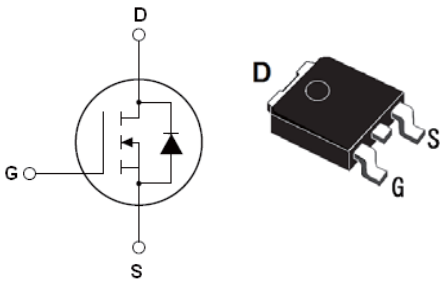
N-Channel MOSFET

2KK5067

TO-252



■ Features

- BV_{DSS} = 650 V
- I_D = 11.5 A
- $R_{DS(ON)}$ = 290 mΩ(Typ.) @ V_{GS} = 10 V
- New technology for high voltage device
- Low on-resistance and low conduction losses
- Small package
- Ultra Low Gate Charge cause lower driving requirements
- 100% Avalanche Tested

■ Absolute Maximum Ratings(T_C=25℃)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	650	V
Gate-Source Voltage		V_{GS}	±30	
Continuous Drain Current	T_C=25℃	I_D	11.5	A
	T_C=100℃		7	
Pulsed Drain Current (Note 1)		I_{DM}	46	
Single Pulse Avalanche Energy (Note 2)		E_{AS}	144	mJ
Repetitive Avalanche Energy ,t_{AR} limited by T_{jmax} (Note 1)		E_{AR}	0.5	
Avalanche Current (Note 1)		I_{AR}	6	A
Drain Source Voltage Slope, V_{DS} ≤480 V		dv/dt	50	V/ns
Reverse Diode dv/dt， V_{DS} ≤480 V,I_{SD}<I_D		dv/dt	15	
Power Dissipation	T_C=25℃	P_D	101	W
Thermal Resistance. Junction- to-Case		$R_{\theta JC}$	1.24	℃/W
Thermal Resistance. Junction- to-Ambient		$R_{\theta JA}$	62	
Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{stg}	-55 to 150	

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. EAS condition：T_j=25℃,V_{DD}=50V,V_G=10V,R_G=25Ω

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■ Electrical Characteristics (T_C = 25℃ unless othewise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	I_D = 250 μA, V_{GS} = 0V	650			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 650 V, V_{GS} = 0 V			1	μA
		V_{DS} = 650 V, V_{GS} = 0 V, T_C = 125℃			100	
Gate to Source Leakage Current	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±30 V			±100	nA
Gate to Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS} , I_D = 250μA	3		4	V
Static Drain-Source On-Resistance	$R_{DS(On)}$	V_{GS} = 10 V, I_D = 7 A		290	360	mΩ
Input Capacitance	C_{iss}	V_{GS} = 0 V, V_{DS} = 50 V, f = 1 MHz		870		pF
Output Capacitance	C_{oss}			54		
Reverse Transfer Capacitance	C_{rss}			1.8		
Total Gate Charge	Q_g	V_{GS} = 10V, V_{DS} = 480 V, I_D = 11.5 A		19		nC
Gate Source Charge	Q_{gs}			6		
Gate Drain Charge	Q_{gd}			6.5		
Turn-On DelayTime	$t_{d(on)}$	V_{DD}=380V,I_D=5.8A, R_G=3Ω,V_{GS}=10V		11		ns
Turn-On Rise Time	t_r			8		
Turn-Off DelayTime	$t_{d(off)}$			58	70	
Turn-Off Fall Time	t_f			9	14	
Source-drain current(Body Diode)	I_{SD}				11.5	A
Pulsed Source-drain current(Body Diode)	I_{SDM}				46	
Diode Forward Voltage	V_{SD}	T_j=25℃,I_{SD}=11.5A,V_{GS}=0V		0.9	1.2	V
Reverse Recovery Time	t_{rr}	T_j=25℃, I_F=5.8A, di/dt=100A/μs		220		ns
Reverse Recovery Charge	Q_{rr}			2.2		μC
Peak Reverse Recovery Current	I_{rrm}			19		A

■ Marking

Marking	K5067

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■ Typical Electrical and Thermal Characteristics

Figure1. Safe operating area

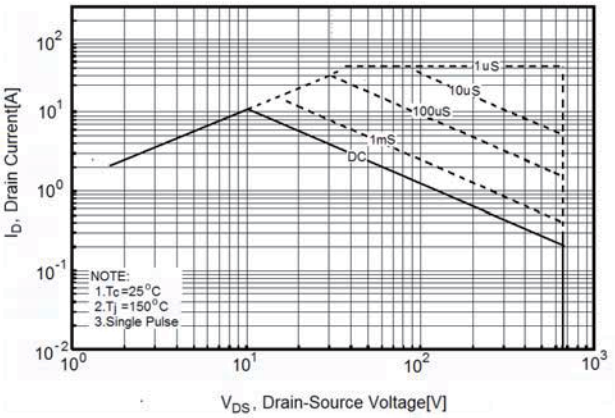

Figure 2. Transient Thermal Impedance

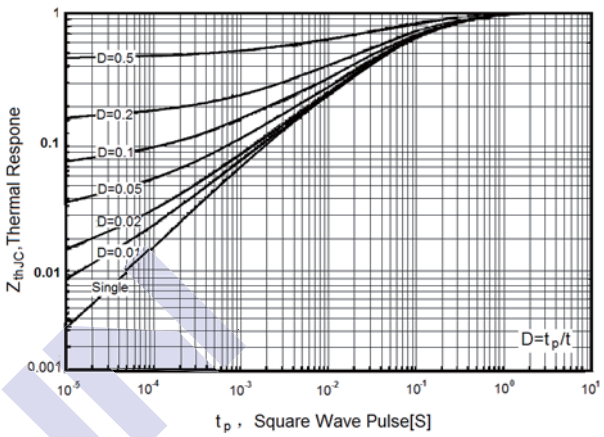

Figure 3. Source -Drain Diode Forward Voltage

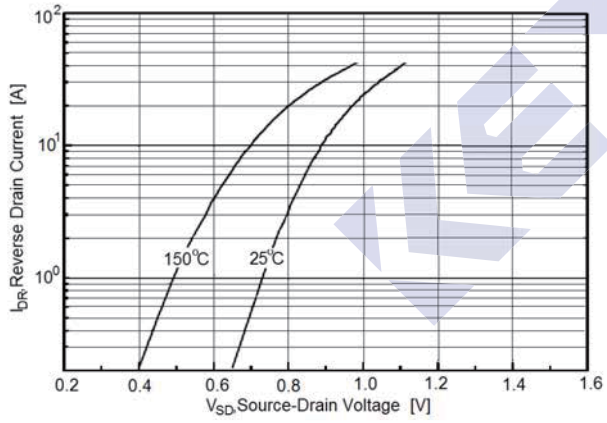

Figure 4. Output characteristics

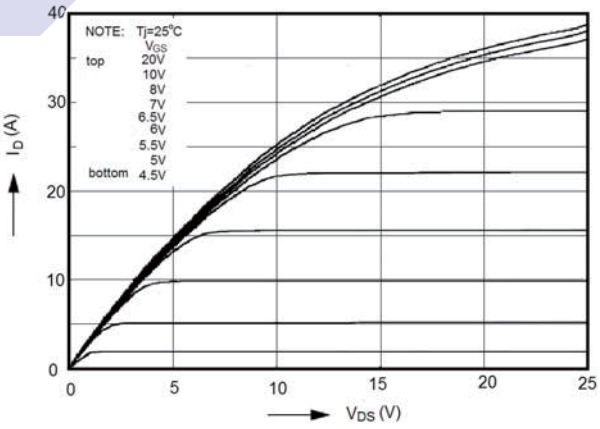

Figure 5. Transfer characte ristics

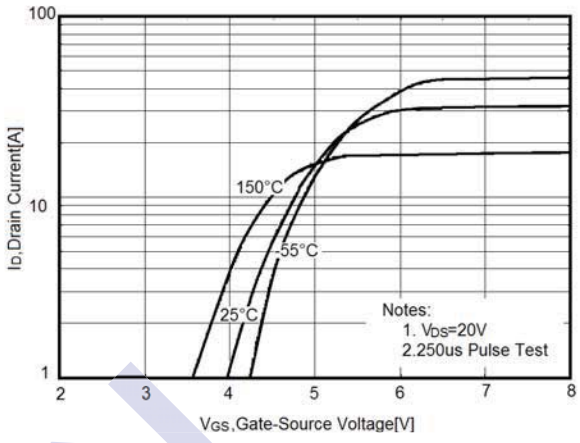

Figure 6. Static drain -source on resistance

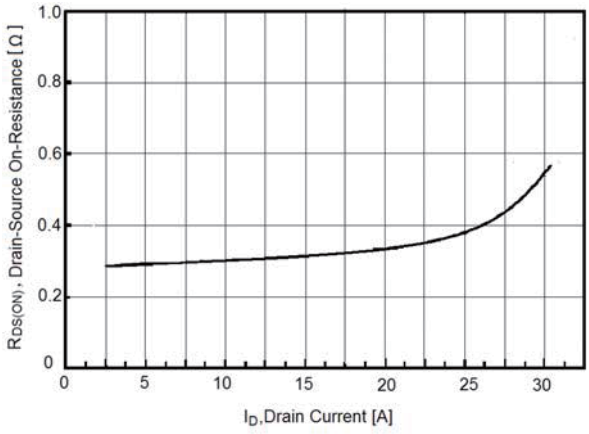

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Figure7. $R_{DS(ON)}$ vs Junction Temperature

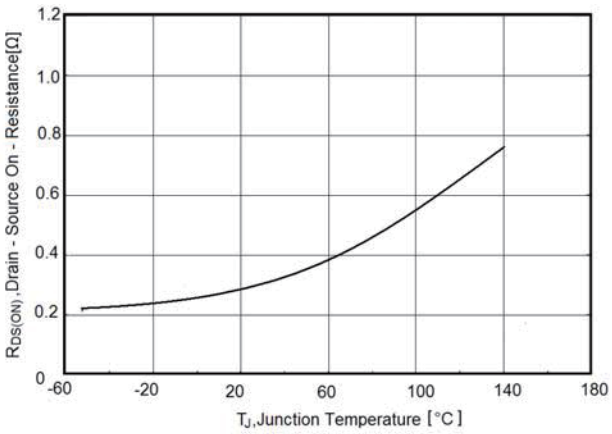


Figure 8. BV_{DSS} vs Junction Temperature

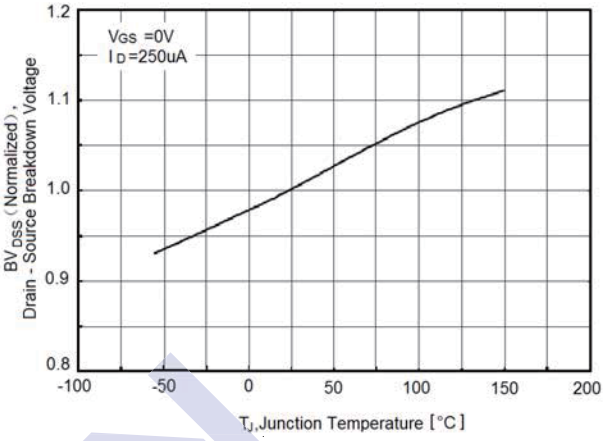


Figure 9. Maximum I_D vs Junction Temperature

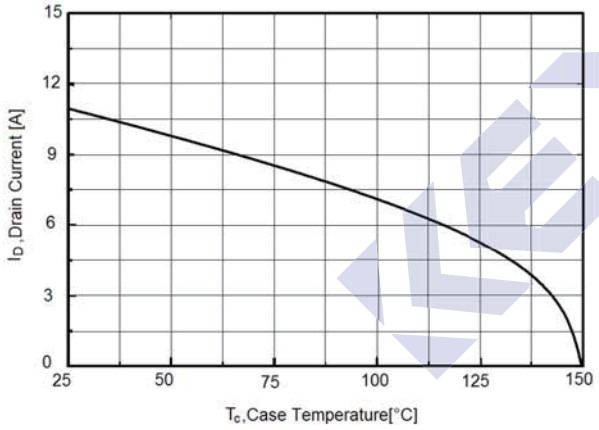


Figure 10. Gate charge waveforms

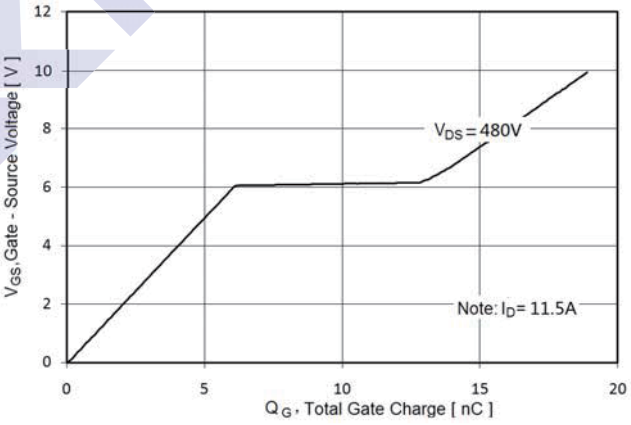
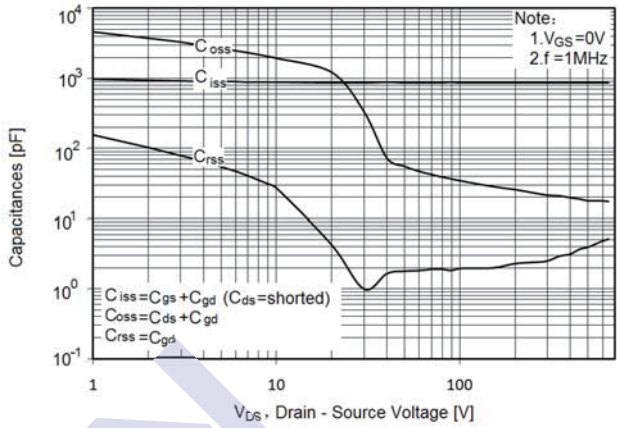


Figure 11. Capacitance



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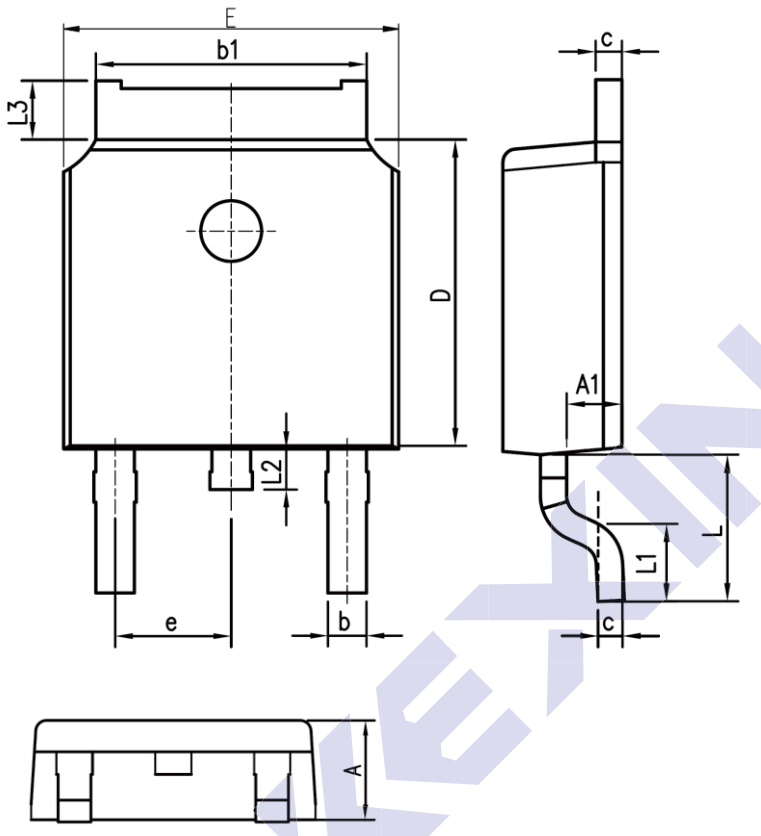
■ Package Outline Dimensions

Unit:mm



SYMBOL	mm	
	MIN	MAX
A	2.10	2.50
A1	0.97	1.17
b	0.63	0.93
b1	5.13	5.53
c	0.40	0.60
D	5.80	6.40
E	6.30	6.90
e	2.286BSC	
L	2.50	3.30
L1	1.20	1.80
L2	0.60	1.00
L3	0.85	1.30