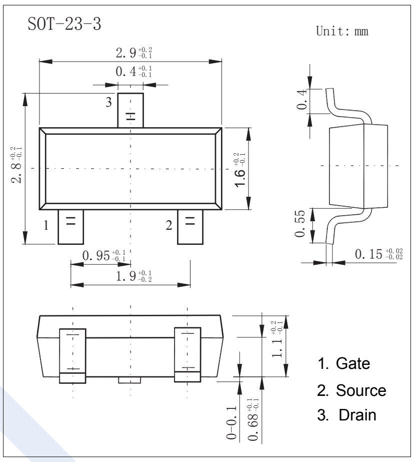
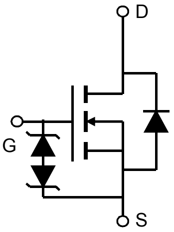
N-Channel MOSFET

AO3434A-HF (KO3434A-HF)



■ Features

- V_{DS} (V) = 30V
- I_D = 4 A (V_{GS} = 10V)
- $R_{DS(ON)} < 52m\Omega$ (V_{GS} = 10V)
- $R_{DS(ON)} < 60m\Omega$ (V_{GS} = 4.5V)
- $R_{DS(ON)} < 78m\Omega$ (V_{GS} = 2.5V)
- Pb−Free Package May be Available. The G−Suffix Denotes a Pb−Free Lead Finish



■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±12	
Continuous Drain Current	TA=25℃	I_D	4	A
	TA=70℃		3	
Pulsed Drain Current		I_{DM}	20	
Power Dissipation	TA=25℃	P_D	1.4	W
	TA=70℃		0.9	
Thermal Resistance.Junction- to-Ambient	t ≤ 10s	R_{thJA}	90	℃/W
	Steady-State		125	
Thermal Resistance.Junction- to-Case		R_{thJC}	80	
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=250 uA, V_{GS}=0V	30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V			1	uA
		V_{DS}=30V, V_{GS}=0V, T_J=55℃			5	
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±10V			±10	uA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} , I_D=250 μ A	0.7		1.5	V
Static Drain-Source On-Resistance	$R_{DS(On)}$	V_{GS}=10V, I_D=4A			52	m Ω
		V_{GS}=10V, I_D=4A T_J=125℃			82	
		V_{GS}=4.5V, I_D=3A			60	
		V_{GS}=2.5V, I_D=2A			78	
On state drain current	$I_{D(ON)}$	V_{GS}=10V, V_{DS}=5V	20			A
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=4A		15		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=15V, f=1MHz		245		pF
Output Capacitance	C_{oss}			35		
Reverse Transfer Capacitance	C_{rss}			20		
Gate Resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz		5		Ω
Total Gate Charge (10V)	Q_g	V_{GS}=10V, V_{DS}=15V, I_D=4A		5.7	10	nC
Total Gate Charge (4.5V)				2.6	5	
Gate Source Charge	Q_{gs}			0.5		
Gate Drain Charge	Q_{gd}			1		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=10V, V_{DS}=15V, R_L=3.75 Ω ,R_G=3 Ω		2		ns
Turn-On Rise Time	t_r			3.5		
Turn-Off DelayTime	$t_{d(off)}$			22		
Turn-Off Fall Time	t_f			3.5		
Body Diode Reverse Recovery Time	t_{rr}	I_F= 4A, d_I/d_t= 500A/us		6.5		
Body Diode Reverse Recovery Charge	Q_{rr}			7.5		nC
Maximum Body-Diode Continuous Current	I_S				1.5	A
Diode Forward Voltage	V_{SD}	I_S=1A,V_{GS}=0V			1	V

* The static characteristics in Figures 1 to 6 are obtained using <300us pulses, duty cycle 0.5% max.

■ Marking

Marking	Y4** F

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■ Typical Characterisitics

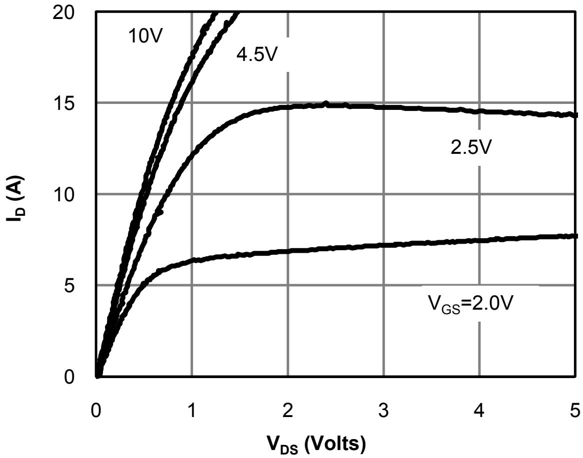

Fig 1: On-Region Characteristics (Note E)

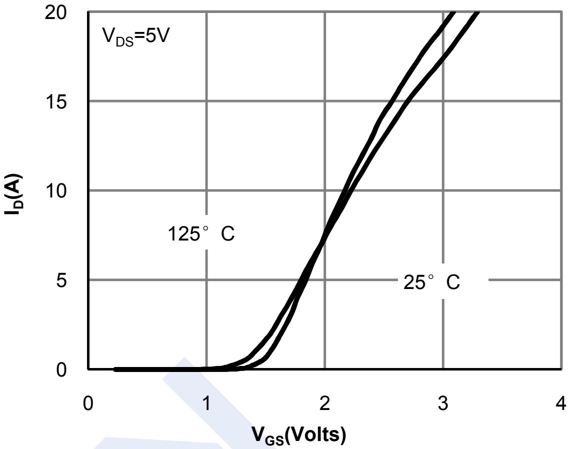

Figure 2: Transfer Characteristics (Note E)

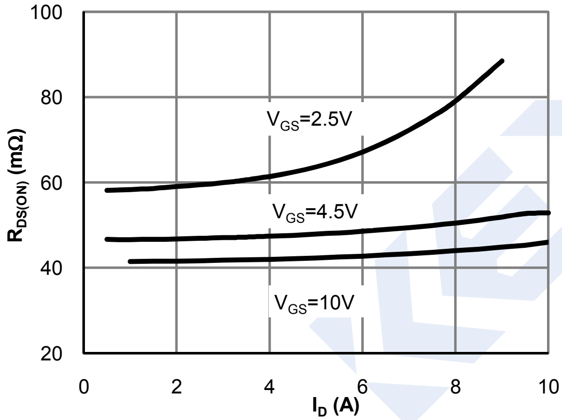

Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

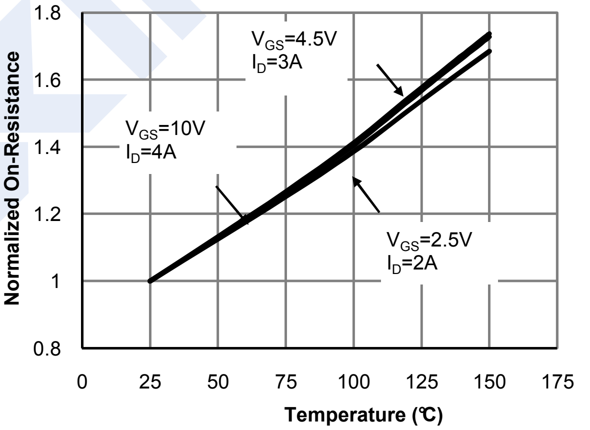

Figure 4: On-Resistance vs. Junction Temperature (Note E)

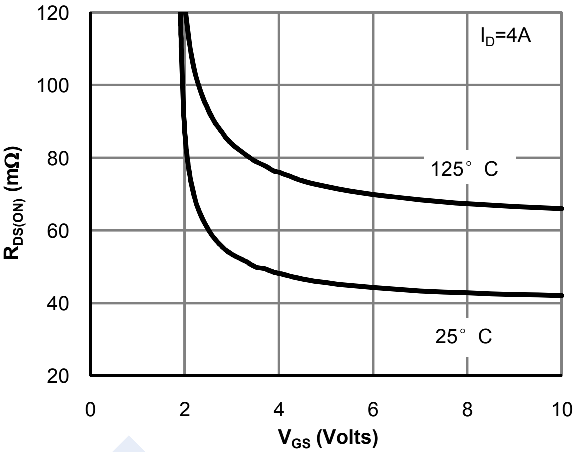

Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

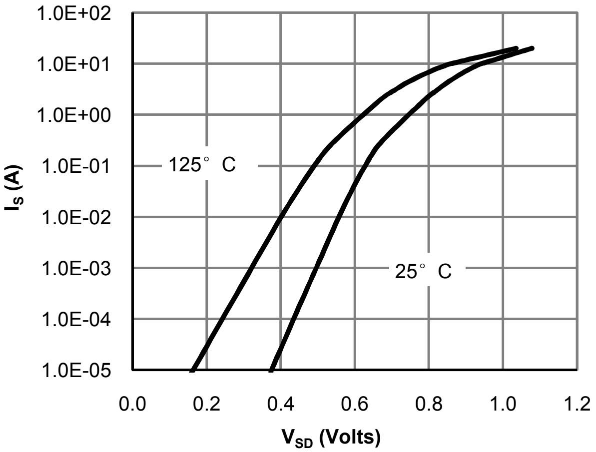

Figure 6: Body-Diode Characteristics (Note E)

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■ Typical Characterisitics

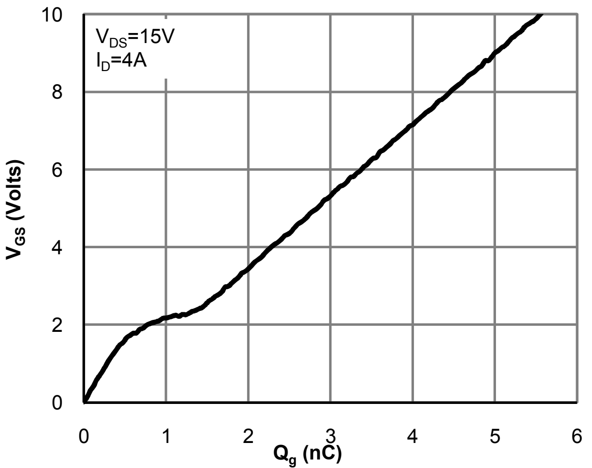

Figure 7: Gate-Charge Characteristics

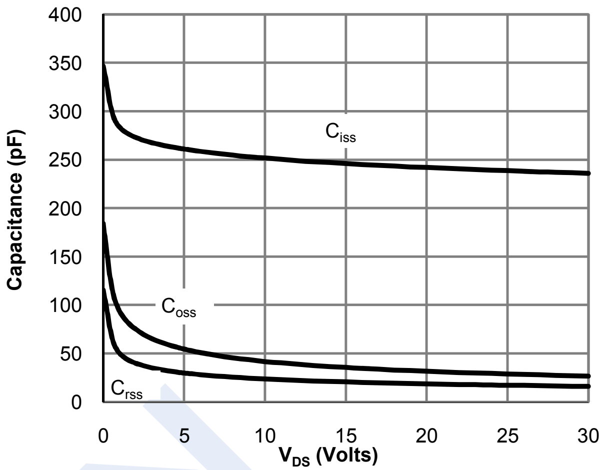

Figure 8: Capacitance Characteristics

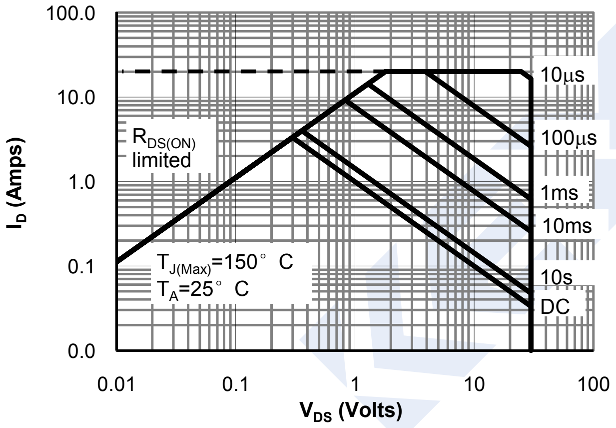

Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

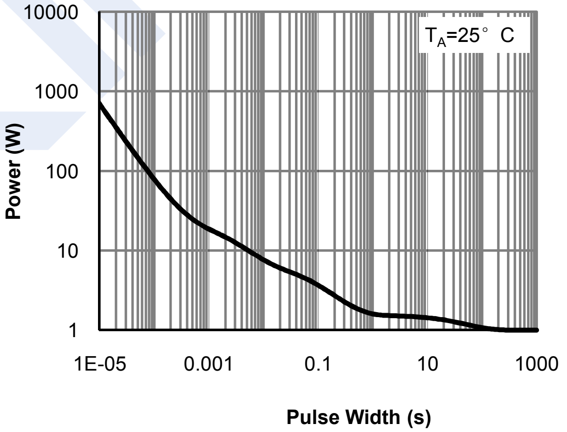

Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note F)

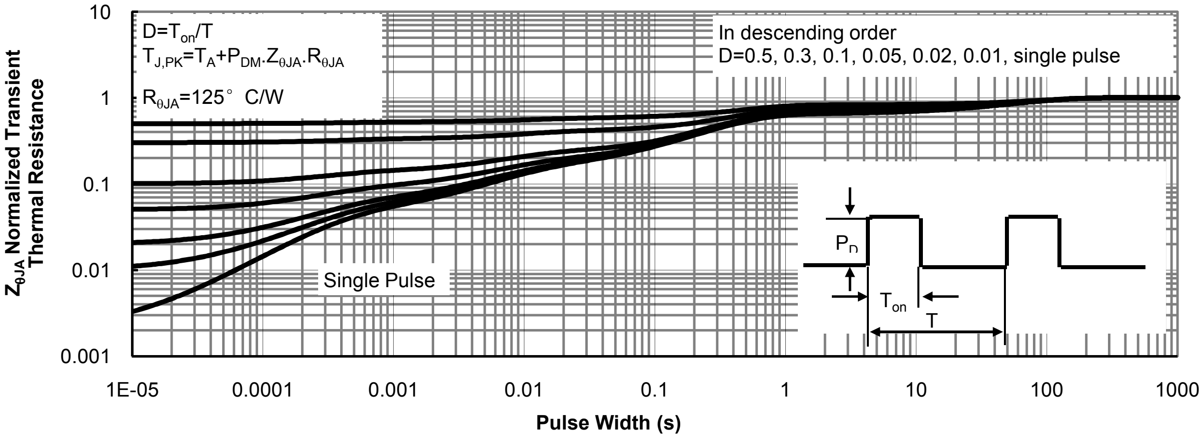

Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)