

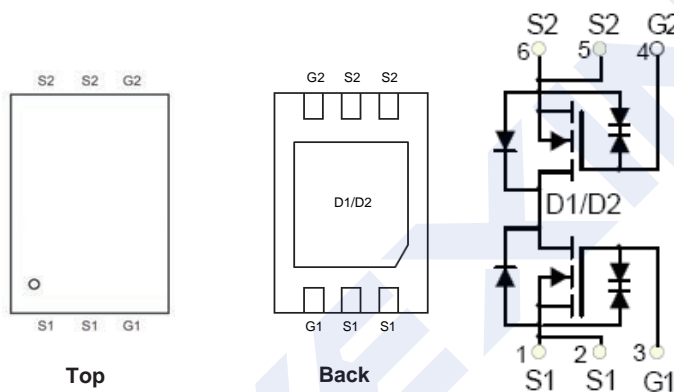
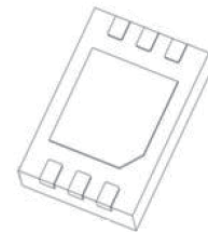
Dual N-Channel MOSFET

2KK5123DFN

■ Features

- $V_{DS} (V) = 18 V$
- $I_D = 12 A$
- $R_{DS(ON)} = 6.2 m\Omega$ (at $V_{GS} = 4.5 V$, Typ.)
- $R_{DS(ON)} = 6.4 m\Omega$ (at $V_{GS} = 4.0 V$, Typ.)
- $R_{DS(ON)} = 6.8 m\Omega$ (at $V_{GS} = 3.8 V$, Typ.)
- $R_{DS(ON)} = 7.2 m\Omega$ (at $V_{GS} = 3.1 V$, Typ.)
- $R_{DS(ON)} = 8.2 m\Omega$ (at $V_{GS} = 2.5 V$, Typ.)

DFN3x2-6

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	18	V
Gate-Source Voltage	V_{GS}	± 12	
Continuous Drain Current (1)	I_D	12	A
Pulsed Drain Current (2)	I_{DM}	85	
Power Dissipation (1)	P_D	2	W
Thermal Resistance, Junction- to-Ambient (3)	$R_{\theta JA}$	62.5	$^\circ C/W$
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature Range	T_{sg}	-55 to 150	

Notes:

1. $T_C = 25^\circ C$ Limited only by maximum temperature allowed.
2. $P_w \leq 10 \mu s$, Duty cycle $\leq 1\%$.
3. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in² FR-4 board with 2oz. Copper, in a still air environment with $T_a = 25^\circ C$, $t \leq 10$ sec.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BVDSS	ID = 250 μ A, VGS = 0V	18			V
Zero Gate Voltage Drain Current	IDSS	VDS = 16 V, VGS = 0 V			1	μ A
Gate to Source Leakage Current	IGSS	VDS = 0 V, VGS = \pm 4.5 V			\pm 1	μ A
		VDS = 0 V, VGS = \pm 8 V			\pm 10	
On Characteristics (4)						
Gate to Source Threshold Voltage	VGS(th)	VDS = VGS, ID = 250 μ A	0.4		1.0	V
Static Drain-Source On-Resistance	RDS(on)	VGS = 4.5 V, ID = 3 A	4.5	6.2	7.2	m Ω
		VGS = 4.0 V, ID = 3 A	4.8	6.4	7.5	
		VGS = 3.8 V, ID = 3 A	5.0	6.8	8.2	
		VGS = 3.1 V, ID = 3 A	5.5	7.2	9.2	
		VGS = 2.5 V, ID = 3 A	6.2	8.2	10.5	
Forward Transconductance	gFS	VDS = 5 V, ID = 7 A	9	36		S
Dynamic Characteristics (4,5)						
Input Capacitance	Ciss	VGS = 0 V, VDS = 10 V, f = 1 MHz		1950		pF
Output Capacitance	Coss			250		
Reverse Transfer Capacitance	Crss			210		
Total Gate Charge	Qg	VGS = 10V, VDS = 4.5 V, ID = 7 A		17		nC
Gate Source Charge	Qgs			2.0		
Gate Drain Charge	Qgd			5.1		
Switching Characteristics (4,5)						
Turn-On Delay Time	td(on)	VDS=10V, VGS=5V, RG=3 Ω , RL=1.35 Ω		2.2		ns
Turn-On Rise Time	tr			5.9		
Turn-Off Delay Time	td(off)			40		
Turn-Off Fall Time	tf			90		
Drain-Source Diode Characteristics (4)						
Maximum Body-Diode Continuous Current	IS				12	A
Maximum Body-Diode Pulse Current	ISM				85	
Diode Forward Voltage	VSD	VGS = 0 V, IS = 1 A			1.0	V

Notes:

- Pulse Test : Pulse Width \leq 300 μ s, duty cycle \leq 2%.
- Guaranteed by design, not subject to production.

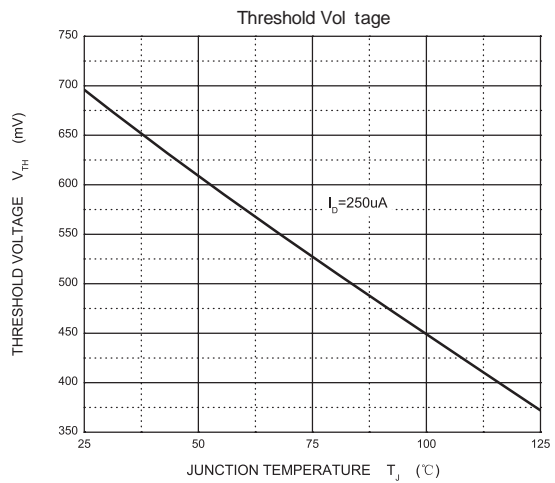
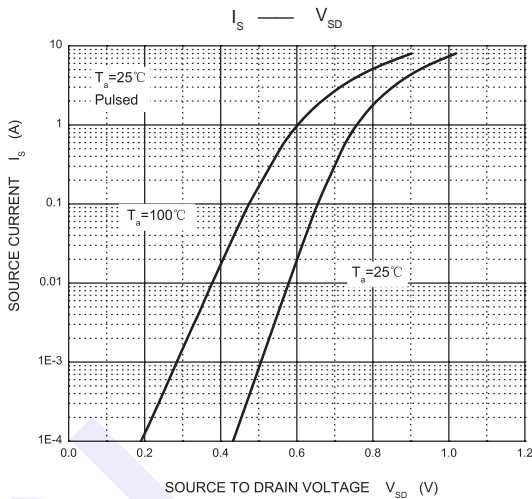
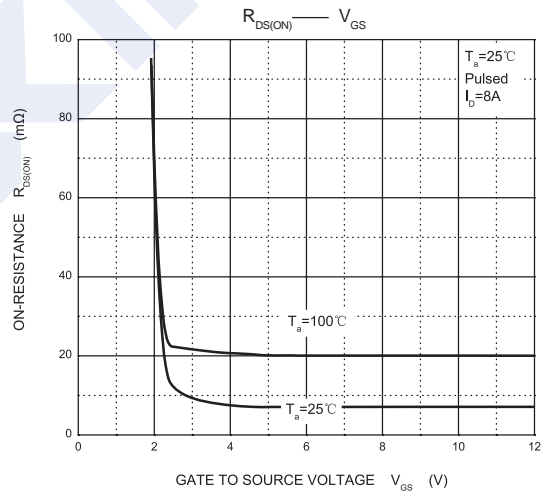
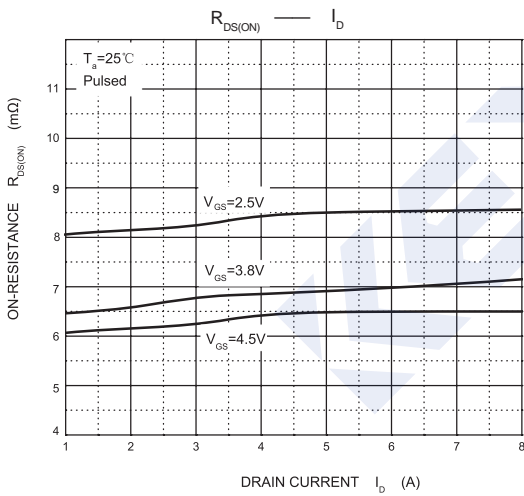
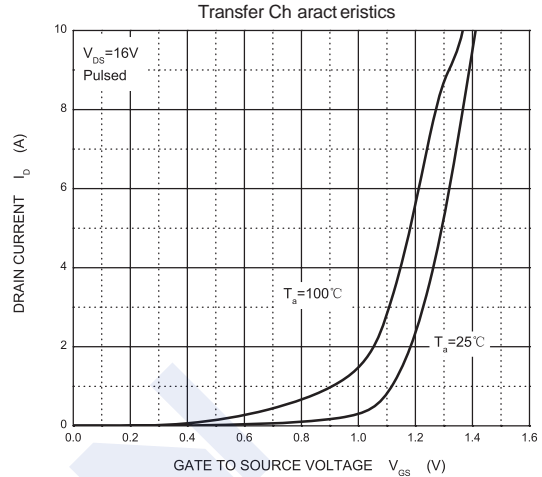
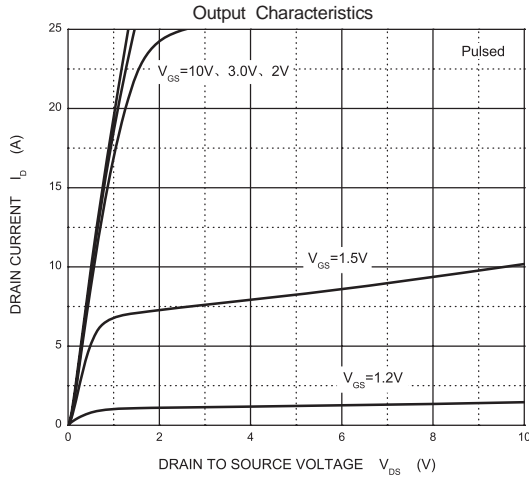
■ Marking

Marking	K5123 KA***
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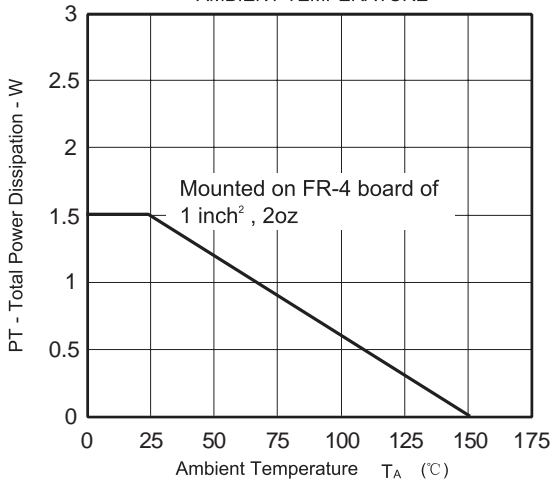
■ Typical Characteristics (TA = 25 °C unless otherwise noted)



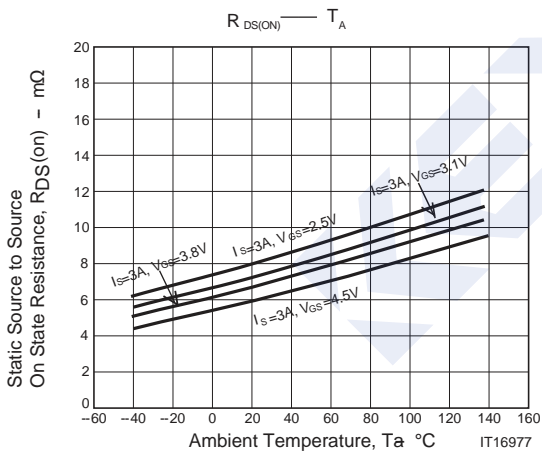
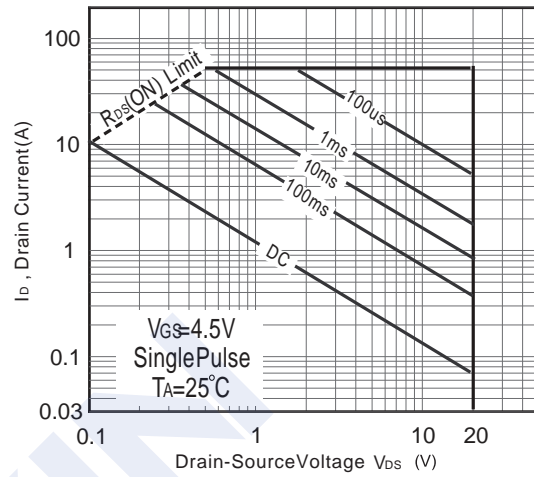
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TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



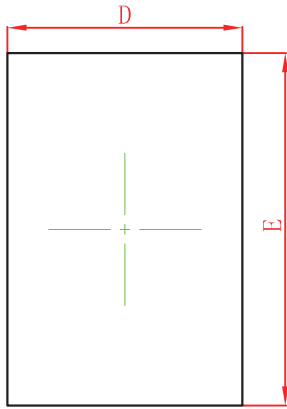
Maximum Safe Operating Area



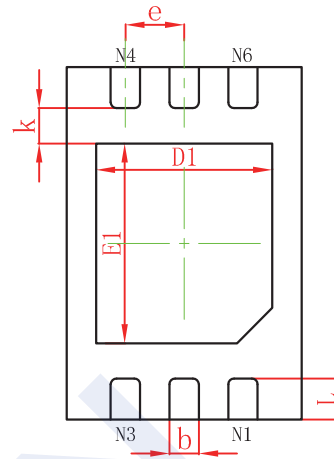
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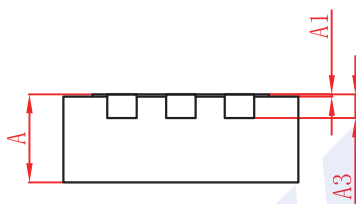
■ DFN3x2-6 Package Outline Dimensions



TOP VIEW



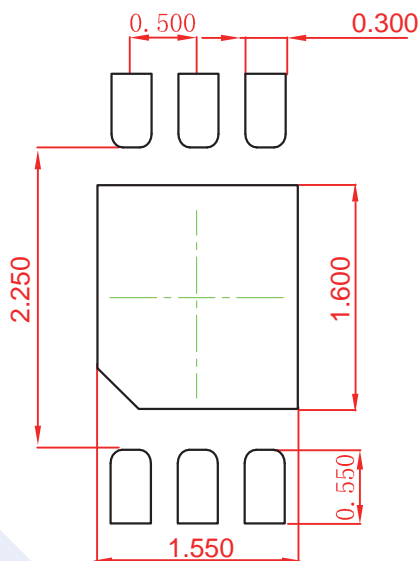
BOTTOM VIEW



SIDE VIEW

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.950	2.050	0.077	0.081
E	2.950	3.050	0.116	0.120
D1	1.450	1.550	0.057	0.061
E1	1.650	1.750	0.065	0.069
k	0.200MIN.		0.008MIN.	
b	0.200	0.300	0.008	0.012
e	0.500TYP.		0.020TYP.	
L	0.300	0.400	0.012	0.016

■ DFN3x2-6 Suggested Pas Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.050 mm.
3. The pad layout is for reference purposes only.