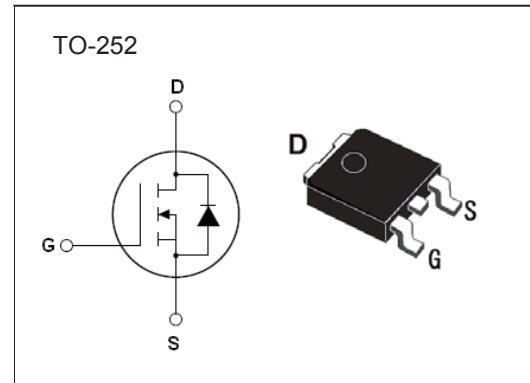


N-Channel MOSFET

2KK5068

■ Features

- $BV_{DSS} = 80\text{ V}$
- $I_D = 60\text{ A}$
- $R_{DS(ON)} = 6.8\text{ m}\Omega(\text{Typ.}) @ V_{GS} = 10\text{ V}$
< $8.5\text{ m}\Omega(\text{Max.}) @ V_{GS} = 10\text{ V}$
- Special process technology for high ESD capability
- Special designed for Convertors and power controls
- High density cell design for ultra low R_{Dson}
- Fully characterized Avalanche voltage and current
- Good stability and uniformity with high EAS
- Excellent package for good heat dissipation

■ Absolute Maximum Ratings($T_C=25^\circ\text{C}$)

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	V_{DS}	80	V	
Gate-Source Voltage	V_{GS}	± 20		
Continuous Drain Current	I_D	$T_C=25^\circ\text{C}$	60	A
		$T_C=100^\circ\text{C}$		
Pulsed Drain Current (Note 1)	I_{DM}	310		
Peak Diode Recovery Voltage	dv/dt	30	V/ns	
Single Pulse Avalanche Energy (Note 2)	EAS	300	mJ	
Power Dissipation	P_D	140	W	
Thermal Resistance. Junction- to-Case	$R_{\theta JC}$	1.05	$^\circ\text{C}/\text{W}$	
Thermal Resistance. Junction- to-Ambient	$R_{\theta JA}$	50		
Junction Temperature	T_J	175	$^\circ\text{C}$	
Storage Temperature Range	T_{stg}	-55 to 175		

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. EAS condition: $T_J=25^\circ\text{C}, V_{DD}=37.5\text{ V}, V_G=10\text{ V}, L=0.5\text{ mH}$

N-Channel MOSFET

2KK5068

■ Electrical Characteristics ($T_c = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D = 250\ \mu\text{A}$, $V_{GS} = 0\text{V}$	80			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 80\text{V}$, $V_{GS} = 0\text{V}$			1	μA
		$V_{DS} = 80\text{V}$, $V_{GS} = 0\text{V}$, $T_c = 125^\circ\text{C}$			10	
Gate to Source Leakage Current	I_{GSS}	$V_{DS} = 0\text{V}$, $V_{GS} = \pm 20\text{V}$			± 100	nA
Gate to Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250\ \mu\text{A}$	2		4	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10\text{V}$, $I_D = 30\text{A}$		6.8	8.5	$\text{m}\Omega$
Forward Transconductance	g_{FS}	$V_{DS} = 5\text{V}$, $I_D = 30\text{A}$		66		S
Input Capacitance	C_{iss}	$V_{GS} = 0\text{V}$, $V_{DS} = 25\text{V}$, $f = 1\text{MHz}$		4400		pF
Output Capacitance	C_{oss}			340		
Reverse Transfer Capacitance	C_{rss}			260		
Total Gate Charge	Q_g	$V_{GS} = 10\text{V}$, $V_{DS} = 30\text{V}$, $I_D = 30\text{A}$		100		nC
Gate Source Charge	Q_{gs}			20		
Gate Drain Charge	Q_{gd}			30		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 30\text{V}$, $I_D = 2\text{A}$, $R_L = 15\ \Omega$, $V_{GS} = 10\text{V}$, $R_G = 2.5\ \Omega$		17.8		ns
Turn-On Rise Time	t_r			11.8		
Turn-Off Delay Time	$t_{d(off)}$			56		
Turn-Off Fall Time	t_f			14.6		
Source-drain current (Body Diode)	I_{SD}				80	A
Pulsed Source-drain current (Body Diode)	I_{SDM}				320	
Diode Forward Voltage (Note 1)	V_{SD}	$T_j = 25^\circ\text{C}$, $I_{SD} = 30\text{A}$, $V_{GS} = 0\text{V}$			1.2	V
Reverse Recovery Time (Note 1)	t_{rr}	$T_j = 25^\circ\text{C}$, $I_F = 75\text{A}$, $di/dt = 100\text{A}/\mu\text{s}$			36	ns
Reverse Recovery Charge (Note 1)	Q_{rr}				56	nC

Note 1. Pulse Test: Pulse Width $\leq 300\ \mu\text{s}$, Duty Cycle $\leq 1.5\%$, $R_G = 2.5\ \Omega$, Starting $T_j = 25^\circ\text{C}$

■ Marking

Marking	K5068
---------	-------

N-Channel MOSFET

2KK5068

■ Typical Electrical and Thermal Characteristics

Figure1. Safe operating area

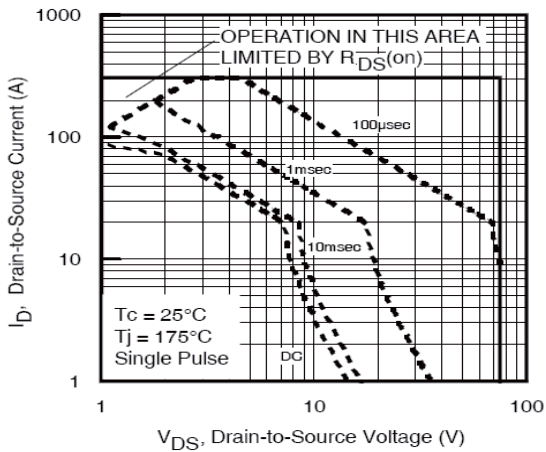


Figure2. Source-Drain Diode Forward Voltage

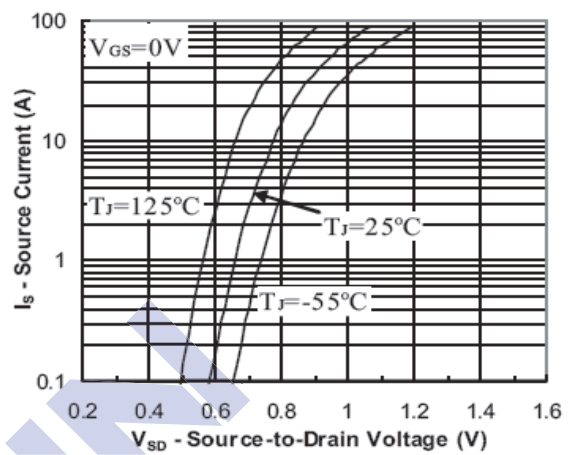


Figure3. Output characteristics

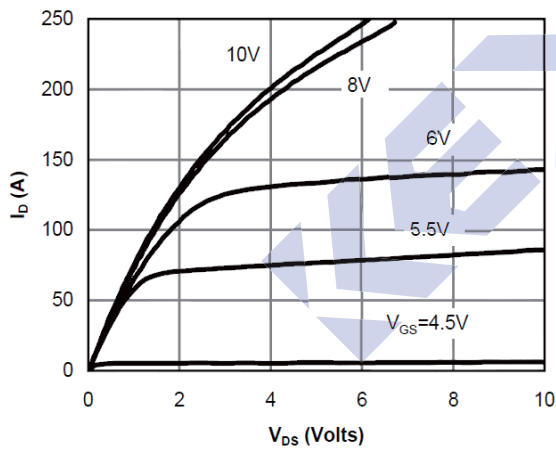


Figure4. Transfer characteristics

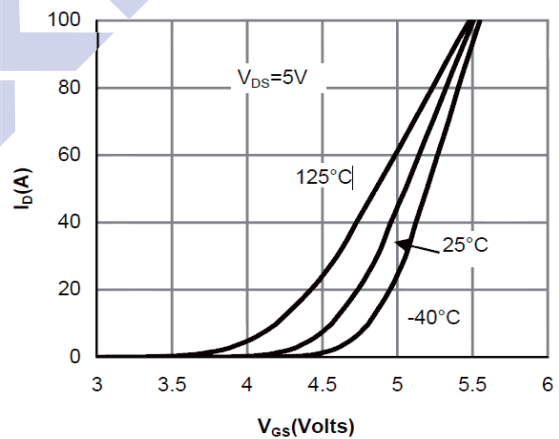


Figure5. Static drain-source on resistance

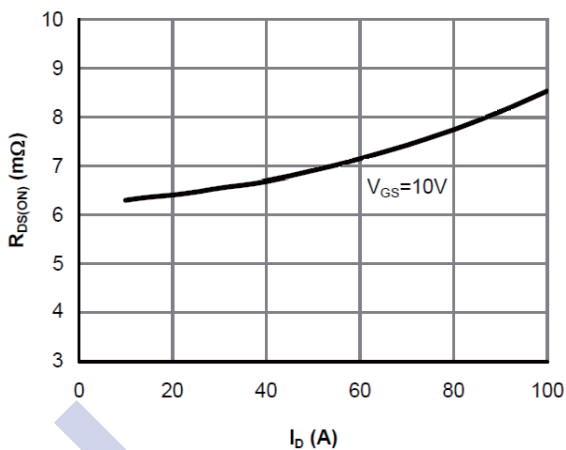
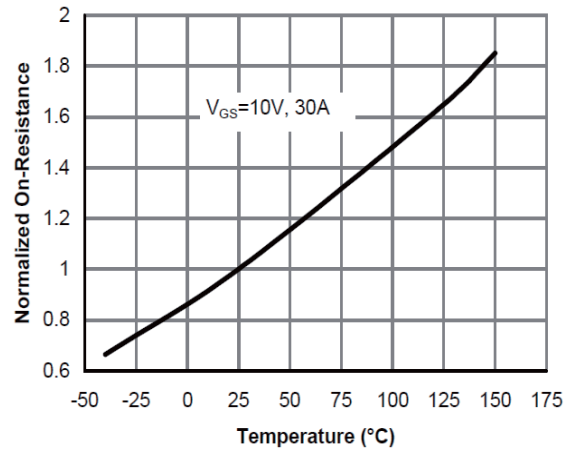


Figure6. $R_{DS(ON)}$ vs Junction Temperature



N-Channel MOSFET

2KK5068

Figure7. BV_{DSS} vs Junction Temperature

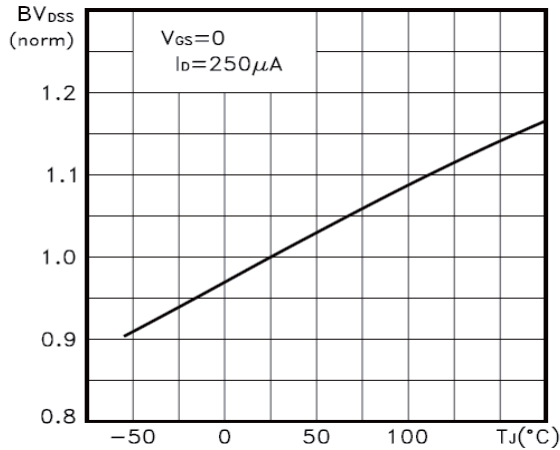


Figure8. $V_{GS(th)}$ vs Junction Temperature

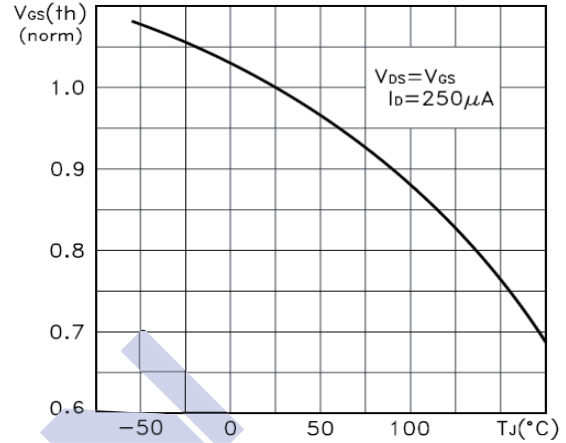


Figure9. Gate charge waveforms

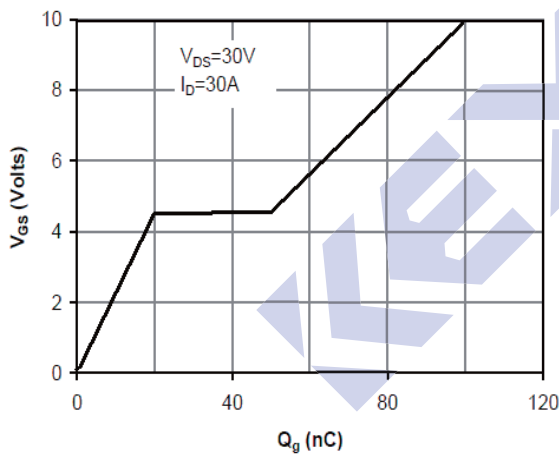


Figure10. Capacitance

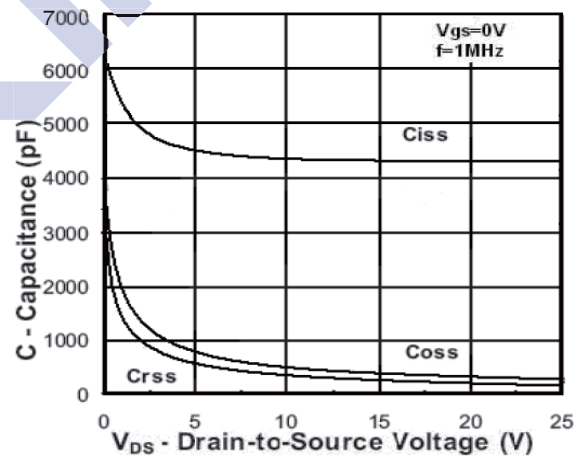
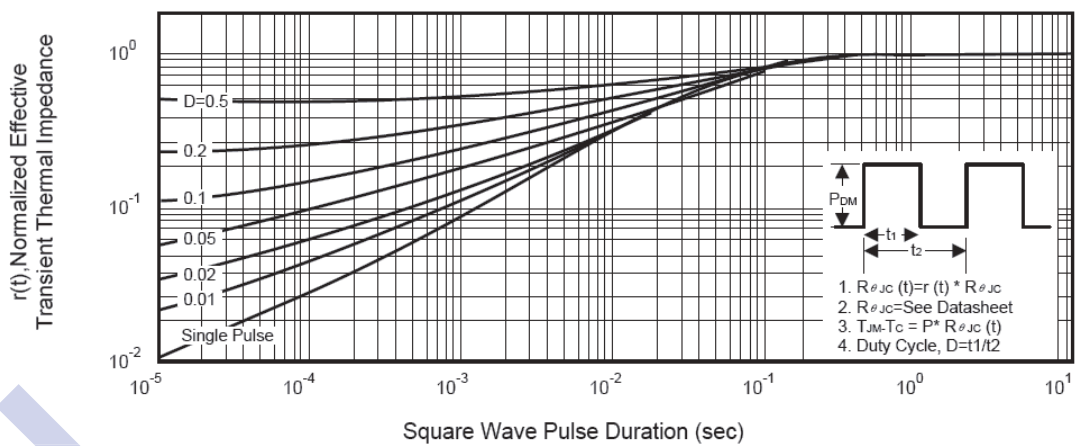


Figure11. Normalized Maximum Transient Thermal Impedance

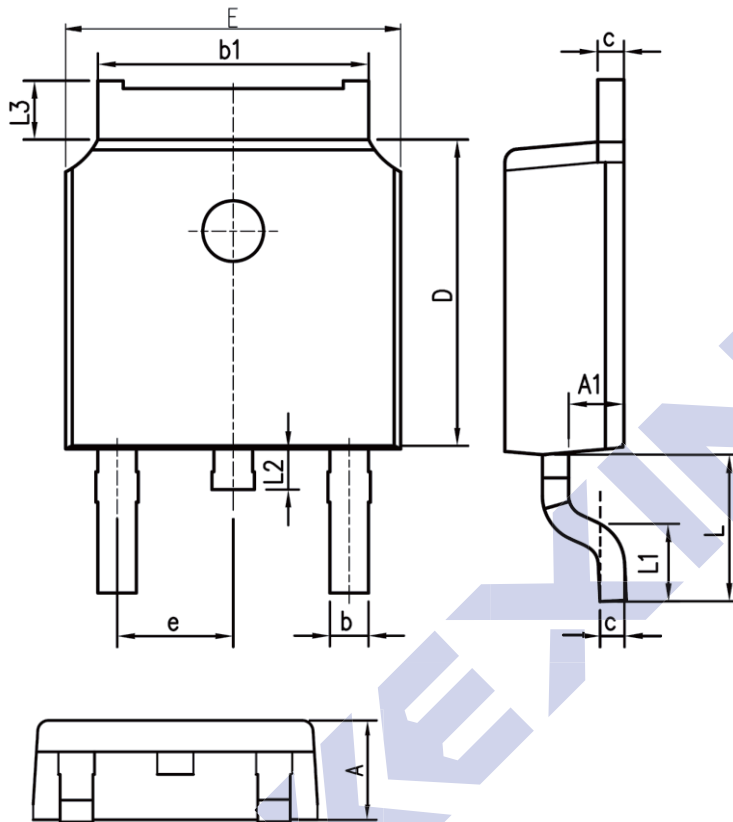


N-Channel MOSFET

2KK5068

■ 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