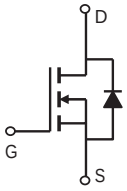
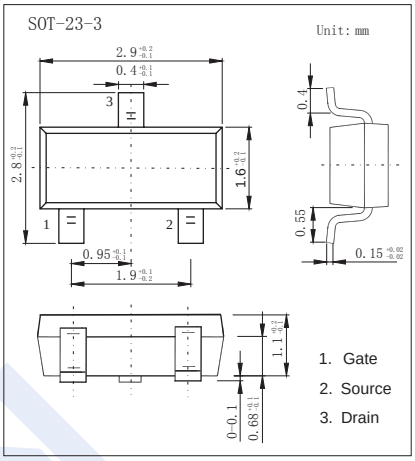
N-Channel Enhancement MOSFET

2KK5013

■ Features

- V_{DS} (V) = 60V
- I_D = 3.7A (V_{GS} = 10V)
- $R_{DS(ON)}$ < 100mΩ (V_{GS} = 10V)
- $R_{DS(ON)}$ < 120mΩ (V_{GS} = 4.5V)





■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Current	I_D	3.7	A
Pulsed Drain Current	I_{DM}	25	
Power Dissipation	P_D	1.4	W
Thermal Resistance.Junction- to-Ambient	R_{thJA}	55	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{stg}	-55 to 150	

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250μA, V_{GS}=0V	60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V			1	μA
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		3	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=3.9A			100	mΩ
		V_{GS}=4.5V, I_D=3.7A			120	
On State Drain Current	$I_{D(ON)}$	V_{GS}=5V, V_{DS}=10V	8			A
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=3.7A	3	9		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=25V, f=1MHz			800	pF
Output Capacitance	C_{oss}				250	
Reverse Transfer Capacitance	C_{rss}				60	
Total Gate Charge	Q_g	V_{GS}=10V, V_{DS}=40V, I_D=3.7A		9	12	nC
Gate Source Charge	Q_{gs}			2		
Gate Drain Charge	Q_{gd}			6		
Turn-On DelayTime	$t_{d(on)}$	I_D=1A, V_{DS}=25V, R_{GEN}=6Ω		15	20	ns
Turn-On Rise Time	t_r			18	20	
Turn-Off DelayTime	$t_{d(off)}$			40	50	
Turn-Off Fall Time	t_f			16	20	
Maximum Body-Diode Continuous Current	I_S				2.5	A
Diode Forward Voltage	V_{SD}	I_S=1.5A,V_{GS}=0V			1.2	V

■ Marking

Marking	KAC

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■ Typical Characterisitics

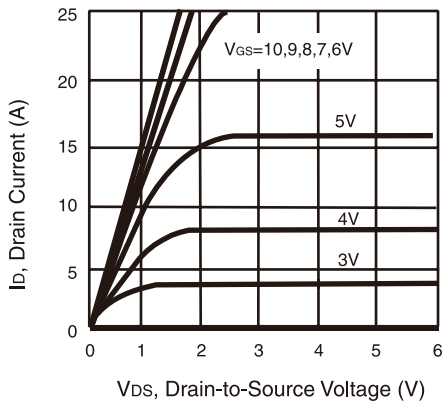

Figure 1. Output Characteristics

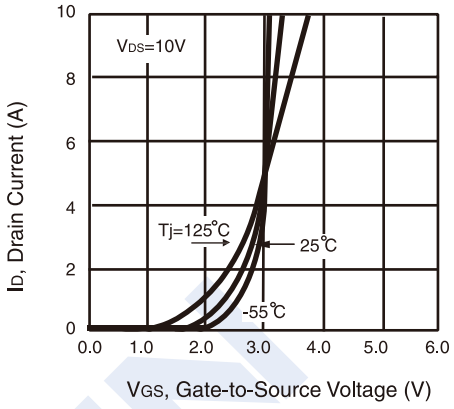

Figure 2. Transfer Characteristics

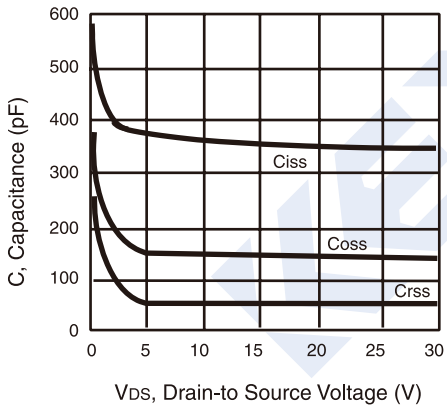

Figure 3. Capacitance

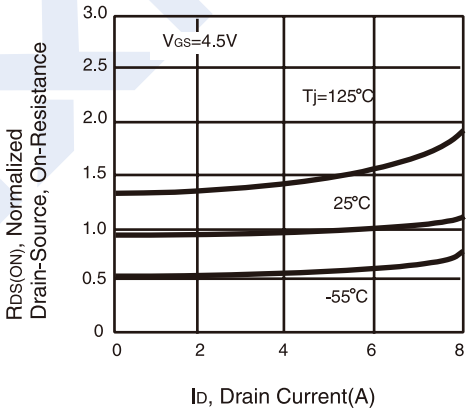

Figure 4. On-Resistance Variation with Drain Current and Temperature

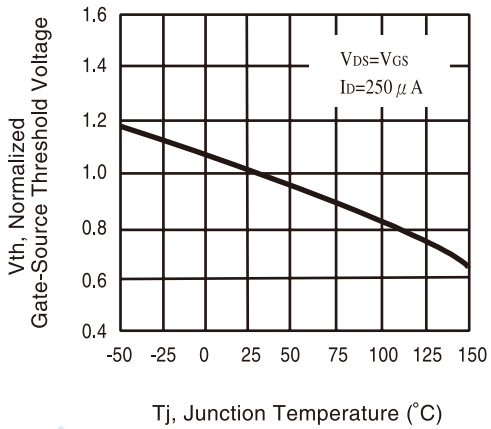

Figure 5. Gate Threshold Variation with Temperature

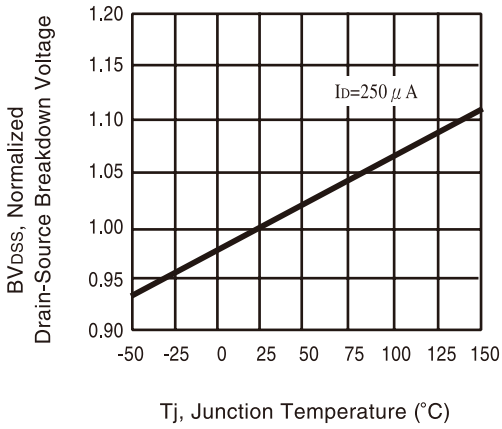

Figure 6. Breakdown Voltage Variation with Temperature

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■ Typical Characterisitics

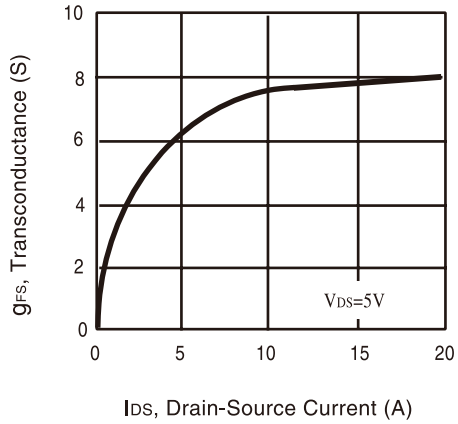

Figure 7. Transconductance Variation with Drain Current

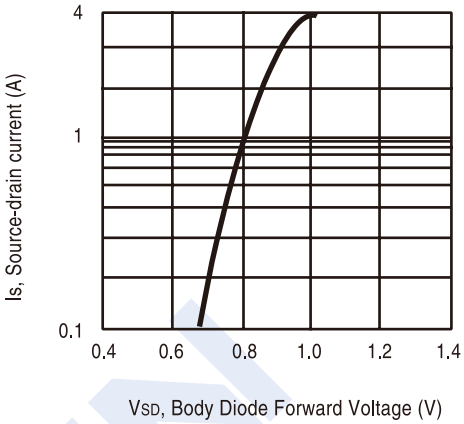

Figure 8. Body Diode Forward Voltage Variation with Source Current

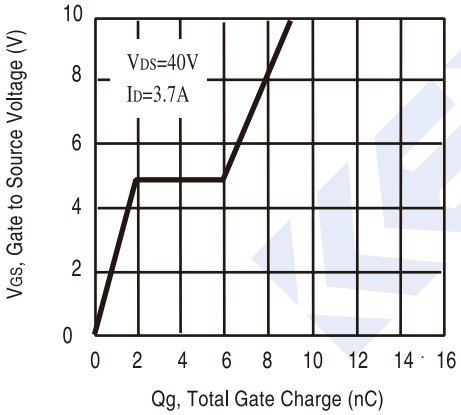

Figure 9. Gate Charge

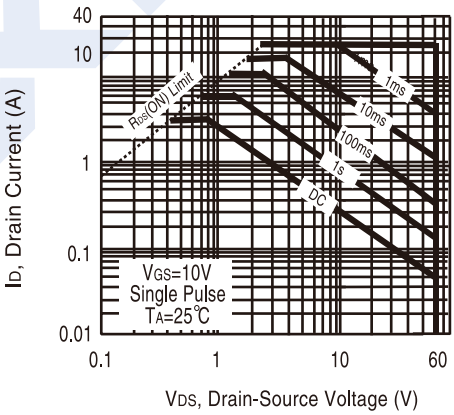

Figure 10. Maximum Safe Operating Area

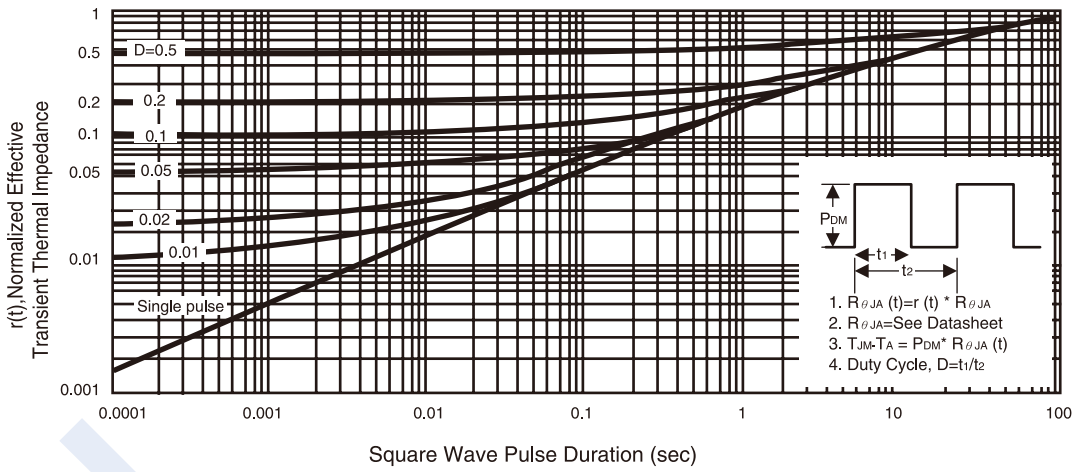

Figure 11. Normalized Thermal Transient Impedance Curve