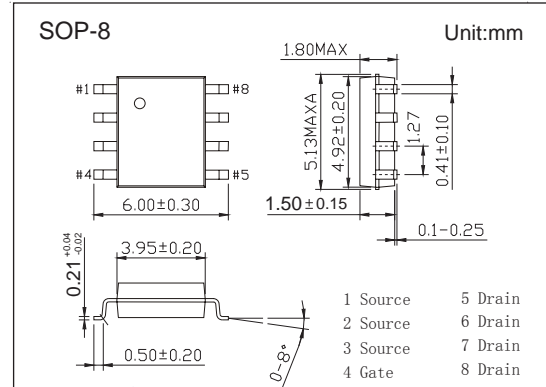
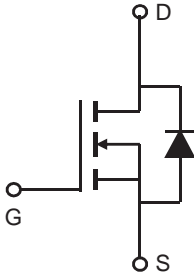


N-Channel MOSFET

2KK7003

■ Features

- $V_{DS} (V) = 30V$
- $I_D = 10 A (V_{GS} = 10V)$
- $R_{DS(ON)} < 19.5m\Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 26m\Omega (V_{GS} = 4.5V)$



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

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	V_{DS}	30	V	
Gate-Source Voltage	V_{GS}	± 20		
Continuous Drain Current	I_D	$T_A=25^\circ C$	A	
		$T_A=70^\circ C$		7.5
Pulsed Drain Current	I_{DM}	50	A	
Avalanche Current	I_{AR}	17		
Repetitive Avalanche Energy	$L=0.1mH$	E_{AR}	14	mJ
Power Dissipation	P_D	$T_A=25^\circ C$	3.1	W
		$T_A=70^\circ C$	2	
Thermal Resistance.Junction- to-Ambient	R_{thJA}	$t \leq 10s$	40	$^\circ C/W$
		Steady-State	75	
Thermal Resistance.Junction- to-Lead	R_{thJL}	24	$^\circ C$	
Junction Temperature	T_J	150		
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	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} =±20V			±100	nA	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.4		2.5	V	
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =10A			19.5	mΩ	
		V _{GS} =10V, I _D =10A T _J =125°C			29		
		V _{GS} =4.5V, I _D =7.5A			26		
On State Drain Current	I _{D(ON)}	V _{GS} =10V, V _{DS} =5V	50			A	
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =10A		30		S	
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =15V, f=1MHz		550	715	pF	
Output Capacitance	C _{oss}			110			
Reverse Transfer Capacitance	C _{rss}			55			
Gate Resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz	3		4.9	Ω	
Total Gate Charge (10V)	Q _g	V _{GS} =10V, V _{DS} =15V, I _D =10A		9.8	13	nC	
Total Gate Charge (4.5V)				4.6	6.1		
Gate Source Charge			Q _{gs}		1.8		
Gate Drain Charge			Q _{gd}		2.2		
Turn-On DelayTime	t _{d(on)}	V _{GS} =10V, V _{DS} =15V, R _L =1.5Ω, R _{GEN} =3Ω		5		ns	
Turn-On Rise Time	t _r			3.2			
Turn-Off DelayTime	t _{d(off)}			24			
Turn-Off Fall Time	t _f			6			
Body Diode Reverse Recovery Time	t _{rr}	I _F = 10A, di/dt= 500A/us		22	29	nC	
Body Diode Reverse Recovery Charge	Q _{rr}			14			
Maximum Body-Diode Continuous Current	I _S				3	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 <300 us pulses, duty cycle 0.5% max.

■ Marking

Marking	K7003
	KC****

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■ Typical Characteristics

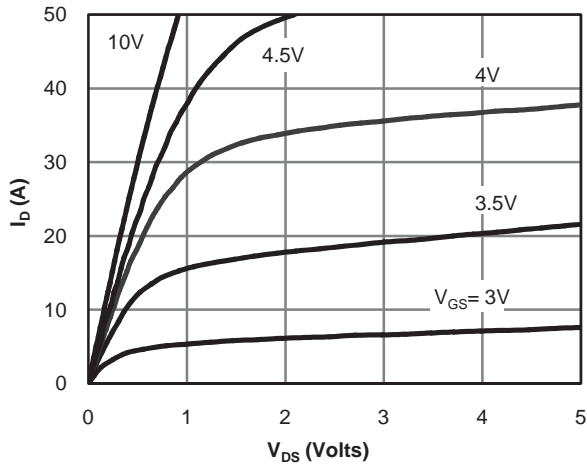


Figure 1: On-Region Characteristics

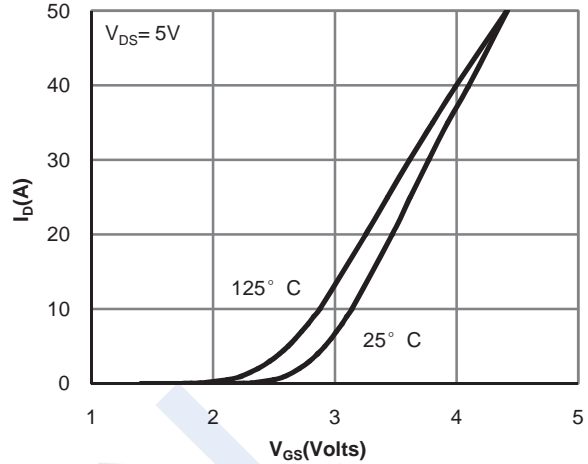


Figure 2: Transfer Characteristics

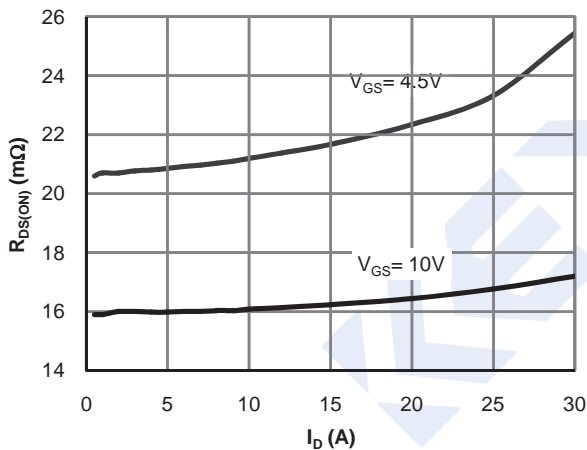


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

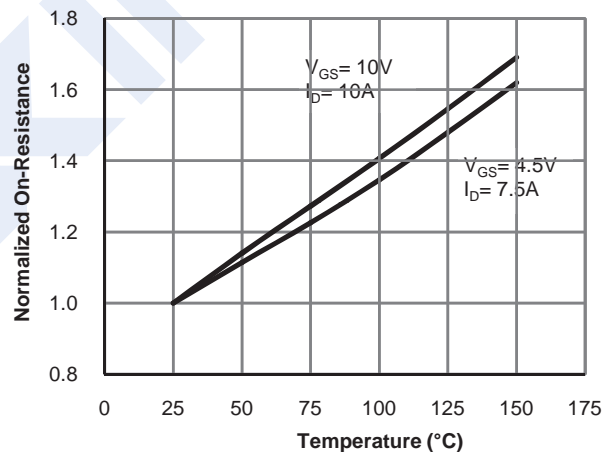


Figure 4: On-Resistance vs. Junction Temperature

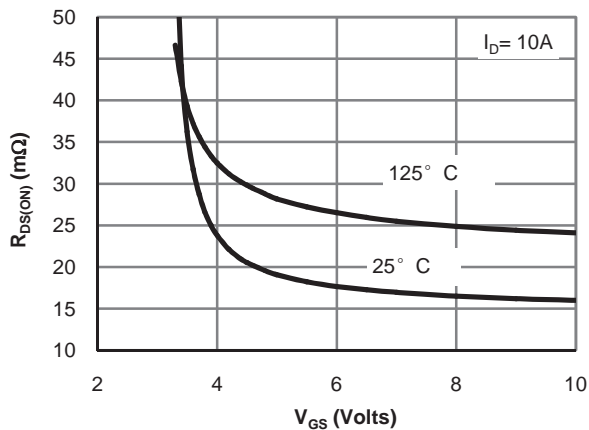


Figure 5: On-Resistance vs. Gate-Source Voltage

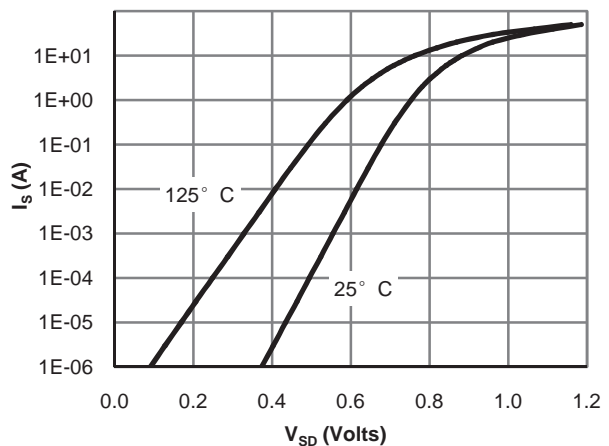


Figure 6: Body-Diode Characteristics

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■ Typical Characteristics

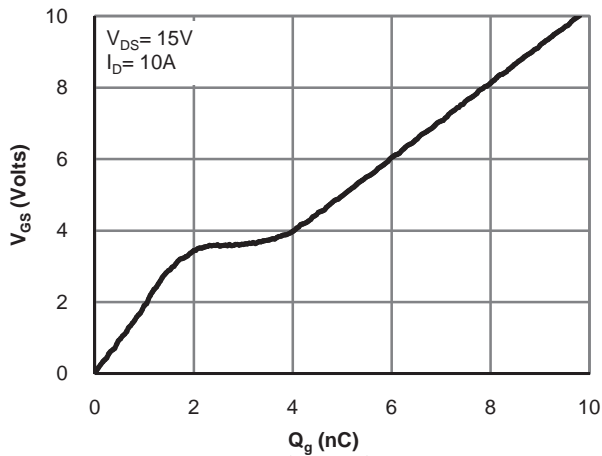


Figure 7: Gate-Charge Characteristics

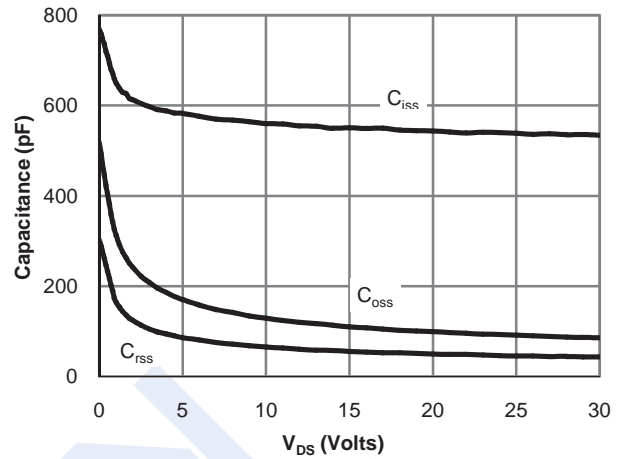


Figure 8: Capacitance Characteristics

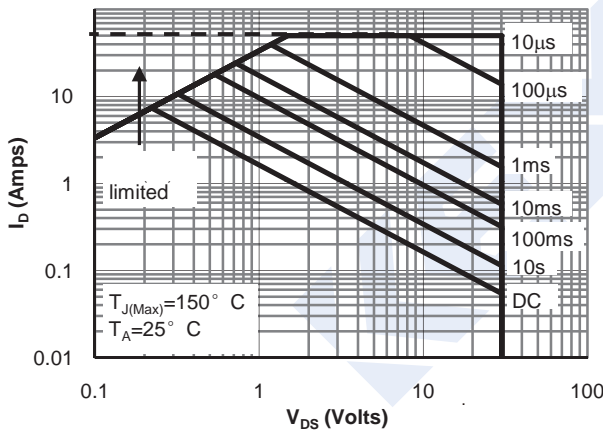


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

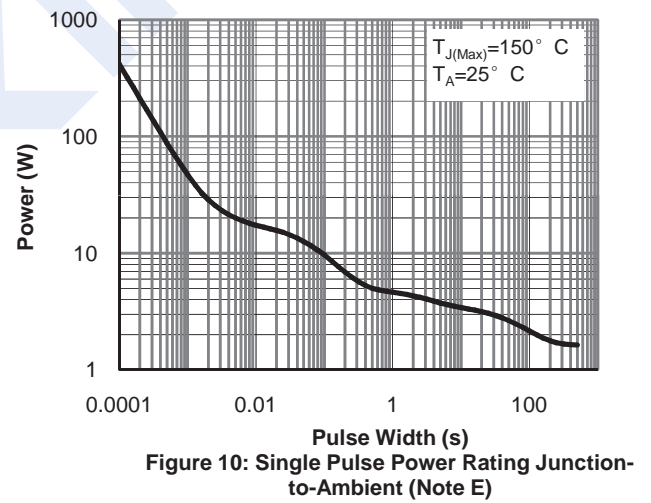


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

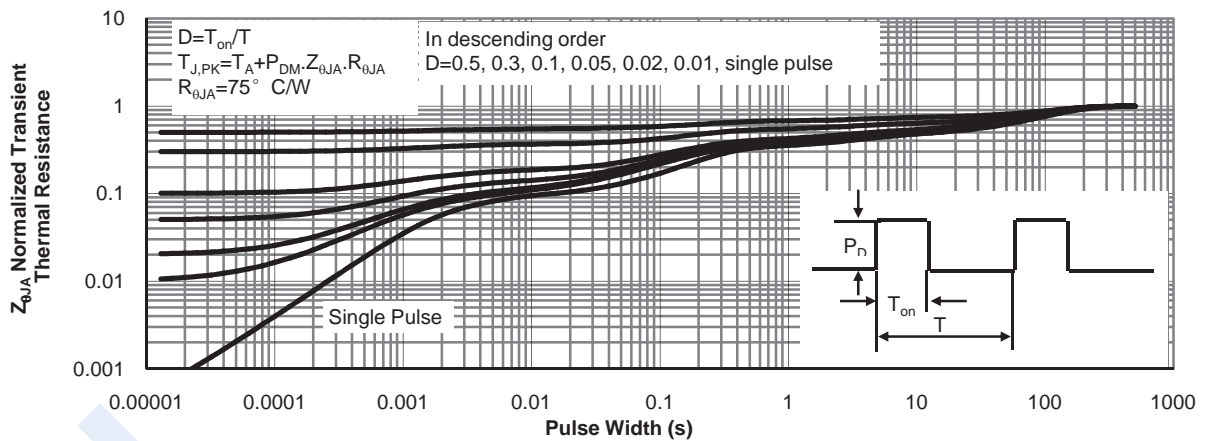


Figure 11: Normalized Maximum Transient Thermal Impedance (Note E)