

Dual N-Channel MOSFET

AO4932 (KO4932)

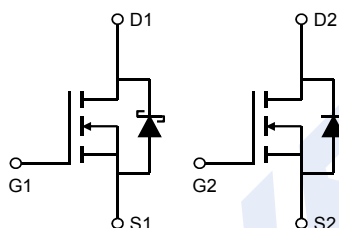
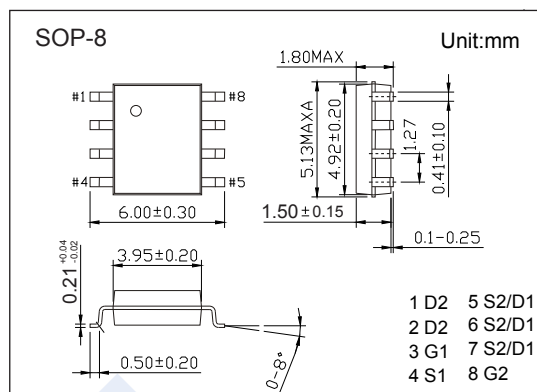
■ Features

N-Channel 1

- V_{DS} (V) = 30V
- I_D = 11 A (V_{GS} = 10V)
- $R_{DS(ON)}$ < 12.5m Ω (V_{GS} = 10V)
- $R_{DS(ON)}$ < 15m Ω (V_{GS} = 4.5V)
- SRFET™ Soft Recovery MOSFET: Integrated Schottky Diode

N-Channel 2

- V_{DS} (V) = 30V
- I_D = 8 A (V_{GS} = 10V)
- $R_{DS(ON)}$ < 19m Ω (V_{GS} = 10V)
- $R_{DS(ON)}$ < 23m Ω (V_{GS} = 4.5V)

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

Parameter		Symbol	N-Channel 1	N-Channel 2	Unit
Drain-Source Voltage		V_{DS}	30		V
Gate-Source Voltage		V_{GS}	± 12	± 20	
Continuous Drain Current	$T_A=25^{\circ}\text{C}$	I_D	11	8	A
	$T_A=70^{\circ}\text{C}$		9	6.5	
Pulsed Drain Current		I_{DM}	60	40	
Avalanche Current		I_{AR}	15	19	
Repetitive Avalanche Energy	$L=0.1\text{mH}$	E_{AR}	11	18	mJ
Power Dissipation	$T_A=25^{\circ}\text{C}$	P_D	2		W
	$T_A=70^{\circ}\text{C}$		1.3		
Thermal Resistance.Junction- to-Ambient	$t \leq 10\text{s}$	R_{thJA}	62.5		$^{\circ}\text{C/W}$
	Steady-State		90		
Thermal Resistance.Junction- to-Lead		R_{thJL}	40		
Junction Temperature		T_J	150		$^{\circ}\text{C}$
Storage Temperature Range		T_{stg}	-55 to 150		

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■ N-Channel 1 Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =1mA, V _{GS} =0V	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _D =30V, V _{GS} =0V			0.5	mA
		V _D =30V, V _{GS} =0V, T _J =55°C			500	
Gate-Body Leakage Current	I _{GSS}	V _D =0V, V _{GS} =±12V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _D =V _{GS} , I _D =250μA	1.1		2.1	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =11A			12.8	mΩ
		V _{GS} =10V, I _D =11A, T _J =125°C			18	
		V _{GS} =4.5V, I _D =9A			15	
On State Drain Current	I _{D(ON)}	V _{GS} =10V, V _D =5V	60			A
Forward Transconductance	g _{FS}	V _D =5V, I _D =11A		75		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _D =15V, f=1MHz	930		1400	pF
Output Capacitance	C _{oss}		90		170	
Reverse Transfer Capacitance	C _{rss}		45		125	
Gate Resistance	R _g	V _{GS} =0V, V _D =0V, f=1MHz	0.7		2.1	Ω
Total Gate Charge (10V)	Q _g	V _{GS} =10V, V _D =15V, I _D =11A	16		24	nC
Total Gate Charge (4.5V)			7		10.5	
Gate Source Charge	Q _{gs}			3.2		
Gate Drain Charge	Q _{gd}			3		
Turn-On DelayTime	t _{d(on)}			6		
Turn-On Rise Time	t _r	V _{GS} =10V, V _D =15V, R _L =1.4Ω, R _{GEN} =3Ω		2.4		ns
Turn-Off DelayTime	t _{d(off)}			23		
Turn-Off Fall Time	t _f			4		
Body Diode Reverse Recovery Time	t _{rr}	I _F =11A, di/dt=500A/μs	5.5		8.5	nC
Body Diode Reverse Recovery Charge	Q _{rr}		5		8	
Maximum Body-Diode Continuous Current	I _S				4	A
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V			0.7	V

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

■ Marking

Marking	4932 KA****
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Dual N-Channel MOSFET

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■ N-Channel 2 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	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			1	μA
		V _{DS} =30V, V _{GS} =0V, T _J =55°C			5	
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±16V			±10	μA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.2		2.4	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =8A			19	mΩ
		V _{GS} =10V, I _D =8A, T _J =125°C			25	
		V _{GS} =4.5V, I _D =4A			23	
On State Drain Current	I _{D(ON)}	V _{GS} =10V, V _{DS} =5V	40			A
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =8A		30		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =15V, f=1MHz	600		888	pF
Output Capacitance	C _{oss}		77		145	
Reverse Transfer Capacitance	C _{rss}		50		115	
Gate Resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz	0.5		1.7	Ω
Total Gate Charge (10V)	Q _g	V _{GS} =10V, V _{DS} =15V, I _D =8A	12		18	nC
Total Gate Charge (4.5V)			6		9	
Gate Source Charge	Q _{gs}		2		3	
Gate Drain Charge	Q _{gd}		2		5	
Turn-On DelayTime	t _{d(on)}	V _{GS} =10V, V _{DS} =15V, R _L =1.8Ω, R _{GEN} =3Ω		5		ns
Turn-On Rise Time	t _r			3.5		
Turn-Off DelayTime	t _{d(off)}			19		
Turn-Off Fall Time	t _f			3.5		
Body Diode Reverse Recovery Time	t _{rr}	I _F =8A, di/dt=500A/μs	6		10	nC
Body Diode Reverse Recovery Charge	Q _{rr}		14		22	
Maximum Body-Diode Continuous Current	I _S				2.5	A
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V			1	V

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

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■ N-Channel 1 Typical Characteristics

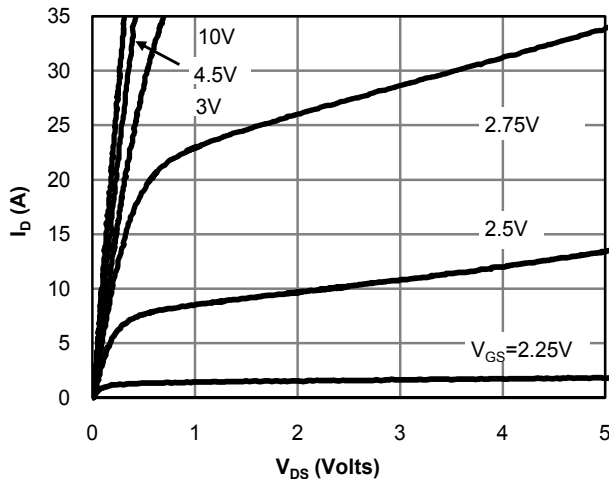


Fig 1: On-Region Characteristics (Note E)

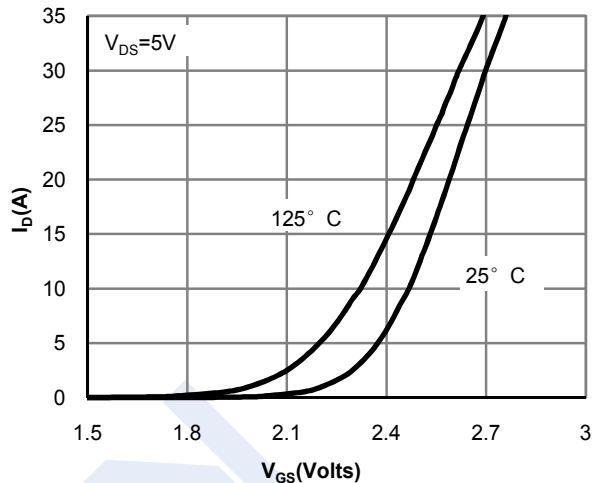


Figure 2: Transfer Characteristics (Note E)

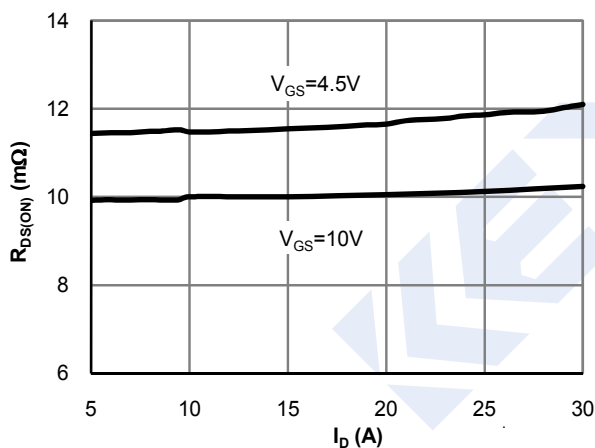


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

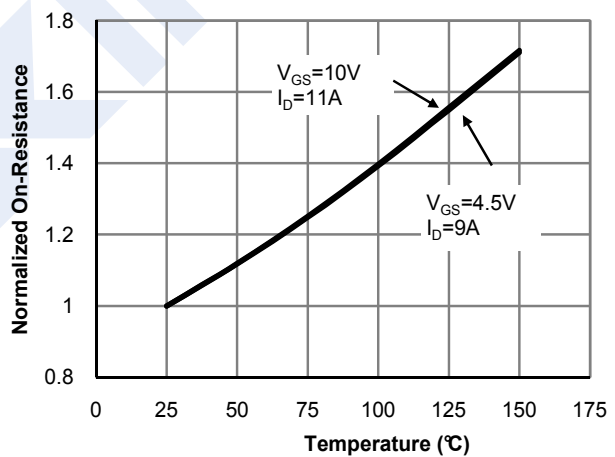


Figure 4: On-Resistance vs. Junction Temperature

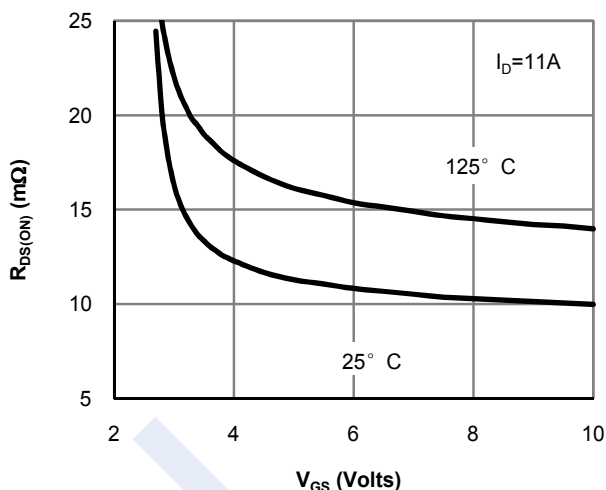


Figure 5: On-Resistance vs. Gate-Source Voltage

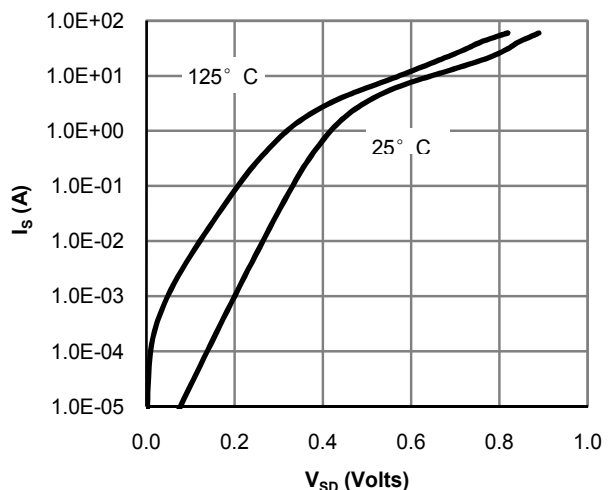


Figure 6: Body-Diode Characteristics (Note E)

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■ N-Channel 1 Typical Characteristics

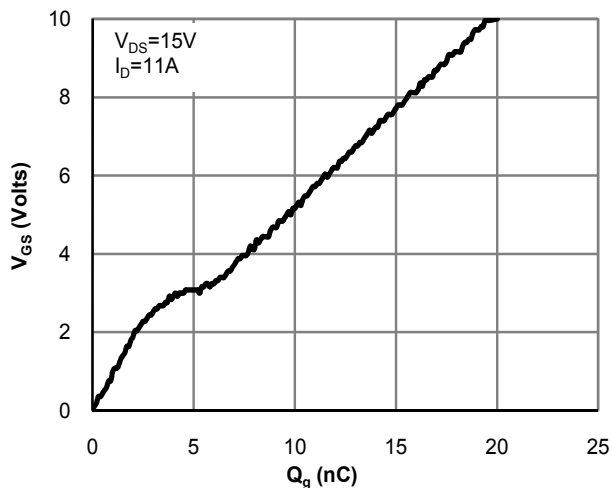


Figure 7: Gate-Charge Characteristics

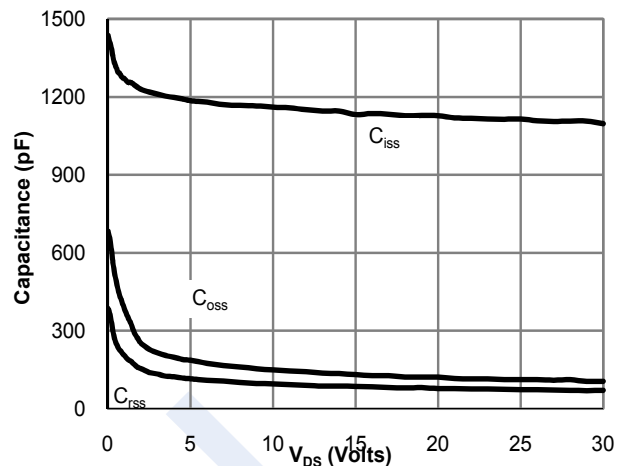


Figure 8: Capacitance Characteristics

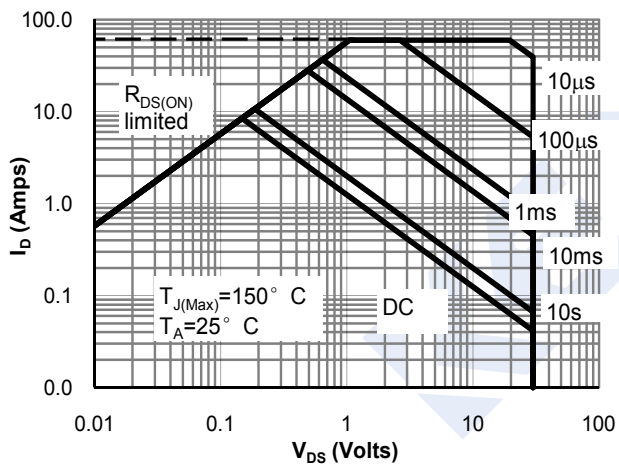


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

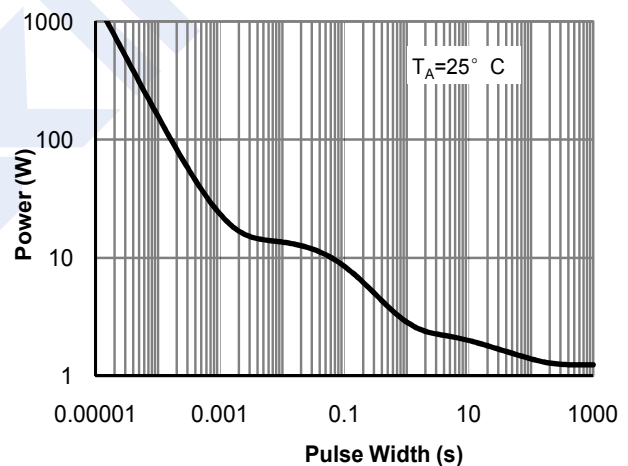


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note F)

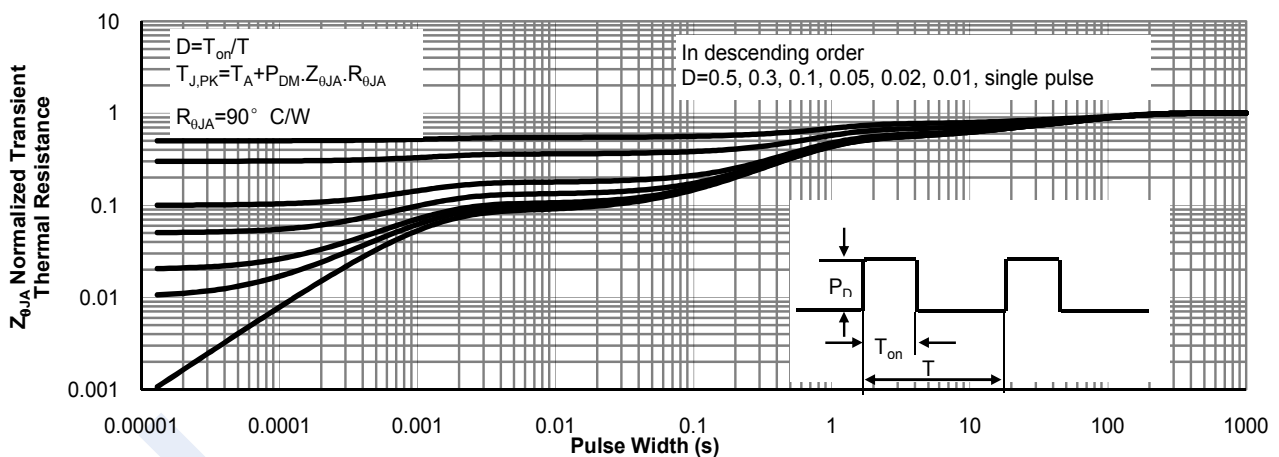


Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)

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■ N-Channel 1 Typical Characteristics

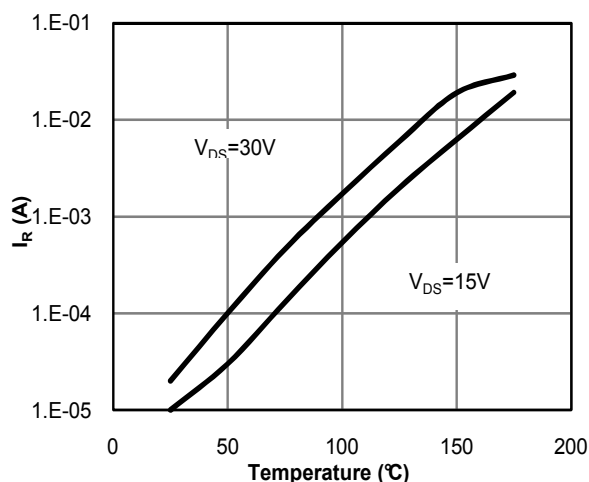


Figure 12: Diode Reverse Leakage Current vs. Junction Temperature

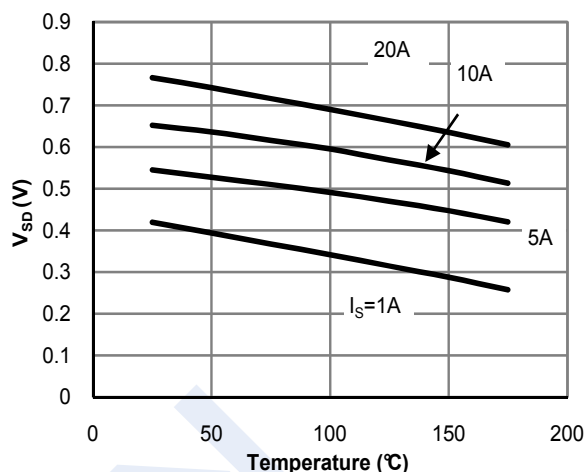


Figure 13: Diode Forward voltage vs. Junction Temperature

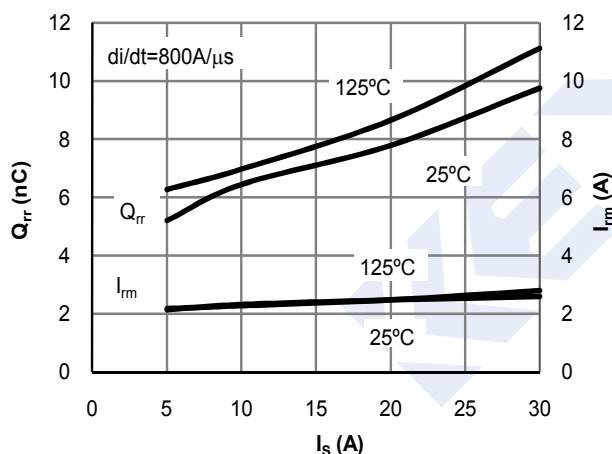


Figure 14: Diode Reverse Recovery Charge and Peak Current vs. Conduction Current

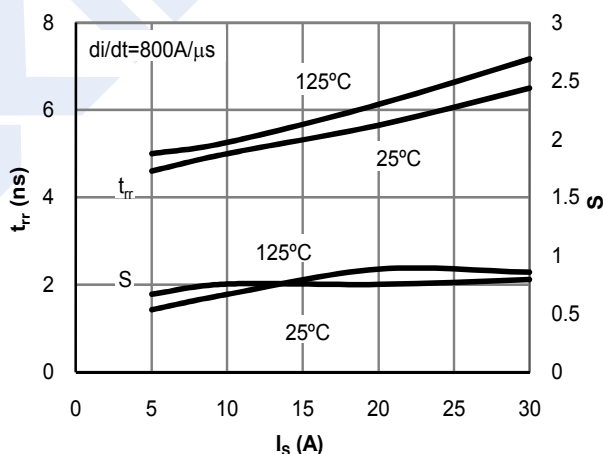


Figure 15: Diode Reverse Recovery Time and Softness Factor vs. Conduction Current

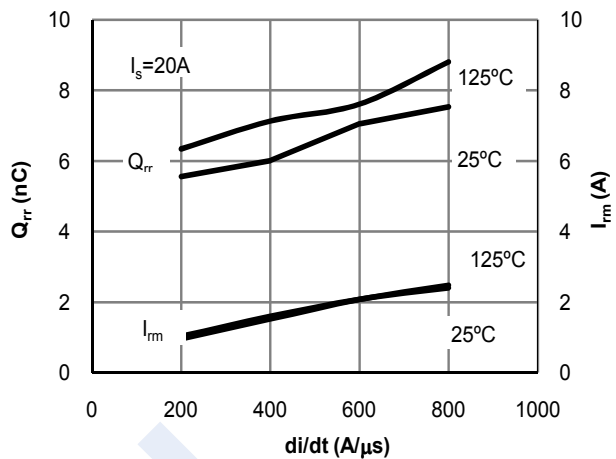


Figure 16: Diode Reverse Recovery Charge and Peak Current vs. di/dt

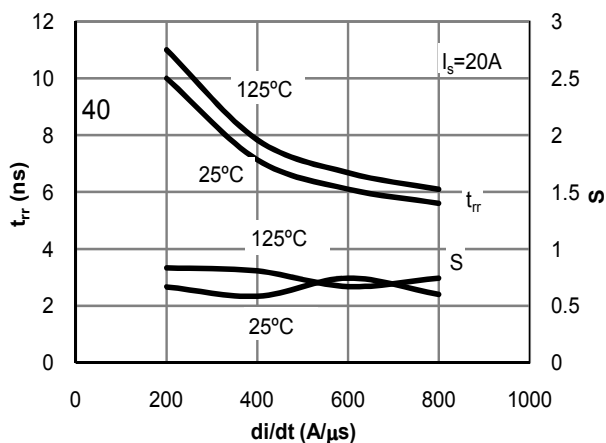


Figure 17: Diode Reverse Recovery Time and Softness Factor vs. di/dt

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■ N-Channel 2 Typical Characteristics

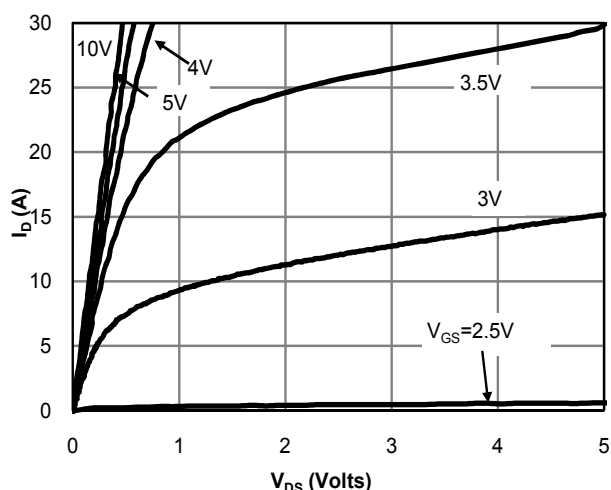


Fig 1: On-Region Characteristics (Note E)

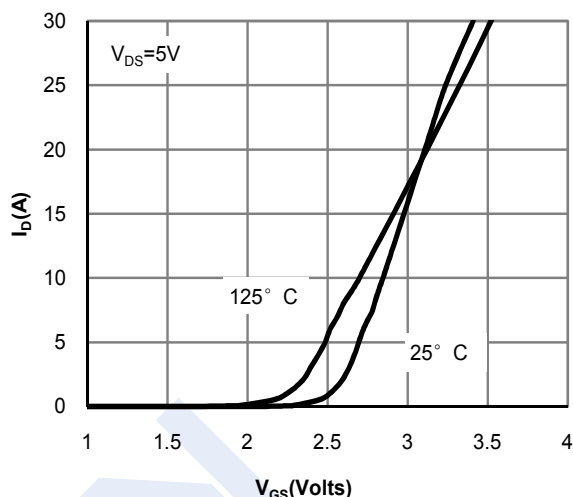


Figure 2: Transfer Characteristics (Note E)

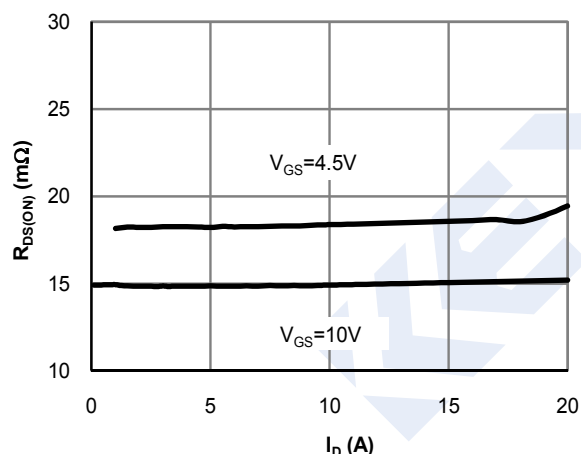


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

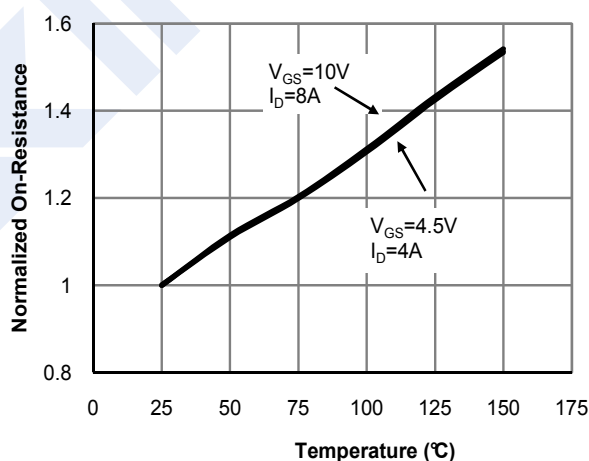


Figure 4: On-Resistance vs. Junction Temperature

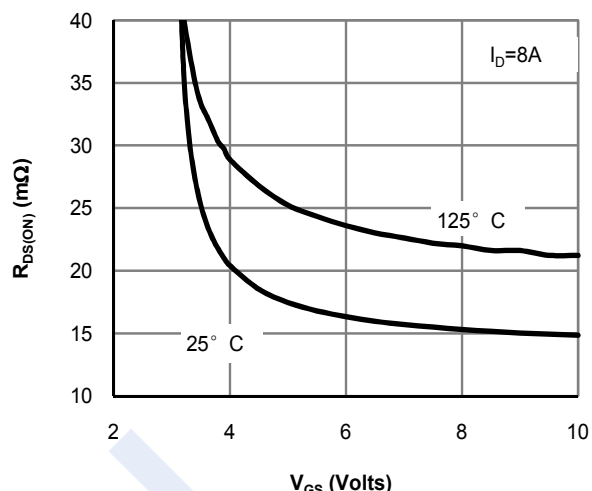


Figure 5: On-Resistance vs. Gate-Source Voltage

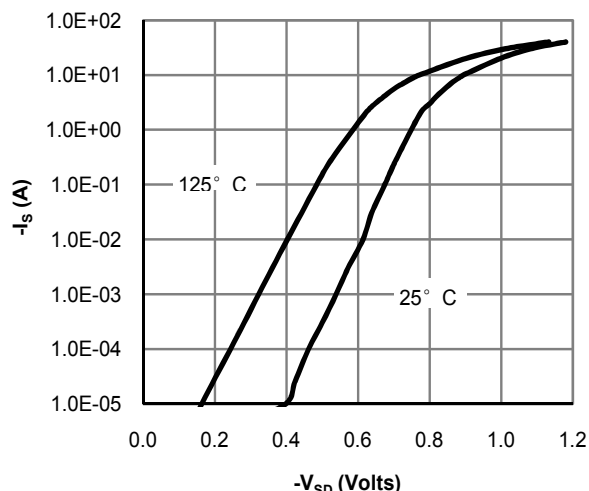


Figure 6: Body-Diode Characteristics (Note E)

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■ N-Channel 2 Typical Characteristics

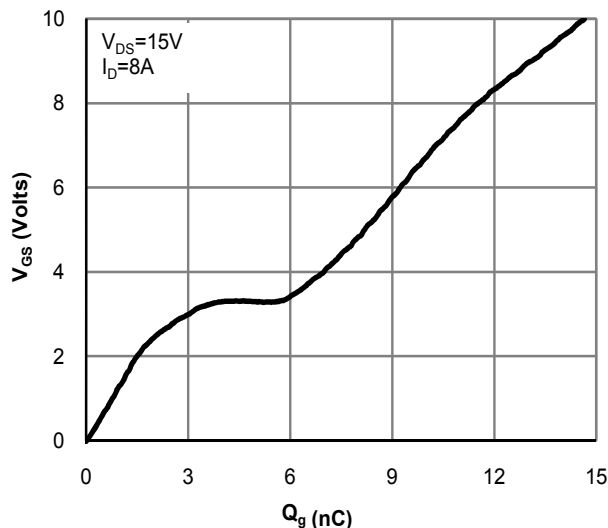


Figure 7: Gate-Charge Characteristics

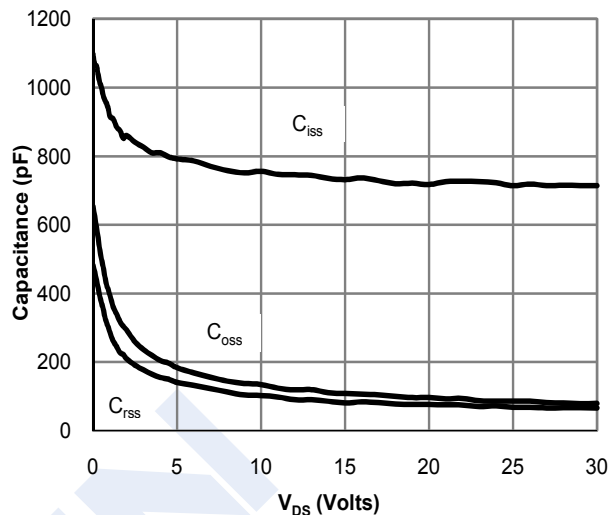


Figure 8: Capacitance Characteristics

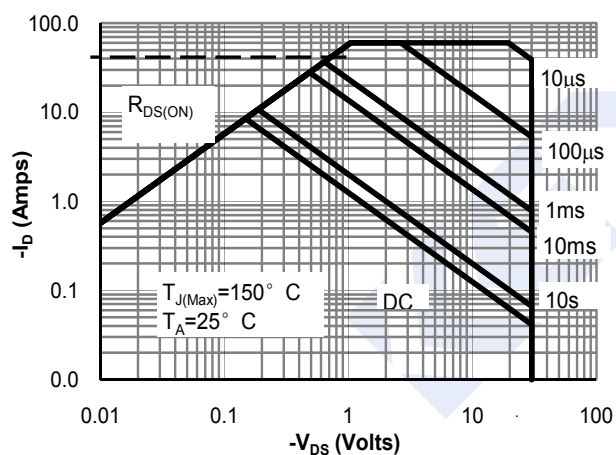


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

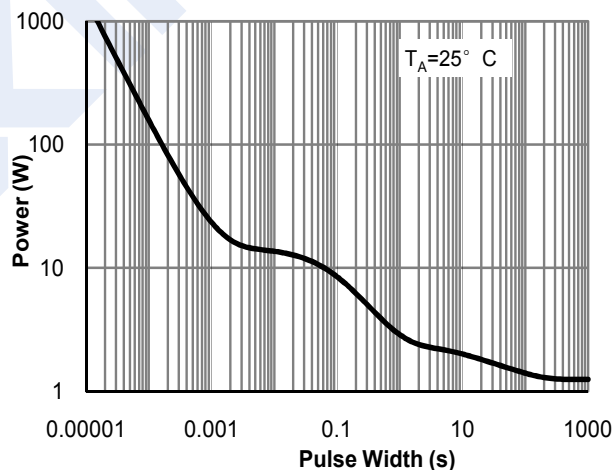


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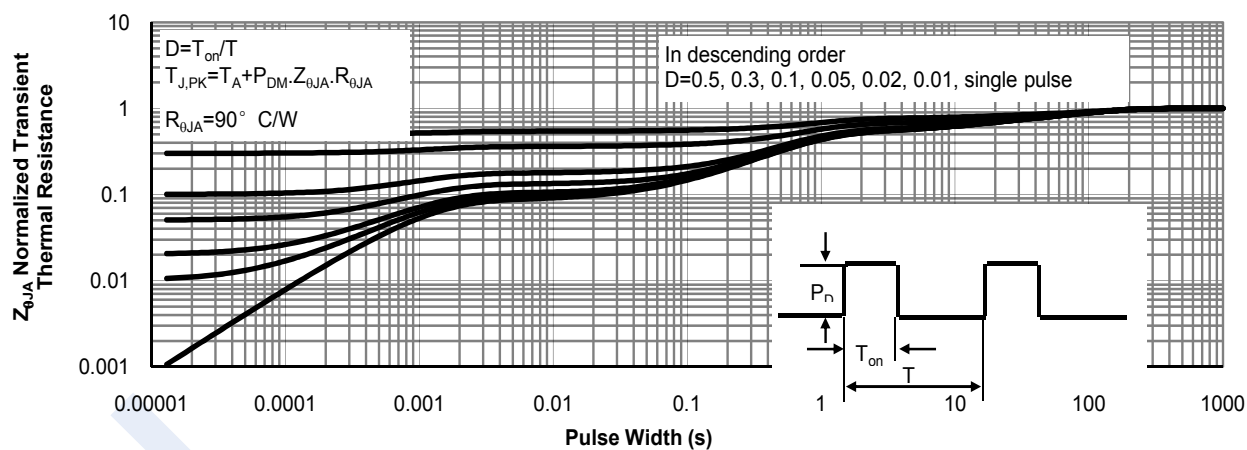


Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)