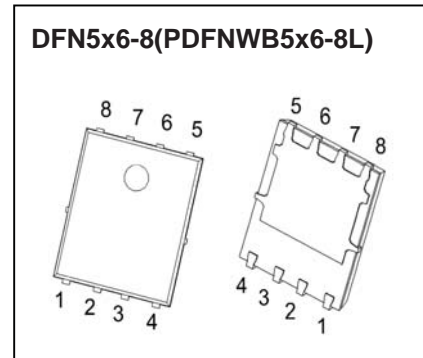
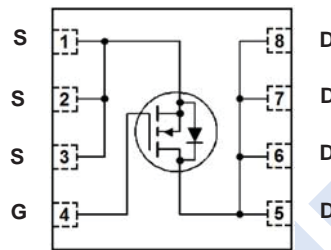


N-Channel MOSFET

2KK5059DFN

■ Features

- $V_{DS} (V) = 100 V$
- $I_D = 20 A$
- $R_{DS(ON)}$ (at $V_{GS} = 10 V$) $< 31 m\Omega$
- $R_{DS(ON)}$ (at $V_{GS} = 4.5 V$) $< 40 m\Omega$



■ Absolute Maximum Ratings ($T_a = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current	I_D	20	A
Pulsed Drain Current	I_{DM}	80	
Single Pulse Avalanche Energy (Note 1)	EAS	156	mJ
Power Dissipation (Note 2)	P_D	2	W
Thermal Resistance, Junction- to-Ambient	$R_{\theta JA}$	62.5	$^\circ C/W$
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature Range	T_{stg}	-55 to 150	

Notes:

1. EAS condition : $T_J = 25^\circ C, V_{DD} = 50, L = 0.5mH, R_G = 25\Omega$.
2. Surface Mounted on FR4 Board of $25.4mm \times 25.4mm$.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D = 250 μ A, V _{GS} = 0V	100			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 100 V, V _{GS} = 0 V			1	μ A
Gate to Source Leakage Current	I _{GSS}	V _{DS} = 0 V, V _{GS} = \pm 20 V			\pm 100	nA
On Characteristics (Note 1)						
Gate to Source Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μ A	1.3	2.0	2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10 V, I _D = 15 A		26	31	m Ω
		V _{GS} = 4.5 V, I _D = 15 A		30	40	
Forward Transconductance	g _{FS}	V _{DS} = 5 V, I _D = 10 A		15		S
Dynamic Characteristics (Note 2)						
Input Capacitance	C _{iss}	V _{GS} = 0 V, V _{DS} = 25 V, f = 1 MHz		2000		pF
Output Capacitance	C _{oss}			300		
Reverse Transfer Capacitance	C _{rss}			250		
Switching Characteristics (Note 2)						
Total Gate Charge	Q _g	V _{GS} = 10V, V _{DS} = 50 V, I _D = 10 A		39		nC
Gate Source Charge	Q _{gs}			8		
Gate Drain Charge	Q _{gd}			12		
Turn-On Delay Time	t _{d(on)}	V _{GS} = 10V, V _{DD} = 30V, R _G = 3 Ω , I _D = 2A, R _L = 5 Ω		7		ns
Turn-On Rise Time	t _r			7		
Turn-Off Delay Time	t _{d(off)}			29		
Turn-Off Fall Time	t _f			7		
Drain-Source Diode Characteristics						
Maximum Body-Diode Continuous Current	I _S				30	A
Pulsed drain-source diode forward current	I _{SM}				120	
Diode Forward Voltage	V _{SD}	V _{GS} = 0 V, I _S = 15 A			1.2	V

Notes:

1. Pulse Test: Pulse Width \leq 300 μ s, Duty Cycle \leq 2%.
2. Guaranteed by design, not subject to production.

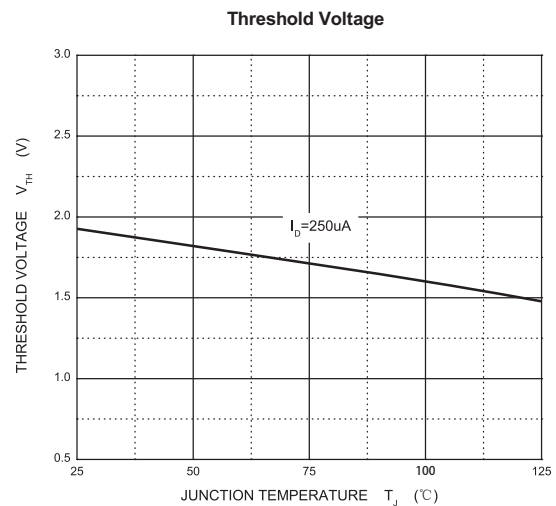
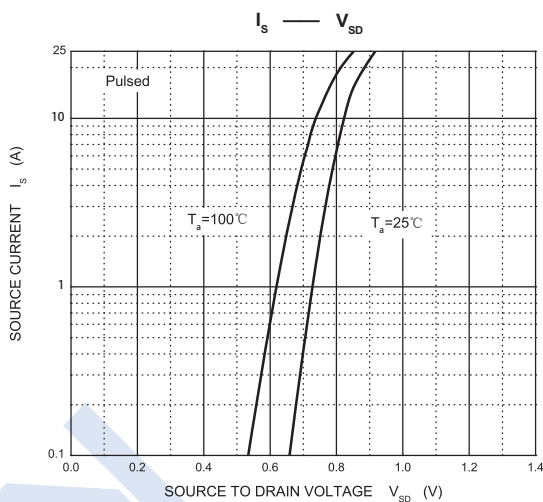
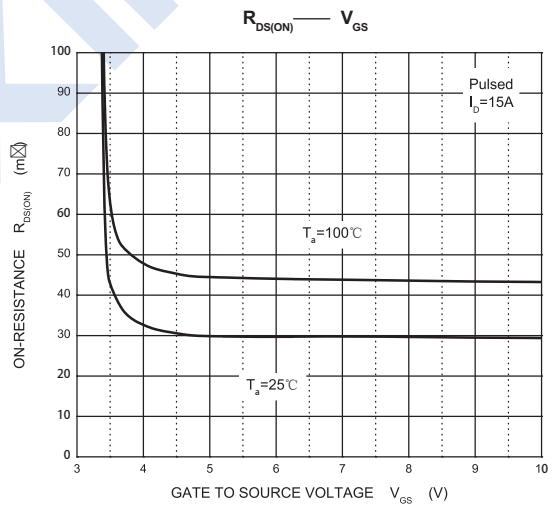
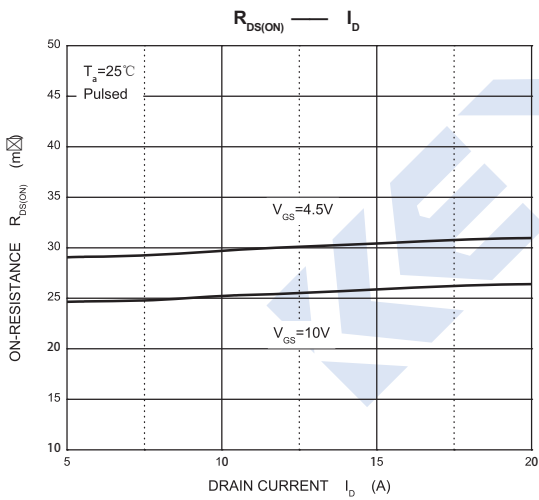
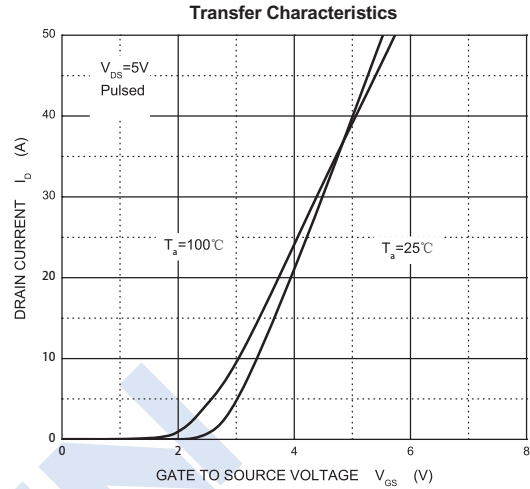
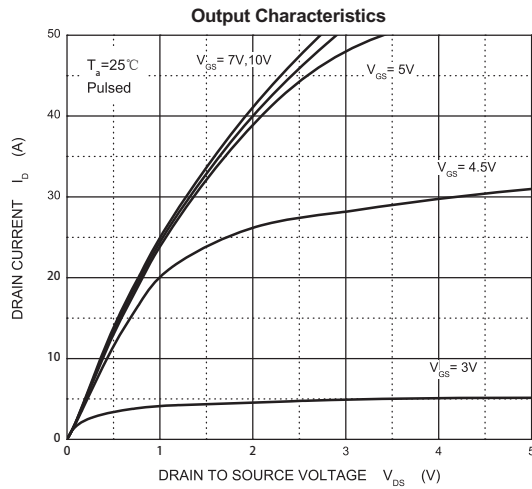
■ Marking

Marking	K5059 KC****
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N-Channel MOSFET

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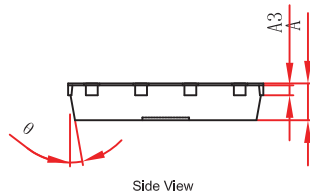
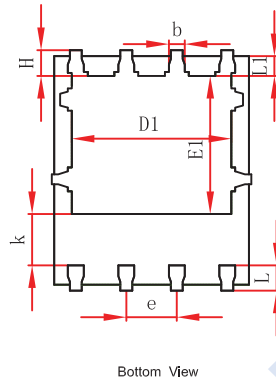
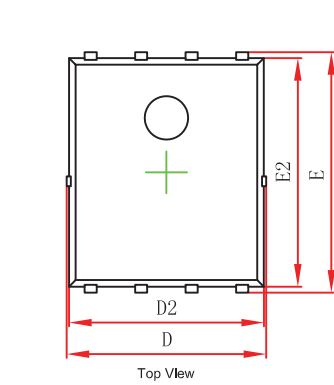
Typical Characteristics



N-Channel MOSFET

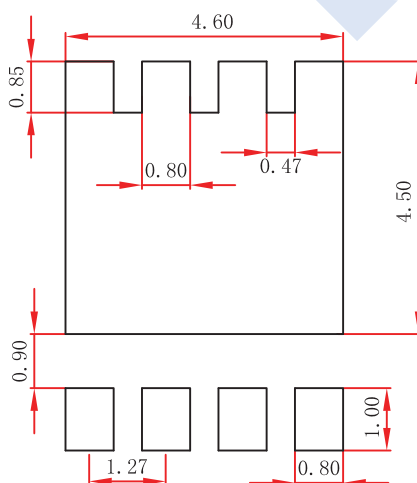
2KK5059DFN

■ DFN5x6-8(PDFNWB5x6-8L) 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°

■ DFN5x6-8(PDFNWB5x6-8L) 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.