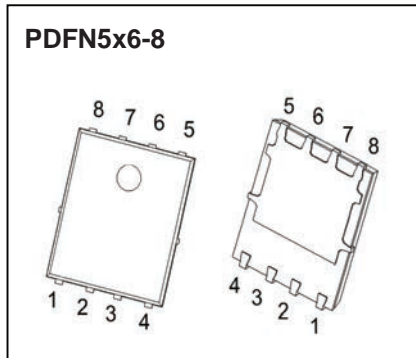
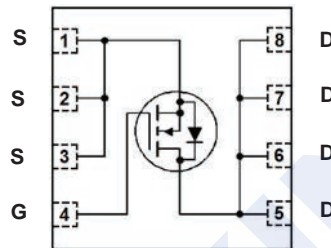


N-Channel MOSFET

2KK5125DFN

■ Features

- $V_{DS(V)} = 60\text{ V}$
- $I_D = 80\text{ A}$
- $R_{DS(ON)}$ (at $V_{GS} = 10\text{ V}$) $< 6\text{ m}\Omega$
- $R_{DS(ON)}$ (at $V_{GS} = 4.5\text{ V}$) $< 11\text{ m}\Omega$

■ Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current ^A	I_D	$T_C = 25^\circ\text{C}$	80
		$T_C = 100^\circ\text{C}$	50
Pulsed Drain Current ^B	I_{DM}	300	A
Single Pulse Avalanche Energy ^C	EAS	500	mJ
Power Dissipation ^D	P_D	120	W
Thermal Resistance, Junction- to-Ambient ^E	$R_{\theta JA}$	20	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction- to-Case	$R_{\theta JC}$	1.04	
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to 150	

Notes:

- The maximum current rating is package limited.
- Repetitive rating; pulse width limited by max. junction temperature.
- $V_{DD}=50\text{ V}$, $R_G=25\ \Omega$, $L=0.5\text{mH}$, starting $T_J=25\ ^\circ\text{C}$.
- P_D is based on max. junction temperature, using junction-case thermal resistance.
- The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with $T_a=25\ ^\circ\text{C}$.

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■ Electrical Characteristics (T_J = 25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D = 250 μA, V _{GS} = 0V	60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 60 V, V _{GS} = 0 V			1	μA
Gate to Source Leakage Current	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V			±100	nA
On Characteristics						
Gate to Source Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.5	2	2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10 V, I _D = 20 A			6	mΩ
		V _{GS} = 4.5 V, I _D = 15 A			11	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{GS} = 0 V, V _{DS} = 25 V, f = 100 KHz		4950		pF
Output Capacitance	C _{oss}			950		
Reverse Transfer Capacitance	C _{rss}			65		
Switching Characteristics						
Total Gate Charge	Q _g	V _{GS} = 10V, V _{DS} = 50 V, I _D = 50 A		83		nC
Gate Source Charge	Q _{gs}			11		
Gate Drain Charge	Q _{gd}			9		
Turn-On Delay Time	t _{d(on)}	V _{GS} = 10V, V _{DD} = 30 V, I _D = 25A, R _{GEN} = 2 Ω		22.5		ns
Turn-On Rise Time	t _r			6.7		
Turn-Off Delay Time	t _{d(off)}			80.3		
Turn-Off Fall Time	t _f			26.9		
Drain-Source Diode Characteristics						
Body Diode Reverse Recovery Time	t _{rr}	I _F = 25A, di/dt = 100 A/μs		68		ns
Body Diode Reverse Recovery Charge	Q _{rr}			73		nC
Maximum Body-Diode Continuous Current	I _S	V _G =V _D =0V, Force Current			80	A
Diode Forward Voltage	V _{SD}	V _{GS} = 0 V, I _S = 20 A			1.2	V

■ Marking

Marking	K5125 KC***
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Typical Characteristics

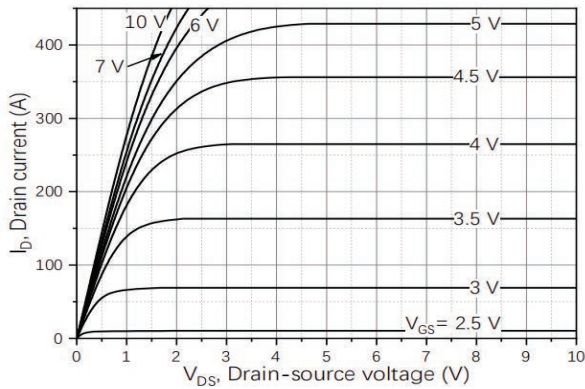


Figure1. Output Characteristics

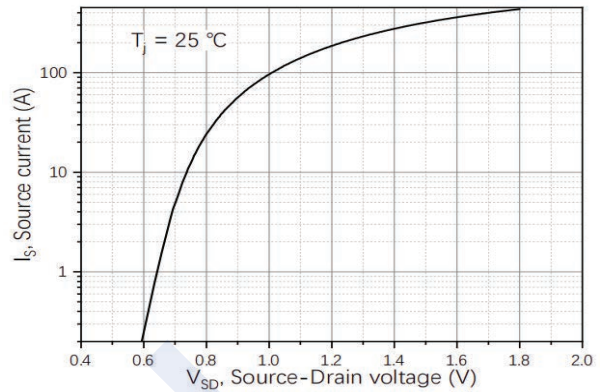


Figure2. Transfer Characteristics

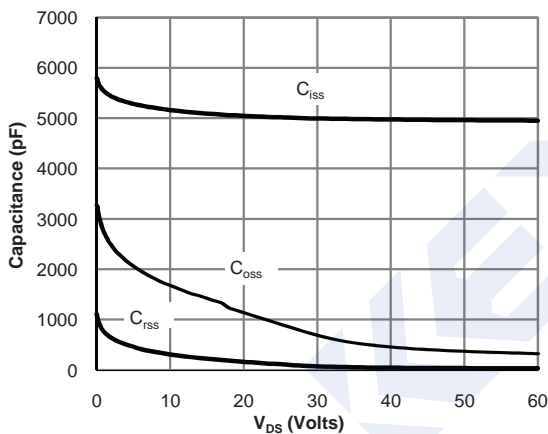


Figure3. Capacitance Characteristics

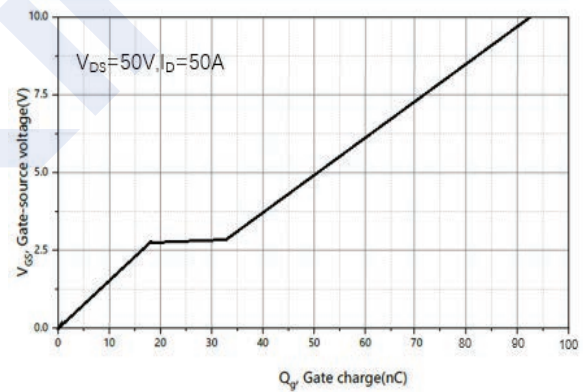


Figure4. Gate Charge

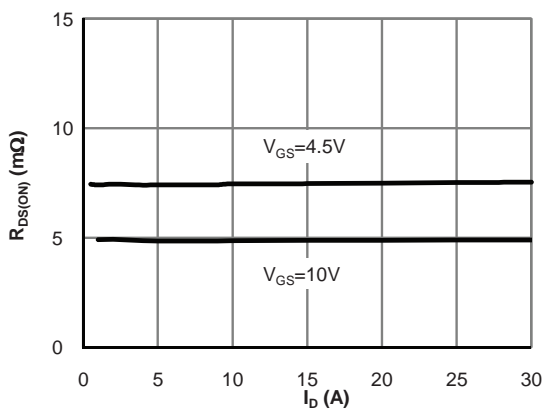


Figure5. Drain-Source on Resistance

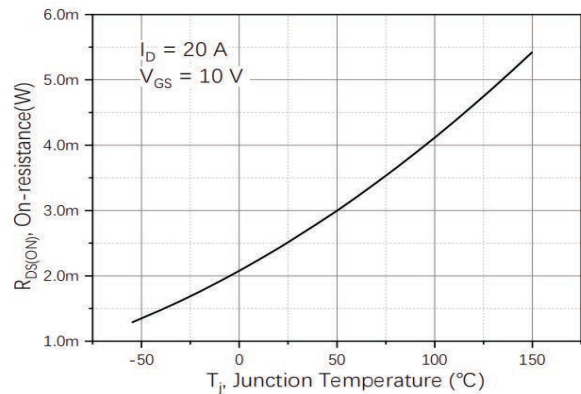


Figure6. Drain-Source on Resistance

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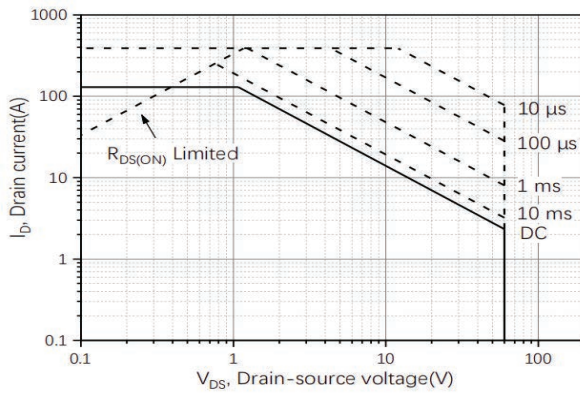


Figure7. Safe Operation Area

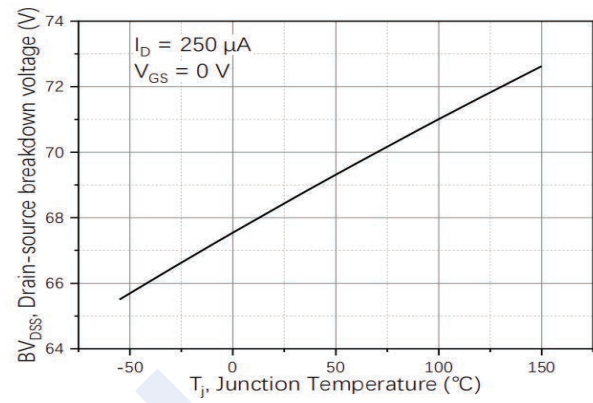
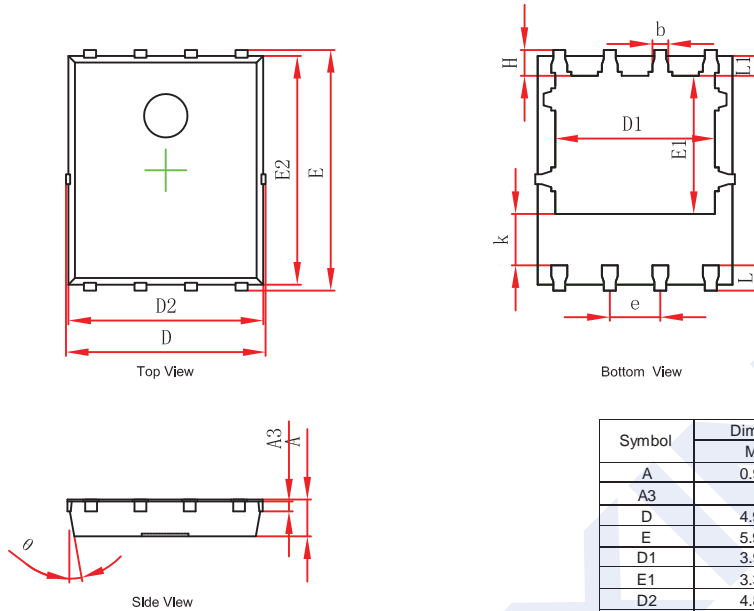


Figure8. Drain-source breakdown voltage

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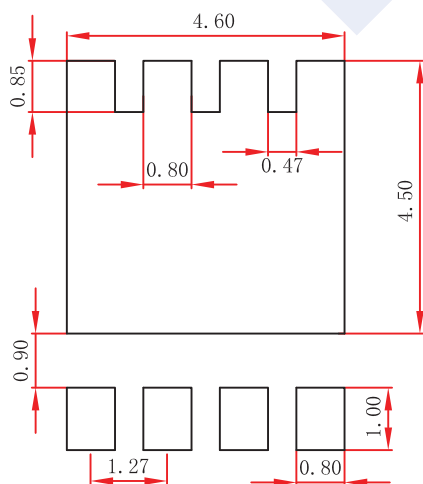
2KK5125DFN

PDFN5x6-8 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP.		0.050TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°

PDFN5x6-8 Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.