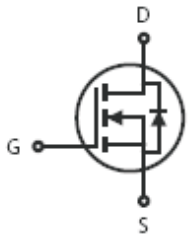
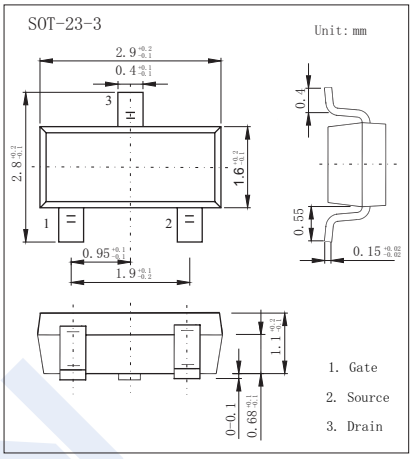
N-Channel Enhancement MOSFET

2SK3000

Features

- V_{DS}=20V,$R_{DS(ON)}$=40mΩ @V_{GS}=4.5V,I_D=5.0A
- V_{DS}=20V,$R_{DS(ON)}$=60mΩ @V_{GS}=2.5V,I_D=4.0A
- V_{DS}=20V ,$R_{DS(ON)}$=75mΩ @V_{GS}=1.8V,I_D=1.0A





Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±10	
Continuous Drain Current Tj=125 ℃	I_D	3.8	A
Pulsed Drain Current	I_{DM}	15	
Power Dissipation	P_D	1.25	W
Thermal Resistance.Junction- to-Ambient	R_{thJA}	100	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{stg}	-55 to 150	

2SK3000

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	V_{GS}=0V,I_D=250uA	20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V,V_{GS}=0V			1	uA
Gate-Body Leakage	I_{GSS}	V_{GS}=±10V,V_{DS}=0V			±100	nA
Gate Threshold Voltage *	$V_{GS(th)}$	V_{GS}=V_{DS},I_D=250uA	0.50		1.0	V
Drain- Source on-state Resistance *	$R_{DS(ON)}$	V_{GS}=4.5V,I_D=5.0A			40	mΩ
		V_{GS}=2.5V,I_D=4.0A			60	mΩ
		V_{GS}=1.8V,I_D=1.0A			75	mΩ
On-State Drain Current *	$I_{D(ON)}$	V_{DS}=5V,V_{GS}=4.5V	18			A
Forward Transconductance *	g_{FS}	V_{DS}=5V,I_D=5A	5			S
Input Capacitance	C_{ISS}	V_{DS} = 15V, V_{GS} = 0V,f =1.0MHZ		888		pF
Output Capacitance	C_{OSS}			144		pF
Reverse Transfer Capacitance	C_{RSS}			115		pF
Turn-On Delay Time	$t_{D(on)}$	V_{DD}=10V,I_D=1A,V_{GS}=4.5V,R_L=10Ω,R_{GEN}=6Ω		31.8		ns
Rise Time	t_r			14.5		ns
Turn-Off Delay Time	$t_{D(off)}$			50.3		ns
Fall Time	t_f			31.9		ns
Total Gate Charge	Q_g	V_{DS} = 10V, I_D = 3.5A,V_{GS} = 4.5V		16.8		nC
Gate-S ource Charge	Q_{gs}			2.5		nC
Gate-Drain Charge	Q_{gd}			5.4		nC
Drain-Source Diode Forward Current *	I_S				1.25	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=1.25A			1.2	V

* Pulse Test:Pulse Width≤300 μs,Duty Cycle ≤2%

■ Marking

Marking	00A*

2SK3000

■ Typical Characterisitics

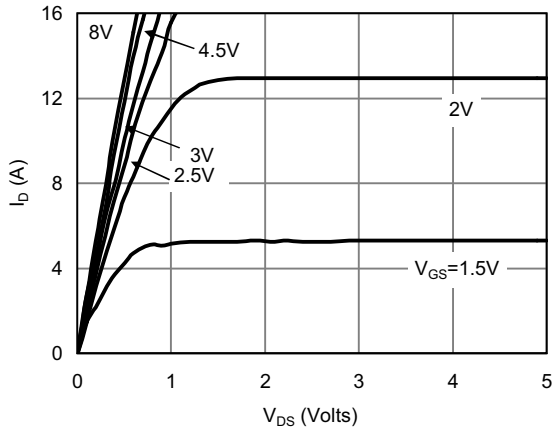


Fig 1: On-Region Characteristics

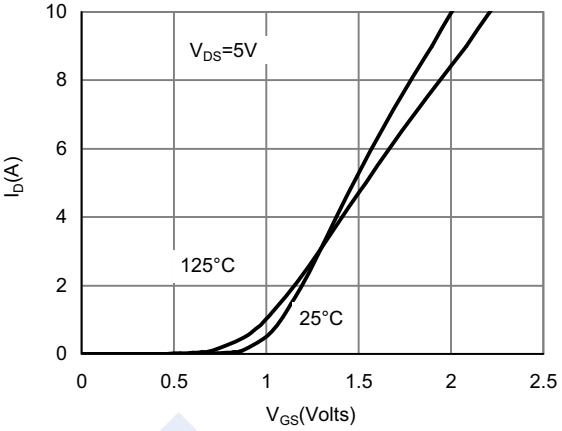


Figure 2: Transfer Characteristics

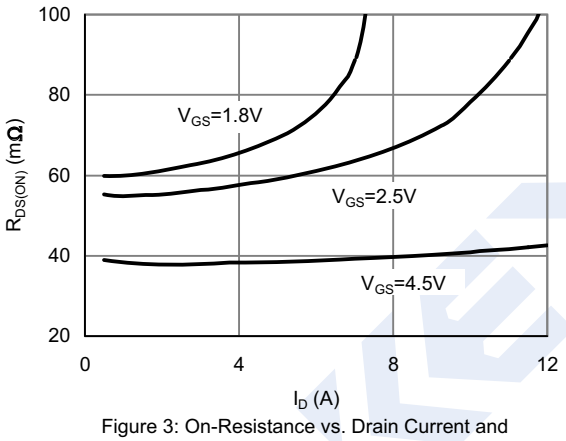


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

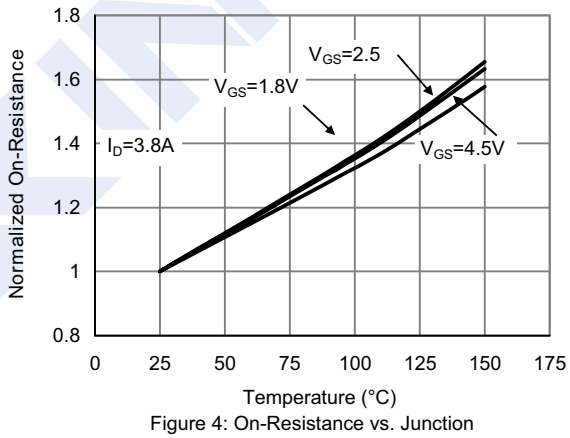


Figure 4: On-Resistance vs. Junction Temperature

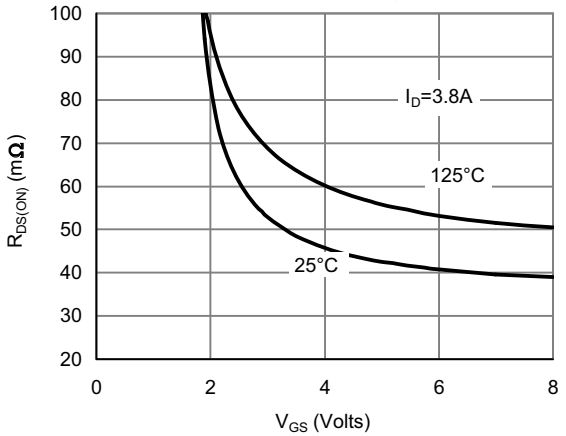


Figure 5: On-Resistance vs. Gate-Source Voltage

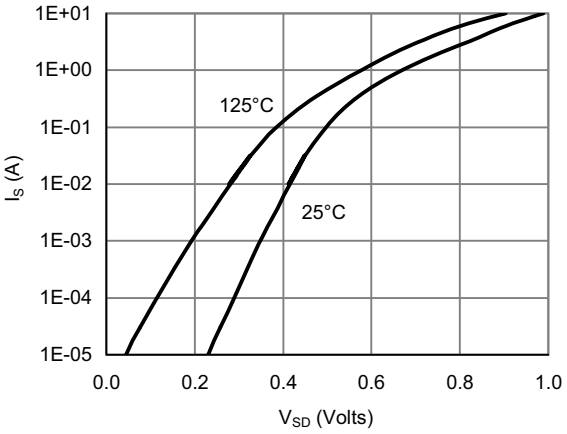


Figure 6: Body-Diode Characteristics

2SK3000

■ Typical Characterisitics

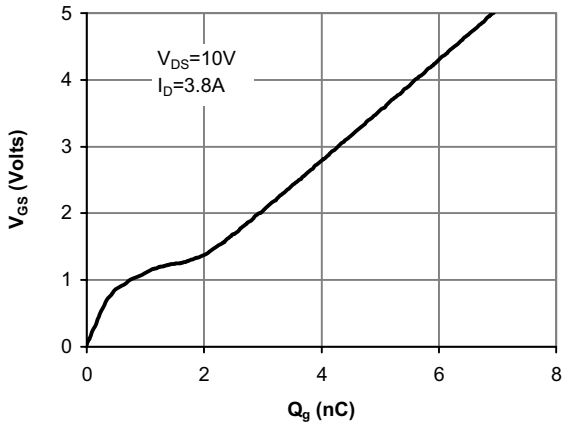


Figure 7: Gate-Charge Characteristics

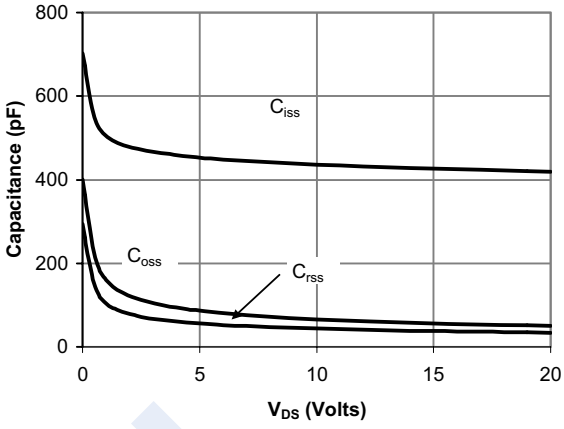


Figure 8: Capacitance Characteristics

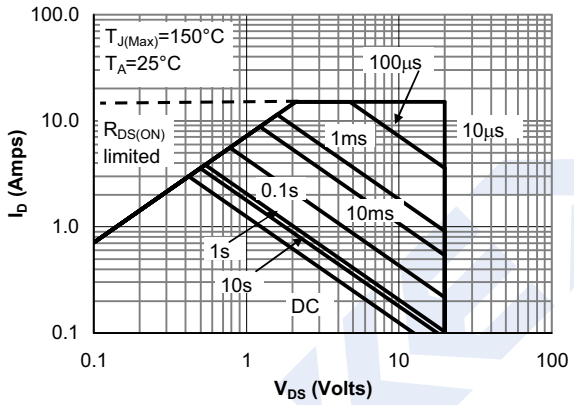


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

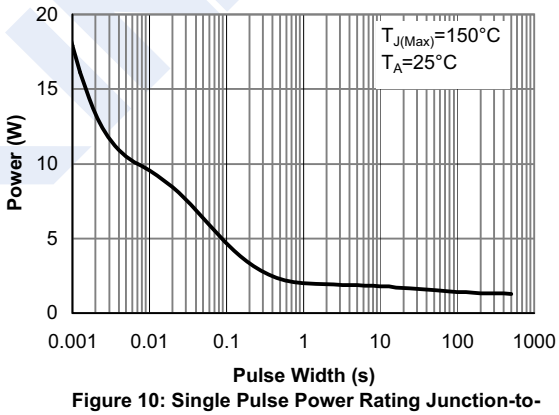


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

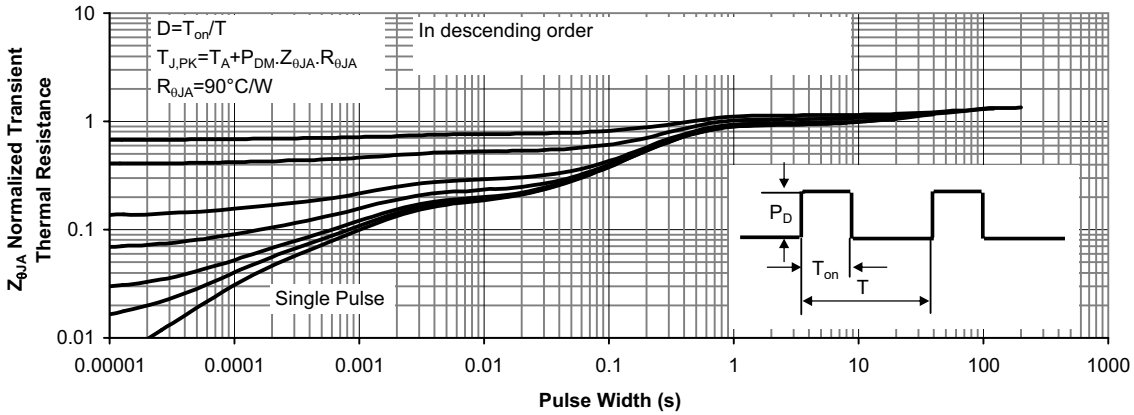


Figure 11: Normalized Maximum Transient Thermal Impedance