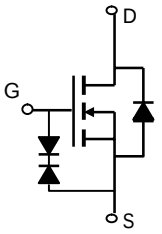
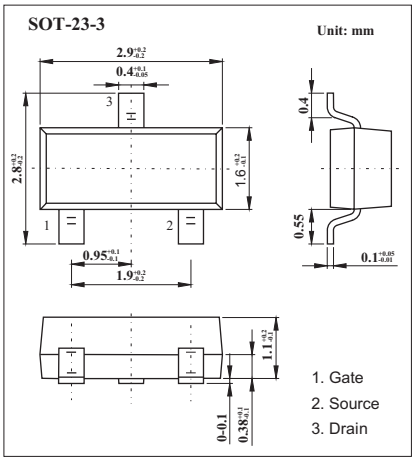
KO3416

■ Features

- $V_{DS\ (V)}$ = 20V
- I_D = 6.5 A
- $R_{DS(ON)}$ < 22mΩ (V_{GS} = 4.5V)
- $R_{DS(ON)}$ < 26mΩ (V_{GS} = 2.5V)
- $R_{DS(ON)}$ < 34mΩ (V_{GS} = 1.8V)





■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±8	V
Continuous Drain Current *1 TA=25°C	I_D	6.5	A
TA=70°C		5.2	
Pulsed Drain Current *2	I_{DM}	30	
Power Dissipation *1 TA=25°C	P_D	1.4	W
TA=70°C		0.9	
Thermal Resistance.Junction-to-Ambient *1 t ≤ 10s	$R_{\theta JA}$	90	°C/W
Maximum Junction-to-Lead *3	$R_{\theta JL}$	60	°C/W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	°C

*1: The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T A =25□C. The value in any a given application depends on the user's specific board design. The current rating is based on the t ≤ 10s thermal resistance rating.

*2: Repetitive rating, pulse width limited by junction temperature.

*3. The $R_{\theta JA}$ is the sum of the thermal impedence from junction to lead $R_{\theta JL}$ and lead to ambient.

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■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250μA, V_{GS}=0V	20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=16V, V_{GS}=0V			1	μA
		V_{DS}=16V, V_{GS}=0V ,TJ=55°C			5	
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±8V			±10	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250μA	0.4	0.6	1	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=6.5A		18	22	mΩ
		V_{GS}=4.5V, I_D=6.5A T_J=125°C		25	30	
		V_{GS}=2.5V, I_D=5.5A		21	26	mΩ
		V_{GS}=1.8V, I_D=5A		26	34	mΩ
On state drain current	$I_{D(ON)}$	V_{GS}=4.5V, V_{DS}=5V	30			A
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=6.5A		29		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=10V, f=1MHz		1160		pF
Output Capacitance	C_{oss}			187		pF
Reverse Transfer Capacitance	C_{rss}			146		pF
Gate resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz		1.5		Ω
Total Gate Charge	Q_g	V_{GS}=4.5V, V_{DS}=10V, I_D=6.5A		16		nC
Gate Source Charge	Q_{gs}			0.8		nC
Gate Drain Charge	Q_{gd}			3.8		nC
Turn-On DelayTime	$t_{D(on)}$	V_{GS}=5V, V_{DS}=10V, R_L=1.5Ω,R_{GEN}=3Ω		6.2		ns
Turn-On Rise Time	t_r			12.7		ns
Turn-Off DelayTime	$t_{D(off)}$			51.7		ns
Turn-Off Fall Time	t_f			16		ns
Body Diode Reverse Recovery Time	t_{rr}	I_F=6.5A, dI/dt=100A/μs		17.7		ns
Body Diode Reverse Recovery Charge	Q_{rr}	I_F=6.5A, dI/dt=100A/μs		6.7		nC
Maximum Body-Diode Continuous Current	I_S				2.5	A
Diode Forward Voltage	V_{SD}	I_S=1A,V_{GS}=0V		0.76	1	V

■ Marking

Marking	A08K

■ Typical Characteristics

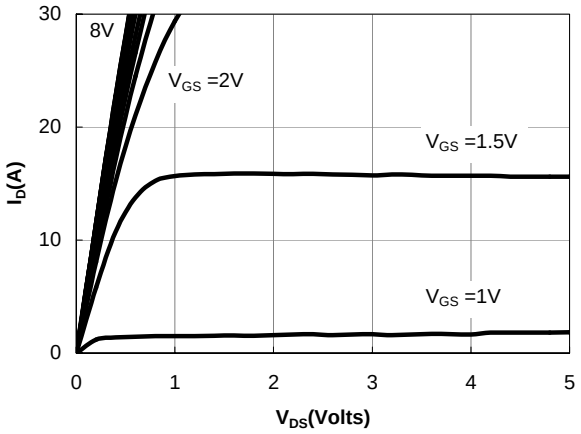

Figure 1: On-Regions CharacteristiCS

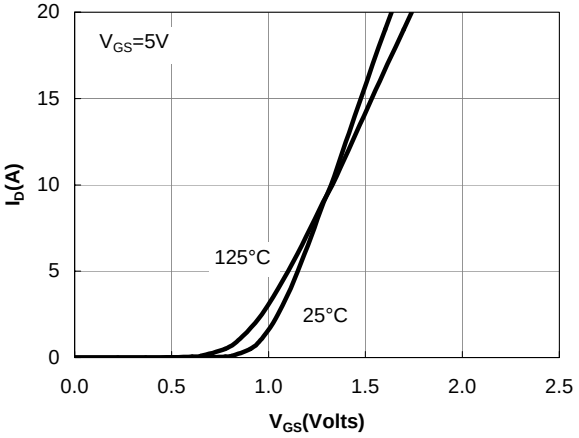

Figure 2: Transfer Characteristics

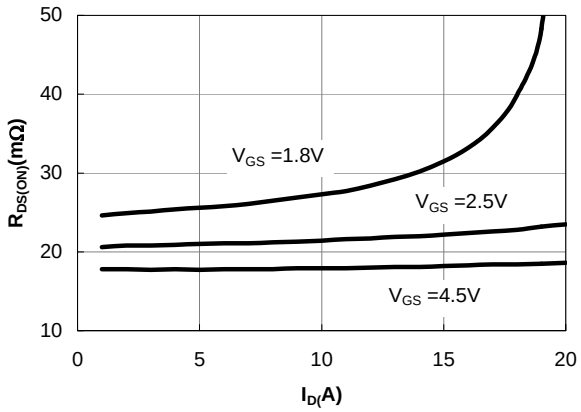

Figure 3: On-Resistance vs. Drain Current and Gate Voltage

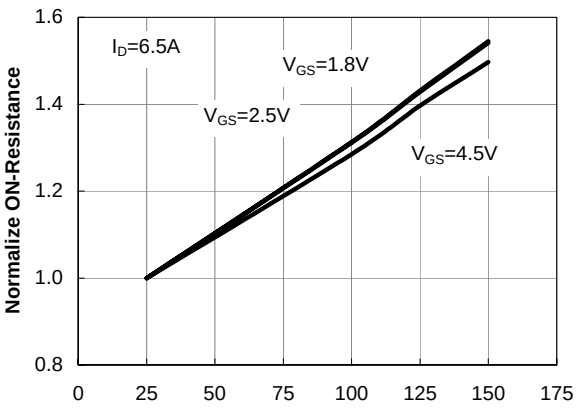

Figure 4: On-Resistance vs. Junction Temperature

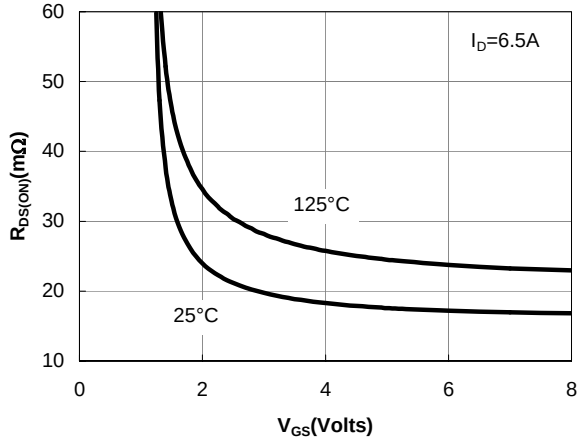

Figure 5: On-Resistance vs. Gate-Source Voltage

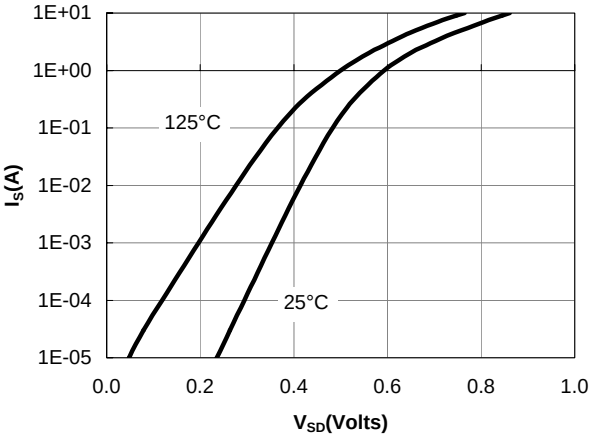

Figure 6: Body-Diode Characteristics

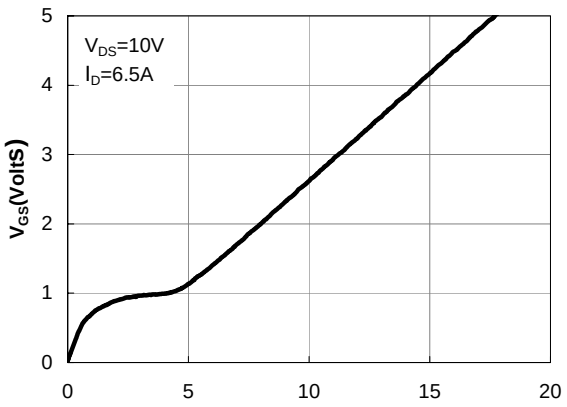

Figure 7: Gate-Charge Characteristics

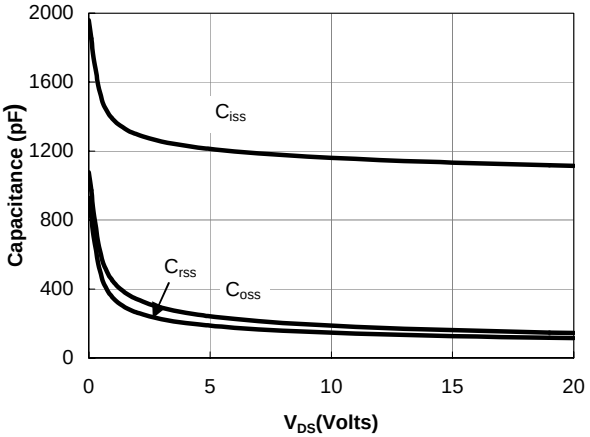

Figure 8: Capacitance Characteristics

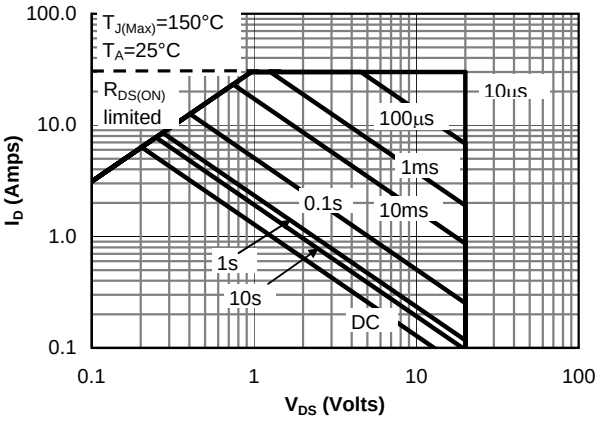

Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

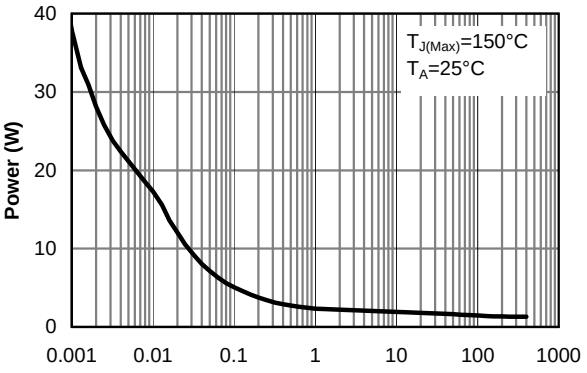

Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

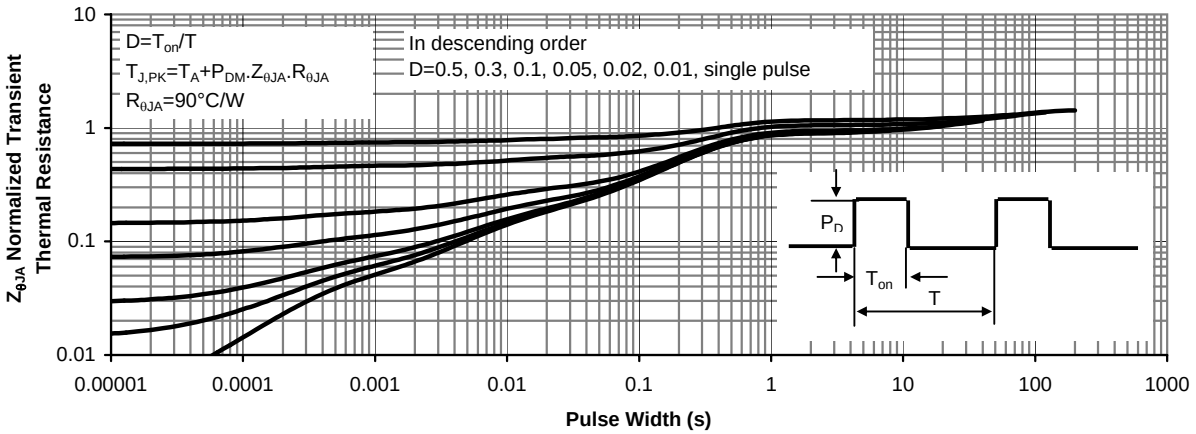

Figure 11: Normalized Maximum Transient Thermal Impedance