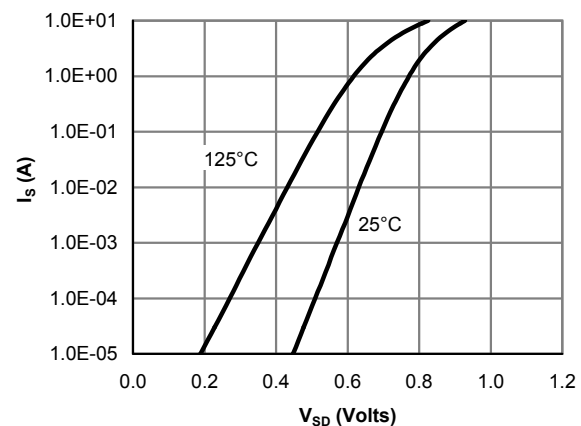
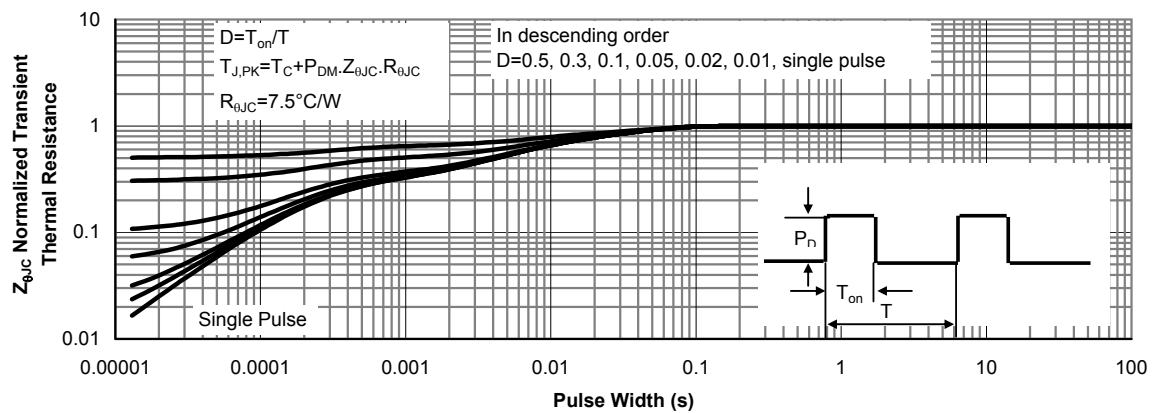
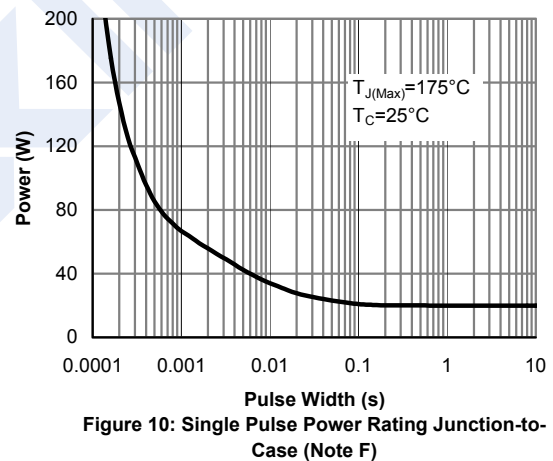
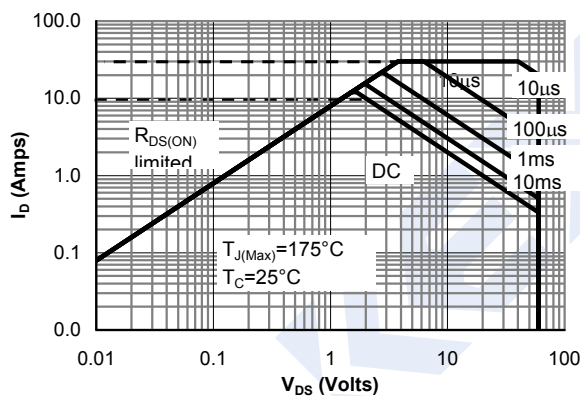
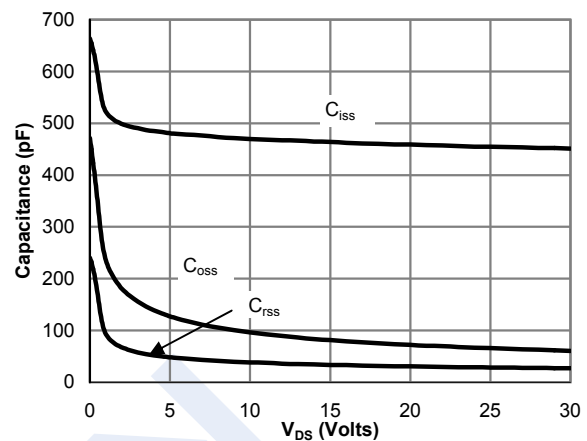
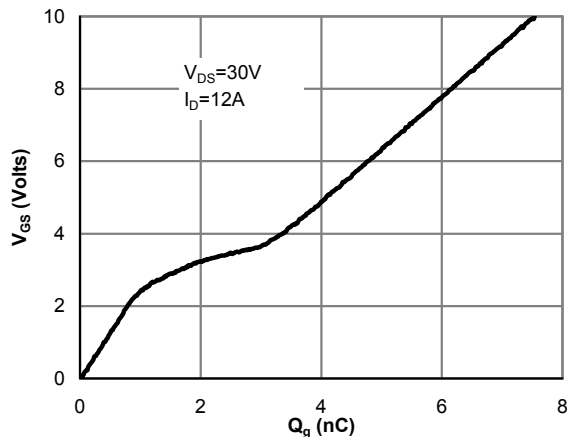


Figure 6: Body-Diode Characteristics (Note E)

N-Channel MOSFET

AOI444 (KOI444)

■ Typical Characteristics



N-Channel MOSFET

AOI444 (KOI444)

■ Typical Characteristics

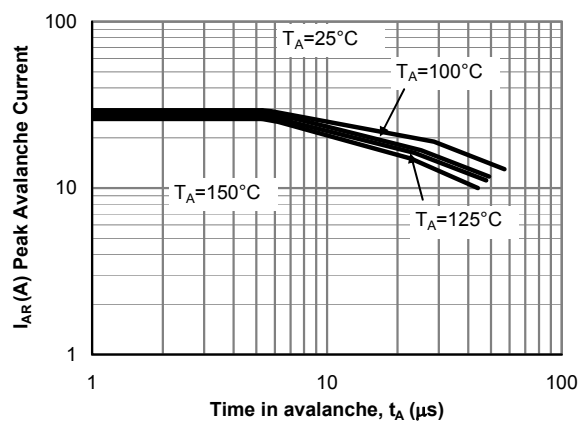


Figure 12: Single Pulse Avalanche capability (Note C)

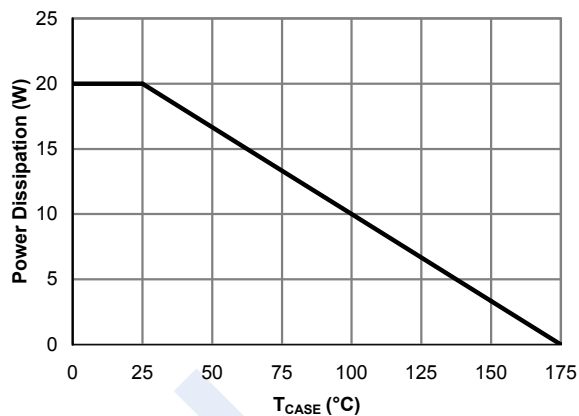


Figure 13: Power De-rating (Note F)

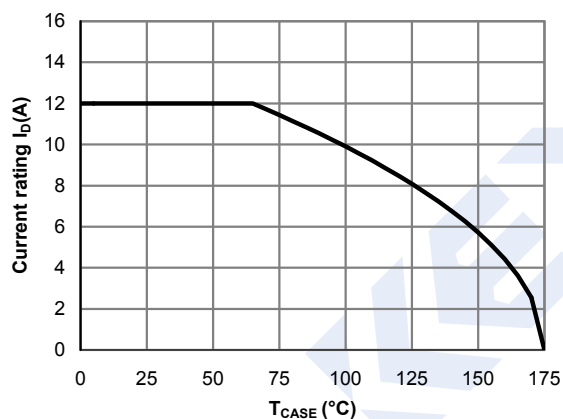


Figure 14: Current De-rating (Note F)

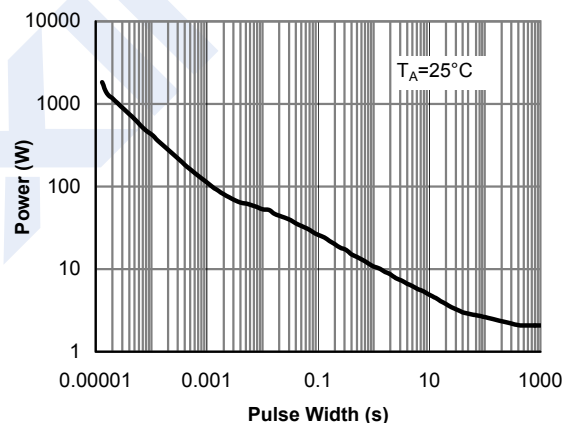


Figure 15: Single Pulse Power Rating Junction-to-Ambient (Note H)

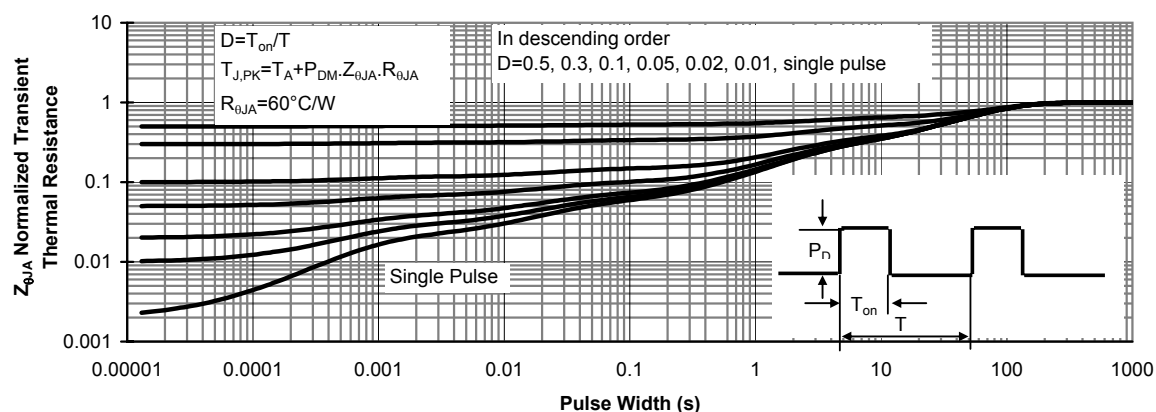


Figure 16: Normalized Maximum Transient Thermal Impedance (Note H)