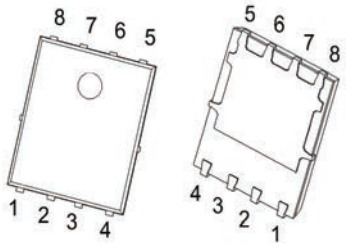
N-Channel MOSFET

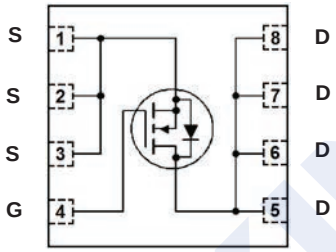
2KK5135DFN

DFN5x6-8



■ Features

- $V_{DS\ (V)}$ = 60 V
- I_D = 80 A
- $R_{DS(ON)}$ (at V_{GS} = 10 V) < 4.2 mΩ
- $R_{DS(ON)}$ (at V_{GS} = 4.5 V) < 5.2 mΩ



■ Absolute Maximum Ratings (T_A = 25℃ unless otherwise noted)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current [A]	Tc = 25℃	I_D	80	A
	Tc = 100℃		58	
Pulsed Drain Current [B]		I_{DM}	320	
Single Pulse Avalanche Energy [C]		E_{AS}	450	mJ
Power Dissipation [D]	Tc = 25℃	P_D	85	W
	Tc = 100℃		34	
Thermal Resistance, Junction- to-Ambient [E]	t≤10s	$R_{\theta JA}$	43	℃/W
	Steady-State		15	
Thermal Resistance, Junction- to-Case		$R_{\theta JC}$	1.47	
Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	℃

Notes:

A. The maximum current rating is package limited.

B. Repetitive rating; pulse width limited by max. junction temperature.

C. V_{DD}=50 V, R_G=25 Ω, L=0.5mH, starting T_j=25 ℃.

D. P_D is based on max. junction temperature, using junction-case thermal resistance.

E. 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 Ta=25 ℃.

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■ Electrical Characteristics (T_J = 25℃ unless othewise 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
		V_{DS} = 60 V, V_{GS} = 0 V, T_J = 55℃			5	
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	1.1		2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS} = 10 V, I_D = 20 A			4.2	mΩ
		V_{GS} = 4.5 V, I_D = 20 A			5.2	
Forward Tranconductance	g_{FS}	V_{DS}=5V, I_D=40A	30			S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{GS} = 0 V, V_{DS} = 30 V, f = 1 MHz		3980		pF
Output Capacitance	C_{oss}			690		
Reverse Transfer Capacitance	C_{rss}			24		
Gate Resistance	R_g	V_{DS}=0V, V_{GS}=0V, f=1MHz		2.5		Ω
Switching Characteristics						
Total Gate Charge	Q_g	V_{GS} = 10V, V_{DS} = 30 V, I_D = 40 A		32		nC
		V_{GS} = 4.5V, V_{DS} = 30 V, I_D = 40 A		67		
Gate Source Charge	Q_{gs}			12		
Gate Drain Charge	Q_{gd}			8.5		
Turn-On DelayTime	$t_{d(on)}$	V_{GS} = 10V, V_{DS} = 15 V, R_L=2.5Ω, R_{GEN} = 2 Ω		15		ns
Turn-On Rise Time	t_r			8		
Turn-Off DelayTime	$t_{d(off)}$			48		
Turn-Off Fall Time	t_f			12		
Drain-Source Diode Characteristics						
Body Diode Reverse Recovery Time	t_{rr}	I_F=I_S, d_i/d_t=500A/μs		60		ns
Body Diode Reverse Recovery Charge	Q_{rr}			48		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 = 40 A		0.85	0.99	V

■ Marking

Marking	K5135 K****

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■ Typical Characterisitics

Fig. 1 - Output Characteristics

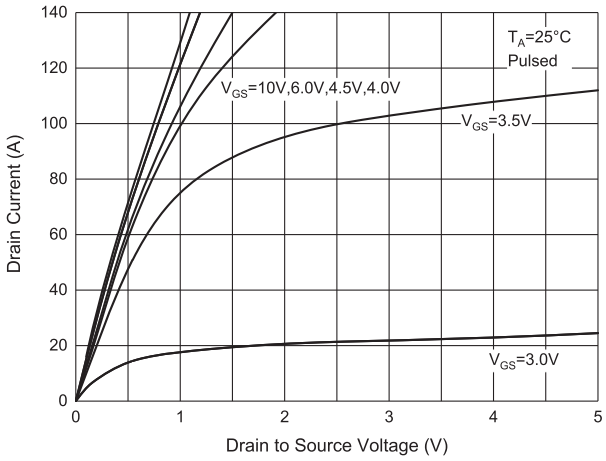


Fig. 2 - Transfer Characteristics

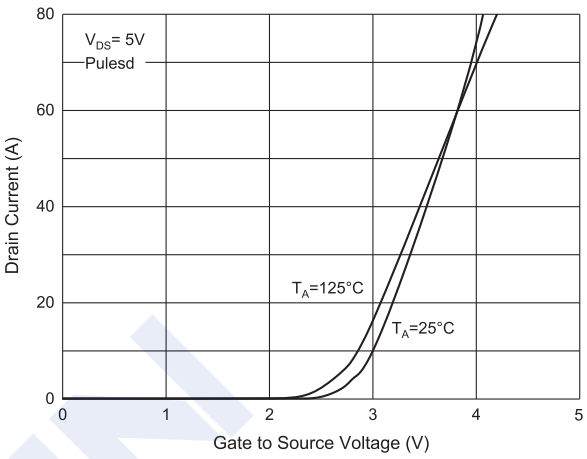


Fig. 3 - $R_{DS(ON)}$—I_D

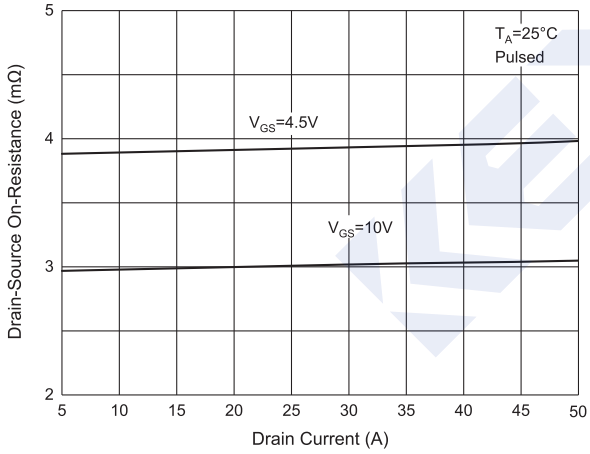


Fig. 4 - I_S—V_{SD}

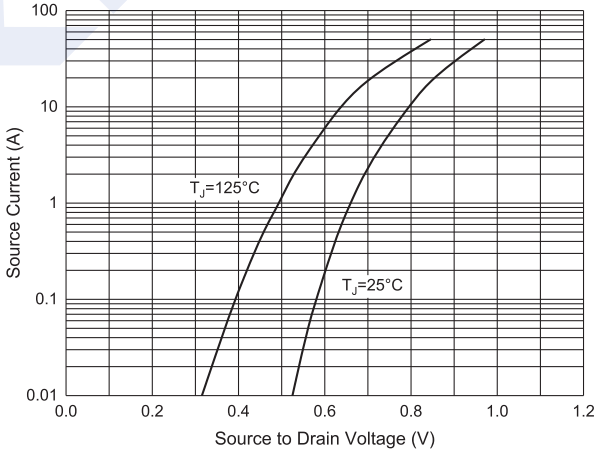


Fig. 5 - Gate Charge

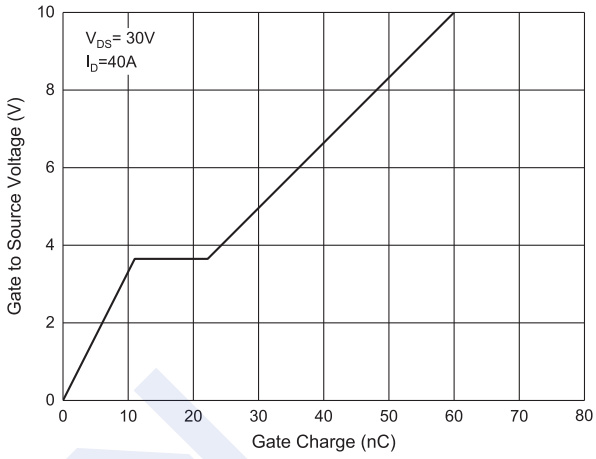
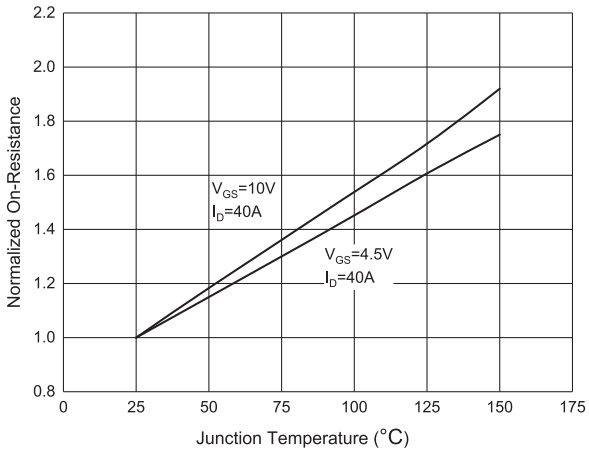


Fig. 6 - $R_{DS(ON)}$—Temperature



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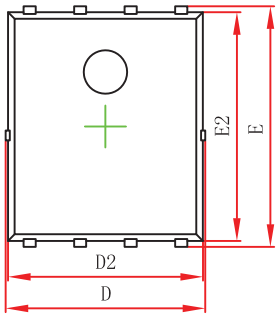
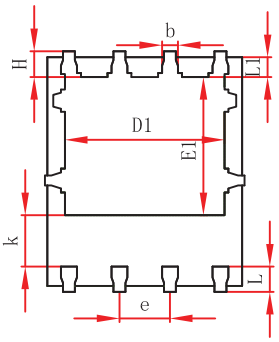
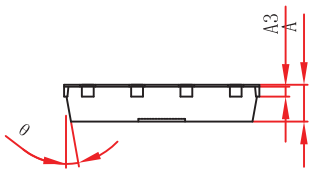
■ PDFN5x6-8 Package Outline Dimensions



Top View



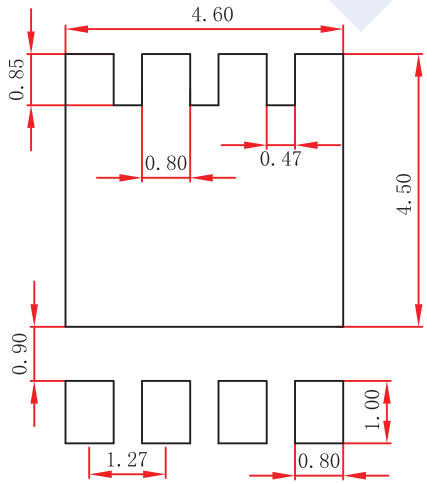
Bottom View



Side View

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:±0.05mm.
3.The pad layout is for reference purposes only.