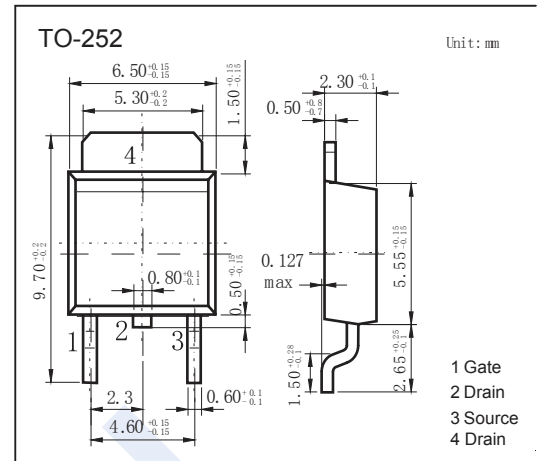
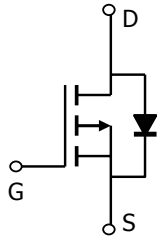


P-Channel MOSFET

AOD413 (KOD413)

■ Features

- $V_{DS} (V) = -40V$
- $I_D = -12 A$ ($V_{GS} = -10V$)
- $R_{DS(ON)} < 45m\Omega$ ($V_{GS} = -10V$)
- $R_{DS(ON)} < 69m\Omega$ ($V_{GS} = -4.5V$)



■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V _{DS}	-40	V
Gate-Source Voltage		V _{GS}	±20	
Continuous Drain Current	Ta = 25℃	ID	-12	A
	Ta = 100℃		-12	
Pulsed Drain Current		IDM	-30	
Avalanche Current		IAR	-12	
Repetitive avalanche energy	L=0.1mH	EAR	30	
Power Dissipation	Tc=25℃	PD	50	W
	Tc=100℃		25	
Power Dissipation	Ta=25℃	PDSM	2.5	
	Ta=100℃		1.6	
Thermal Resistance.Junction- to-Ambient	t ≤ 10s	RthJA	25	℃/W
	Steady-State		50	
Thermal Resistance.Junction- to-Case	Steady-State	RthJC	3	
Junction Temperature		TJ	175	℃
Junction Storage Temperature Range		Tstg	-55 to 175	

P-Channel MOSFET

AOD413 (KOD413)

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =-10mA, V _{GS} =0V	-40			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-32V, V _{GS} =0V			-1	μA
		V _{DS} =-32V, 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			45	mΩ
		V _{GS} =-10V, I _D =-12A, T _J =125°C			70	
		V _{GS} =-4.5V, I _D =-8A			69	
On state drain current	I _{D(on)}	V _{GS} =-10V, V _{DS} =-5V	-30			A
Forward Transconductance	g _{FS}	V _{DS} =-5V, I _D =-12A		16		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =-20V, f=1MHz		657	850	pF
Output Capacitance	C _{oss}			143	185	
Reverse Transfer Capacitance	C _{rss}			63	90	
Gate resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz		6.5		Ω
Total Gate Charge (10V)	Q _g	V _{GS} =-10V, V _{DS} =-20V, I _D =-12A		14.1		nC
Total Gate Charge (4.5V)				7		
Gate Source Charge	Q _{gs}			2.2		
Gate Drain Charge	Q _{gd}			4.1		
Turn-On DelayTime	t _{d(on)}	V _{GS} =-10V, V _{DS} =-20V, R _L =1.7Ω, R _{GEN} =3Ω		8		ns
Turn-On Rise Time	t _r			12.2		
Turn-Off DelayTime	t _{d(off)}			24		
Turn-Off Fall Time	t _f			12.5		
Body Diode Reverse Recovery Time	t _{rr}	I _F =-12A, di/dt=100A/us		23.2		nC
Body Diode Reverse Recovery Charge	Q _{rr}			18.2		
Maximum Body-Diode Continuous Current	I _S				-12	A
Diode Forward Voltage	V _{SD}	I _S =-1A, V _{GS} =0V			-1	V

P-Channel MOSFET

AOD413 (KOD413)

■ Typical Characteristics

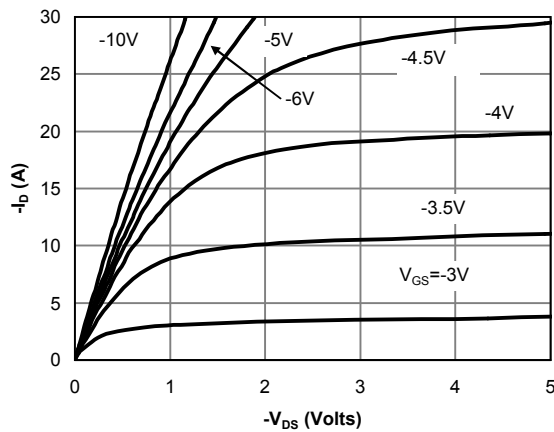


Fig 1: On-Region Characteristics

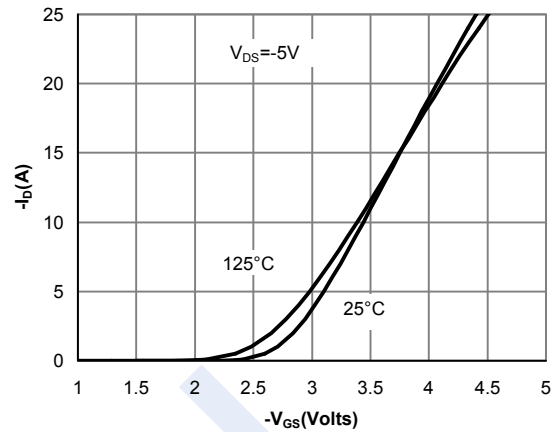


Figure 2: Transfer Characteristics

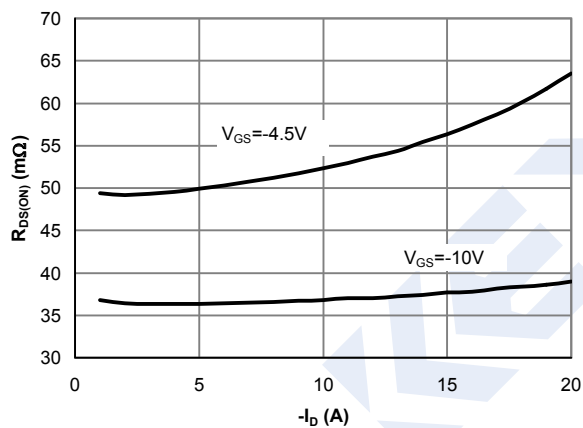


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

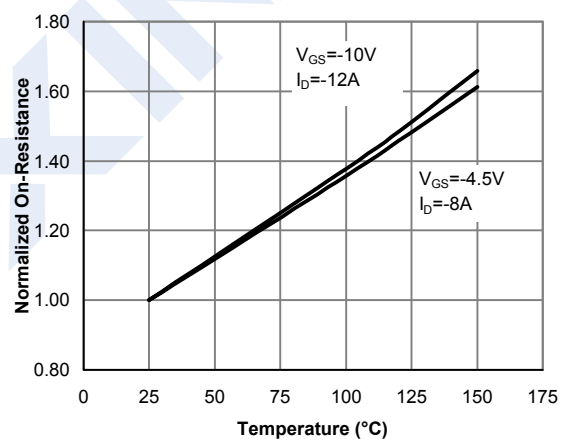


Figure 4: On-Resistance vs. Junction Temperature

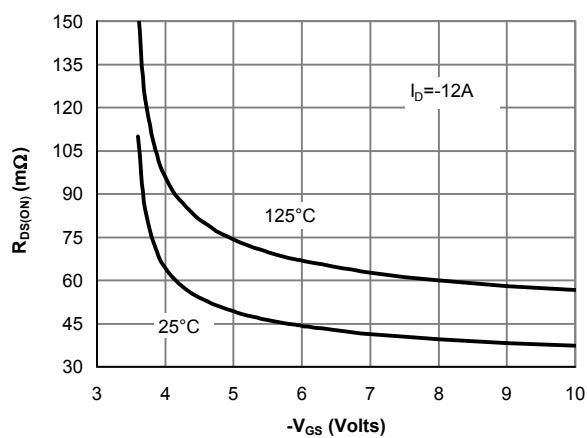


Figure 5: On-Resistance vs. Gate-Source Voltage

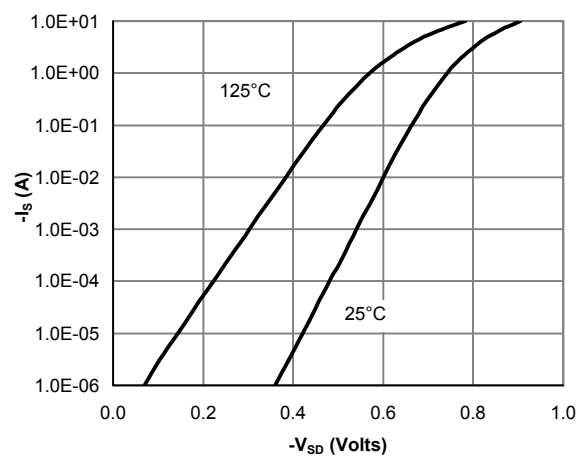
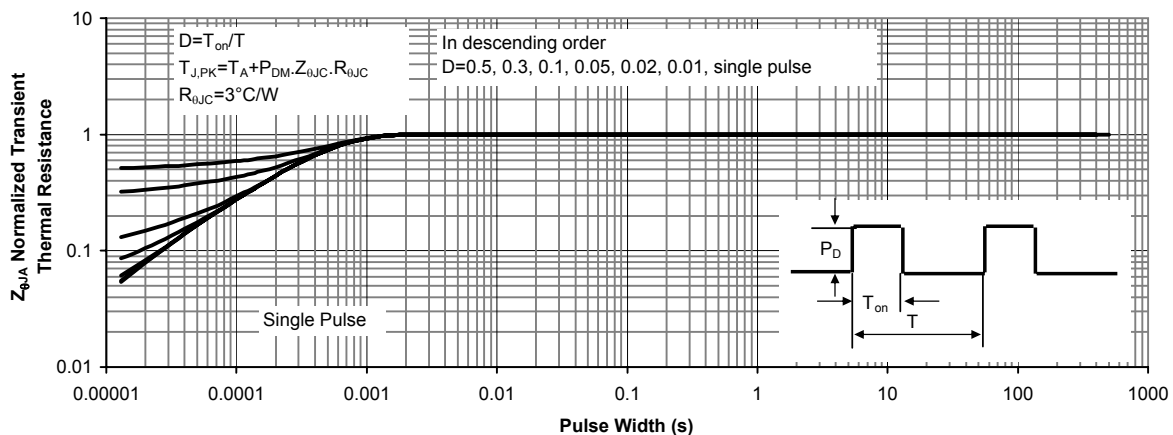
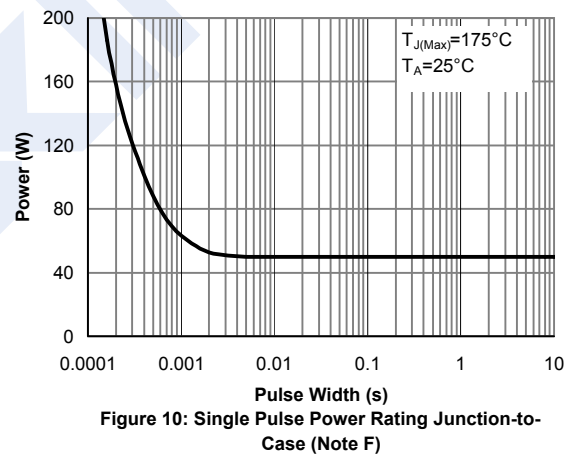
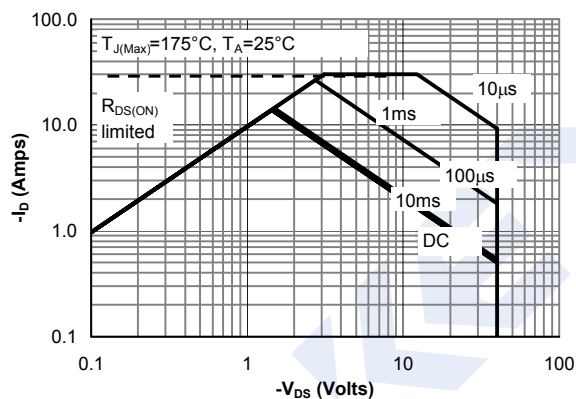
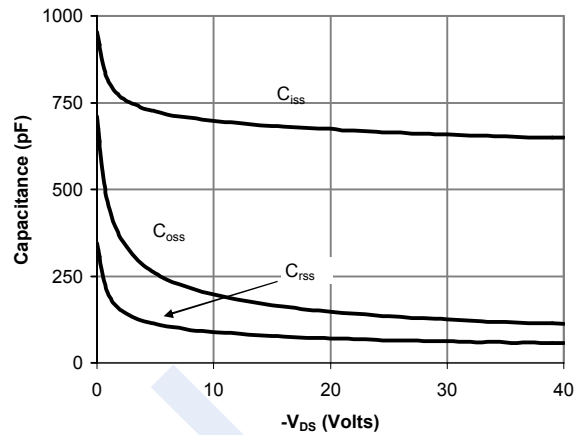
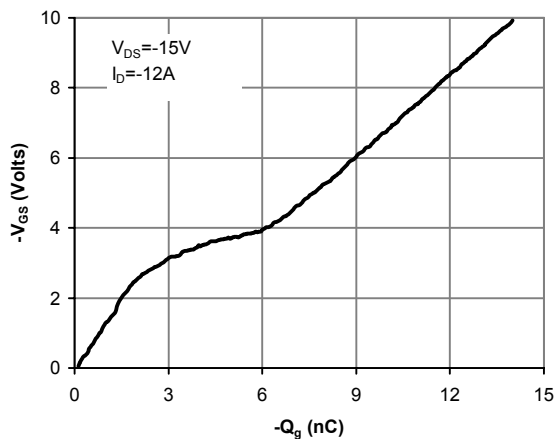


Figure 6: Body-Diode Characteristics

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AOD413 (KOD413)

■ Typical Characteristics



P-Channel MOSFET

AOD413 (KOD413)

■ Typical Characteristics

