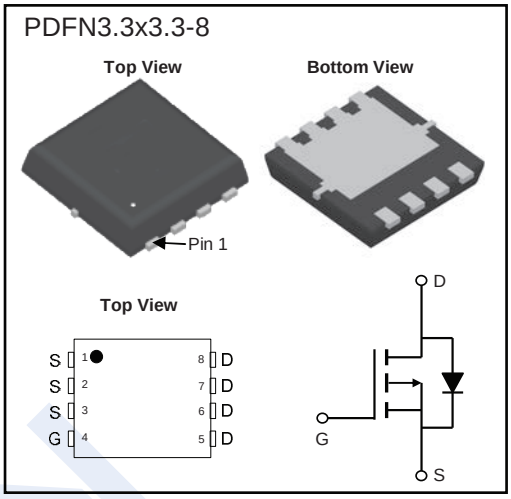
P-Channel MOSFET

2KJ6049DFN



■ Features

- V_{DS} -30 V
- I_D (at V_{GS}=-10V) -29 A
- $R_{DS(ON)}$ (at V_{GS} = - 10V) < 18 mΩ
- $R_{DS(ON)}$ (at V_{GS} = - 4.5V) < 27 mΩ

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

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current (Note 1)	T_C=25℃	I_D	-29	A
	T_C=100℃		-18	
Pulsed Drain Current (Note 2)		I_{DM}	-80	
Avalanche Current		I_{AR}	24	
Repetitive avalanche energy L=0.1mH		E_{AR}	29	mJ
Power Dissipation (Note 1)	T_C=25℃	P_D	25	W
	T_C=100℃		10	
	T_A=25℃		4.1	
Thermal Resistance, Junction- to-Lead (Note 1)		$R_{\theta JC}$	5	℃/W
Thermal Resistance, Junction- to-Ambient (Note 1)		$R_{\theta JA}$	30	
Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{stg}	-55 to 150	

Notes:

1. Surface mounted on 1.5" x 1.5" FR4 board using 1 sq in pad, 2 oz Cu.
2. Pulse width limited by maximum junction temperature.

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■ Electrical Characteristics (T_A = 25℃ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	I_D = -250μA, V_{GS} = 0V	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}= -30V, V_{GS} = 0V			-1	μA
		V_{DS}= -30V, V_{GS} = 0V, T_J=55℃			-5	
Gate-Body Leakage Current	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS} , I_D = -250μA	-1.0		-2.0	V
Static Drain-Source On-Resistance (Note 3)	$R_{DS(ON)}$	V_{GS} = -10V, I_D = -8A		14	18	mΩ
		V_{GS} = -4.5V, I_D = -5A		21	27	
Diode Forward Voltage (Note 3)	V_{SD}	I_S = -5 A,V_{GS} = 0V			-1.2	V
DYNAMIC CHARACTERISTICS (Note 4)						
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS} = -15V, f = 1MHz		1130	2200	pF
Output Capacitance	C_{oss}			240		
Reverse Transfer Capacitance	C_{rss}			155		
Gate resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz		6		Ω
Total Gate Charge	Q_g	V_{DS} = -15V, V_{GS} = -10V, I_D = -8A		18		nC
Gate Source Charge	Q_{gs}			5.5		
Gate Drain Charge	Q_{gd}			3.3		
SWITCHING CHARACTERISTICS (Note 5)						
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=-10V, V_{DS}=-15V, R_L=1.8Ω, R_{GEN}=3Ω		9		ns
Turn-On Rise Time	t_r			8		
Turn-Off DelayTime	$t_{d(off)}$			18		
Turn-Off Fall Time	t_f			7		
Reverse Recovery Time	t_{rr}	I_F=-8A, dI/dt=500A/μs		12		ns
Reverse Recovery Charge	Q_{rr}			26		μC

Notes:

3. Measured under pulsed conditions. Pulse width ≤ 300μs; duty cycle ≤ 2%.
4. For design aid only, not subject to production testing.
5. Switching characteristics are independent of operating junction temperatures.

■ Marking

Marking	J6049 KC****

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■ Typical Electrical and Thermal Characterisitics

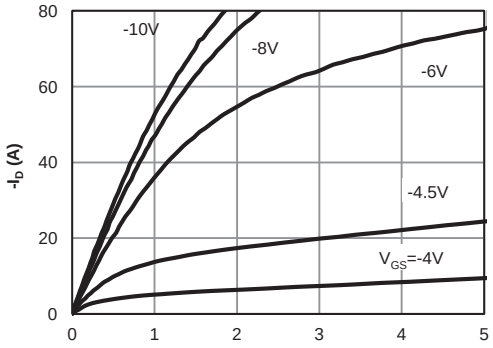

Fig 1: On-Region Characteristics

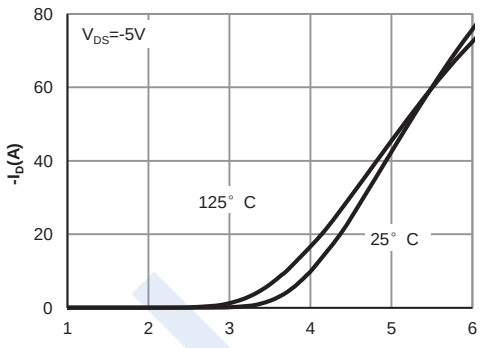

Figure 2: Transfer Characteristics

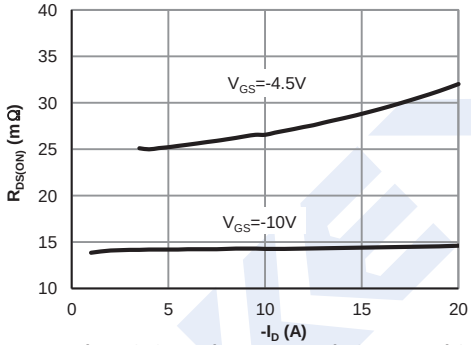

Figure 3: On-Resistance vs. Drain Current and Gate Voltage

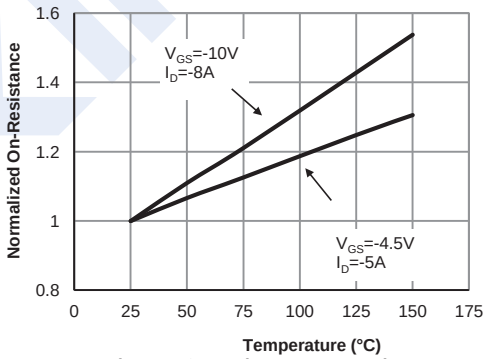

Figure 4: On-Resistance vs. Junction Temperature

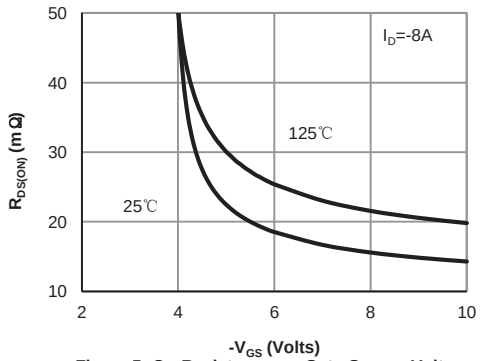

Figure 5: On-Resistance vs. Gate-Source Voltage

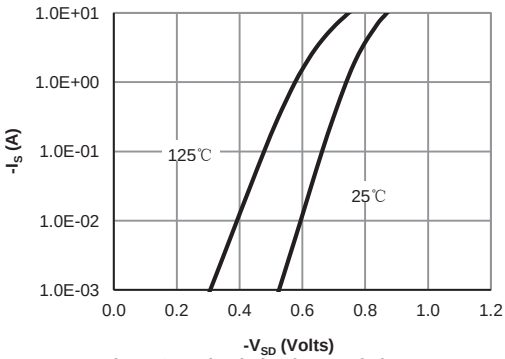

Figure 6: Body-Diode Characteristics

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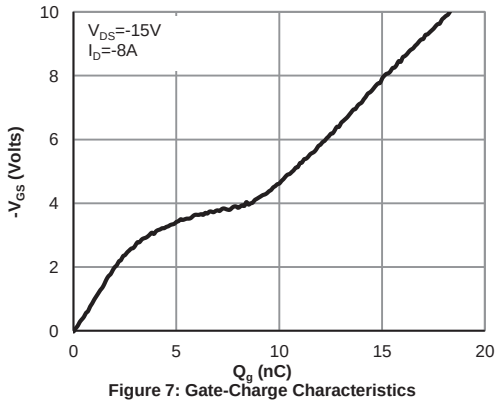

Figure 7: Gate-Charge Characteristics

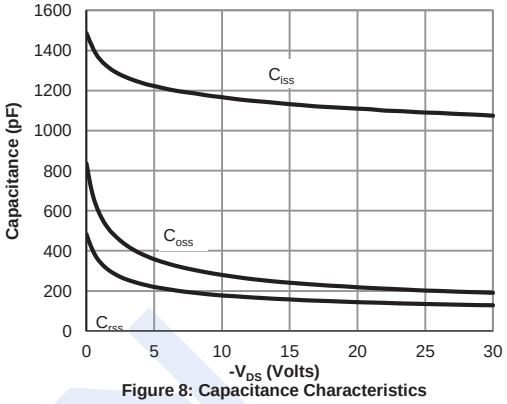

Figure 8: Capacitance Characteristics

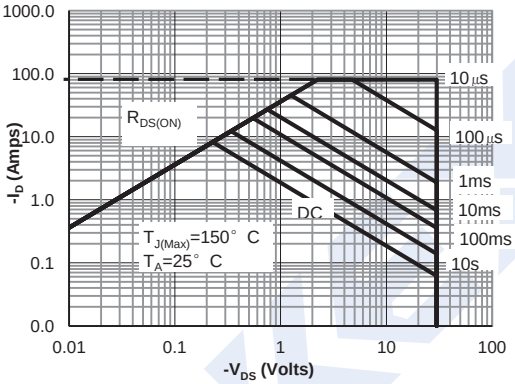

Figure 9: Maximum Forward Biased Safe Operating Area

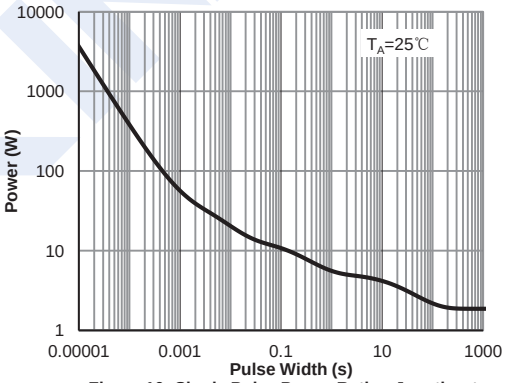

Figure 10: Single Pulse Power Rating Junction-to-Ambient

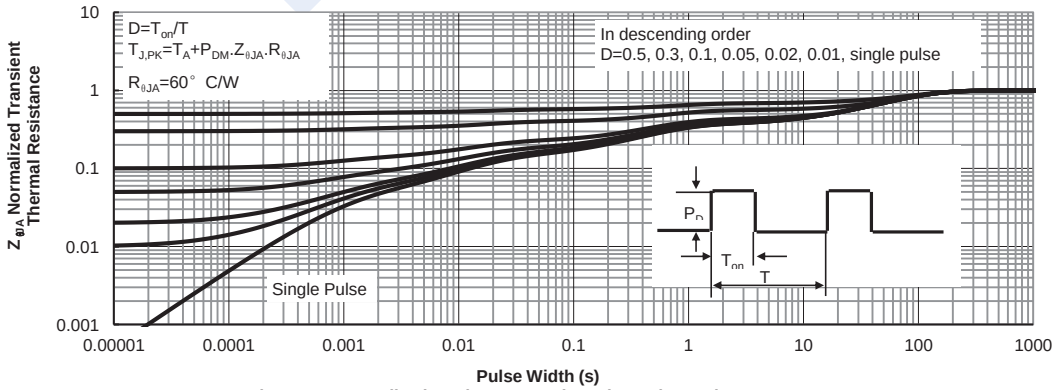

Figure 11: Normalized Maximum Transient Thermal Impedance

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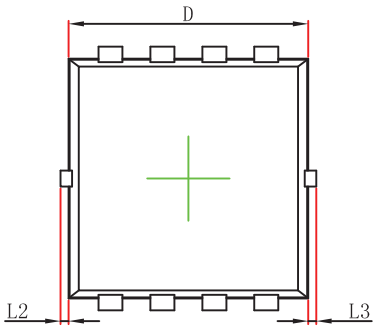
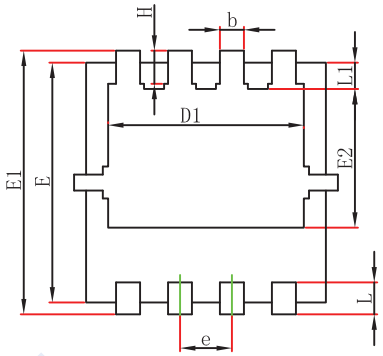
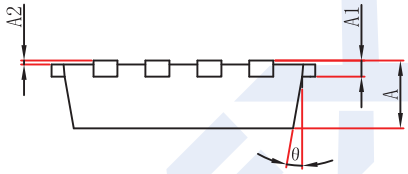
■ **PDFN3.3x3.3-8 Package Outline Dimensions**



Top View



Bottom View



Side View

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.650	0.850	0.026	0.033
A1	0.152 REF.		0.006 REF.	
A2	0~0.05		0~0.002	
D	2.900	3.100	0.114	0.122
D1	2.300	2.600	0.091	0.102
E	2.900	3.100	0.114	0.122
E1	3.150	3.450	0.124	0.136
E2	1.535	1.935	0.060	0.076
b	0.200	0.400	0.008	0.016
e	0.550	0.750	0.022	0.030
L	0.300	0.500	0.012	0.020
L1	0.180	0.480	0.007	0.019
L2	0~0.100		0~0.004	
L3	0~0.100		0~0.004	
H	0.315	0.515	0.012	0.020
θ	9°	13°	9°	13°