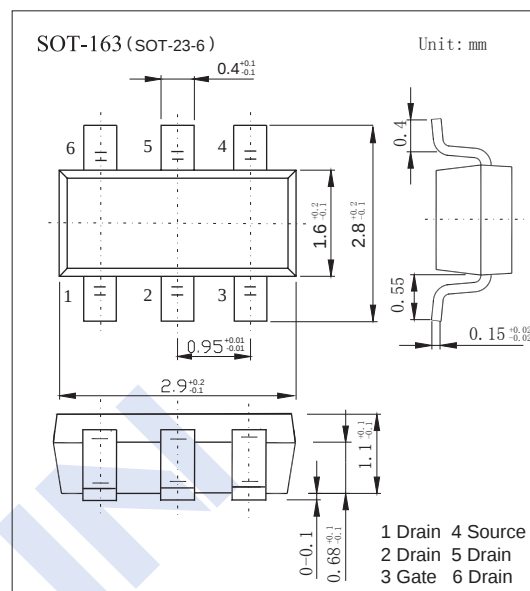
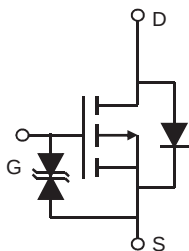


P-Channel MOSFET

AO6409 (KO6409)

■ Features

- $V_{DS} (V) = -20V$
- $I_D = -5.5A$ ($V_{GS} = -4.5V$)
- $R_{DS(ON)} < 41m\Omega$ ($V_{GS} = -4.5V$)
- $R_{DS(ON)} < 53m\Omega$ ($V_{GS} = -2.5V$)
- $R_{DS(ON)} < 65m\Omega$ ($V_{GS} = -1.8V$)
- ESD Rating: 2000V HBM

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

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	± 8	
Continuous Drain Current	$T_A = 25^\circ C$	I_D	-5.5	A
	$T_A = 70^\circ C$		-4.2	
Pulsed Drain Current		I_{DM}	-30	
Power Dissipation	$T_A = 25^\circ C$	P_D	2.1	W
	$T_A = 70^\circ C$		1.3	
Thermal Resistance.Junction- to-Ambient	$t \leq 10s$	R_{thJA}	60	$^\circ C/W$
	Steady-State		90	
Thermal Resistance.Junction- to-Lead		R_{thJL}	45	
Junction Temperature		T_J	150	$^\circ C$
Junction Storage Temperature Range		T_{stg}	-55 to 150	

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■ 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	-20			V
Gate-Source breakdown voltage	BV _{GSO}	V _{DS} = 0 V, I _G =±250μA	±8			
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V			-1	μA
		V _{DS} =-20V, V _{GS} =0V, T _J =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 =-250 μA	-0.3		-0.9	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-4.5V, I _D =-5.5A			41	mΩ
		V _{GS} =-4.5V, I _D =-5.5A T _J =125°C			59	
		V _{GS} =-2.5V, I _D =-4A			53	
		V _{GS} =-1.8V, I _D =-2A			65	
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 =-5.5A		20		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =-10V, f=1MHz	600		905	pF
Output Capacitance	C _{oss}		80		150	
Reverse Transfer Capacitance	C _{rss}		48		115	
Gate resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz	6		20	Ω
Total Gate Charge	Q _g	V _{GS} =-4.5V, V _{DS} =-10V, I _D =-5.5A	7.4		11	nC
Gate Source Charge	Q _{gs}		0.8		1.2	
Gate Drain Charge	Q _{gd}		1.3		3.1	
Turn-On DelayTime	t _{d(on)}	V _{GS} =-4.5V, V _{DS} =-10V, R _L =1.8Ω, R _{GEN} =3Ω		13		ns
Turn-On Rise Time	t _r			9		
Turn-Off DelayTime	t _{d(off)}			19		
Turn-Off Fall Time	t _f			29		
Body Diode Reverse Recovery Time	t _{rr}	I _F =-5.5A, di/dt=500A/μs	20		32	nC
Body Diode Reverse Recovery Charge	Q _{rr}		40		62	
Maximum Body-Diode Continuous Current	I _S				-2	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	D9**
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P-Channel MOSFET

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■ Typical Characteristics

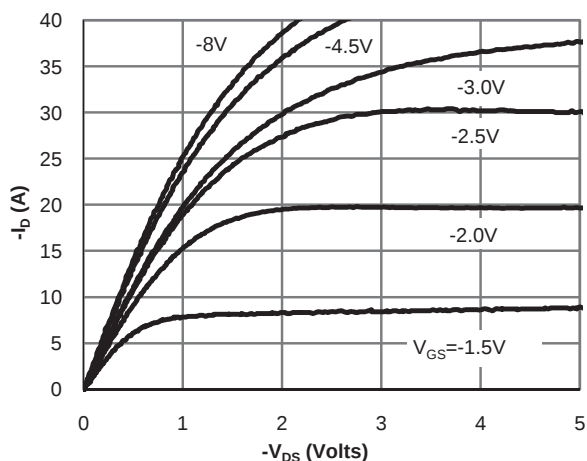


Fig 1: On-Region Characteristics (Note E)

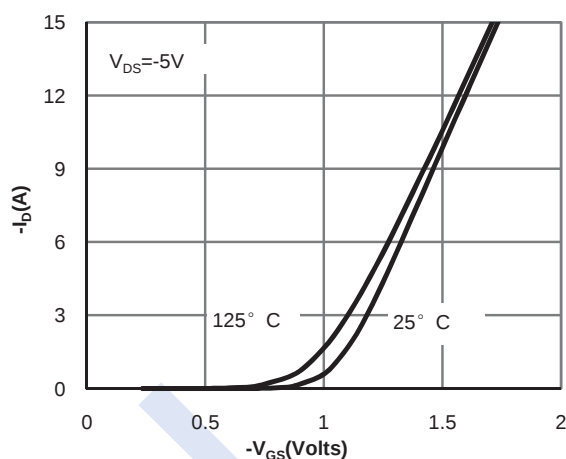


Figure 2: Transfer Characteristics (Note E)

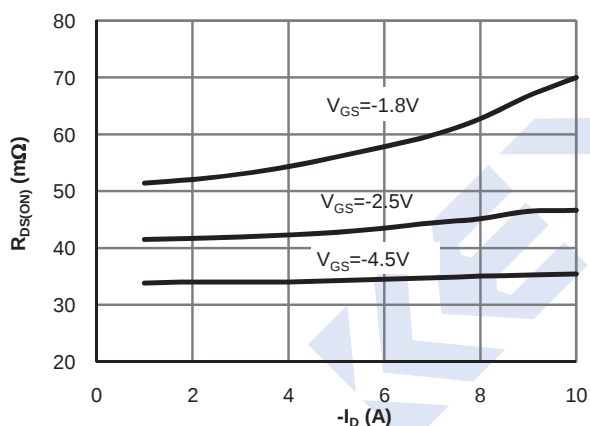


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

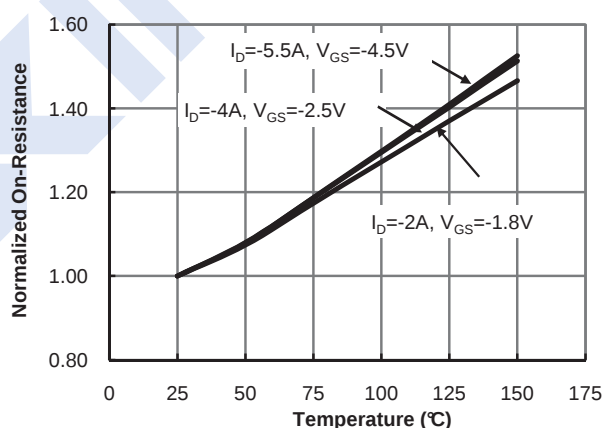


Figure 4: On-Resistance vs. Junction Temperature (Note E)

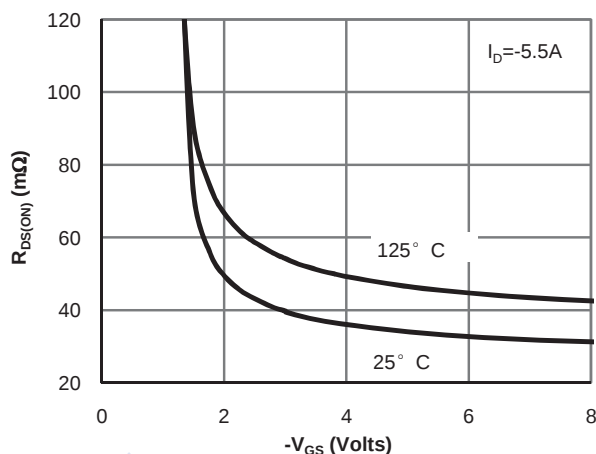


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

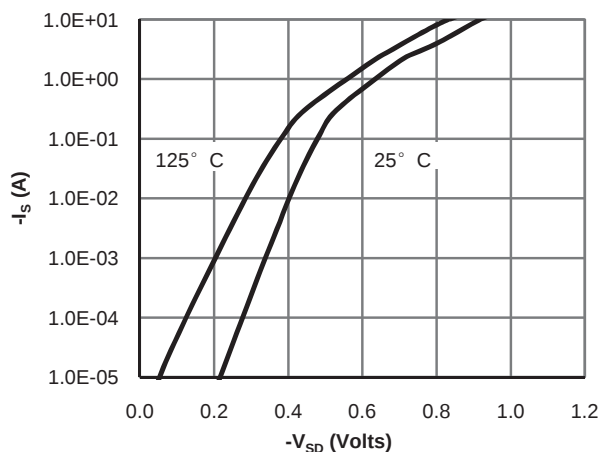


Figure 6: Body-Diode Characteristics (Note E)

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■ Typical Characteristics

