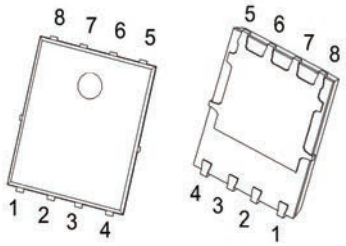
P-Channel MOSFET

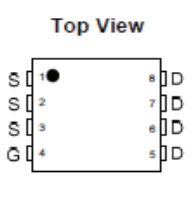
2KJ6060DFN

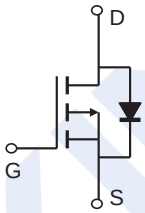
PDFN5x6-8



■ Features

- V_{DS} (V) = -20V
- I_D = -60A
- $R_{DS(ON)}$ <2.5mΩ @ V_{GS}=-10V
- $R_{DS(ON)}$ <3.5mΩ @ V_{GS}=-4.5V
- Low $R_{DS(on)}$ to Minimize Conduction Losses.
- Pb−Free, Halogen Free and RoHS compliant.





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

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	±12	
Continuous Drain Current (Note 1)	T_C=25℃	I_D	-60	A
	T_C=100℃		-38	
	T_A=25℃		-22	
	T_A=100℃		-18	
Pulsed Drain Current (Note 2)		I_{DM}	-100	
Avalanche Current		I_{AS}	-37	
Avalanche Energy	L = 0.1mH	E_{AS}	69.8	mJ
Power Dissipation (Note 3)	T_C=25℃	P_D	25	W
	T_C=100℃		10	
	T_A=25℃		3.5	
	T_A=100℃		2.2	
Thermal Resistance, Junction- to-Ambient (Note 4)	t ≦10s	$R_{\theta JA}$	35	℃/W
	Steady-State		50	
Thermal Resistance, Junction- to-Case	Steady-State	$R_{\theta JC}$	5	
Junction Temperature		T_J	150	℃
Junction Storage Temperature Range		T_{stg}	-55 to 150	

Notes

1. Package limitation
2. Pulse width limited by maximum junction temperature.
3. The Power dissipation is based on $R_{\theta JA}$ t ≦10s value.
4. 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° C. The value in any given application depends on the user's specific board design.

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■ Electrical Characteristics (T_J = 25℃ Unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V_{DSS}	I_D=-250μA, V_{GS}=0V	-20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-16V, V_{GS}=0V			-1	μA
		V_{DS}=-10V, V_{GS}=0V, T_J=125℃			-10	
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±12V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} , I_D=-250μA	-0.45		-1.0	V
Drain-Source On-Resistance (Note 1)	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-25A			2.5	mΩ
		V_{GS}=-4.5V, I_D=-20A			3.5	
		V_{GS}=-2.5V, I_D=-15A			5	
Dynamic Characteristics (Note 2)						
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-10V, f=1MHz		12826		pF
Output Capacitance	C_{oss}			2547		
Reverse Transfer Capacitance	C_{rss}			1924		
Gate Resistance	R_g	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		4.2		Ω
Total Gate Charge	Q_g	V_{DS}=-10V, I_D=-20A, V_{GS} = –4.5V		228		nC
Gate Source Charge	Q_{gs}			24.8		
Gate Drain Charge	Q_{gd}			61.9		
Turn-On DelayTime	$t_{d(on)}$	V_{DS}=-10V, I_D=-105A, V_{GS} = –4.5 V,R_{GS} = 6Ω		14.2		ns
Turn-On Rise Time	t_r			35.4		
Turn-Off DelayTime	$t_{d(off)}$			361		
Turn-Off Fall Time	t_f			224		
Drain-Source Diode Characteristics						
Maximum Body-Diode Continuous Current	I_S				-60	A
Diode Forward Voltage	V_{SD}	I_{SD}=-5A,V_{GS}=0V			-1.2	V
Reverse Recovery Time	t_{rr}	I_F = -10A , dI_F/dt = 100 A / μS		137		nS
Reverse Recovery Charge	Q_{rr}			221		nC

Notes 1. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

2. Independent of operating temperature.

■ Marking

Marking	J6060 KC***

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■ Typical Characterisitics

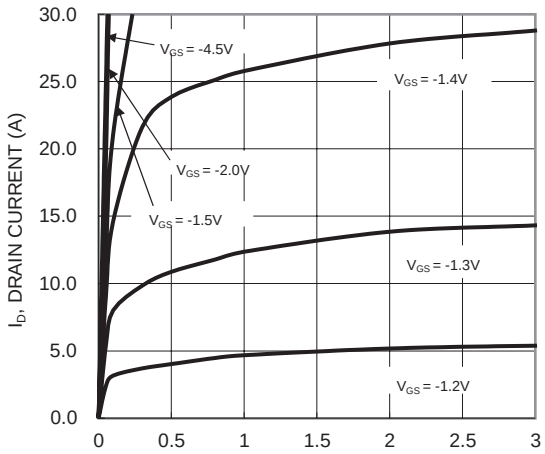

Figure 1. Typical Output Characteristic

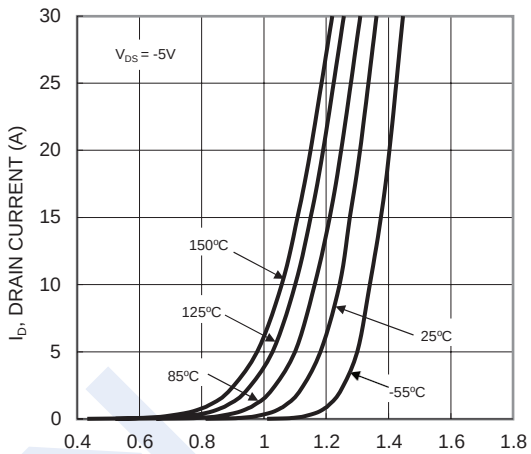

Figure 2. Typical Transfer Characteristic

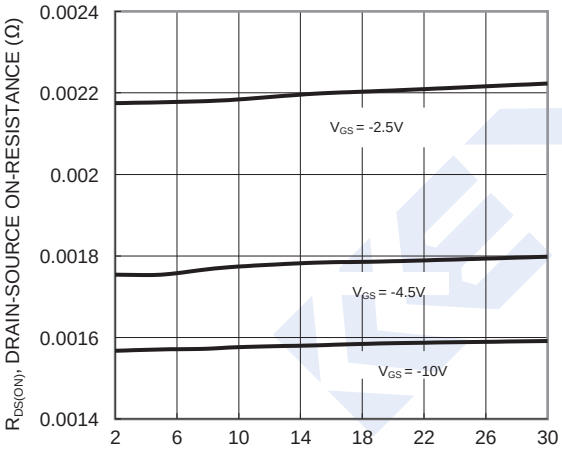

Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

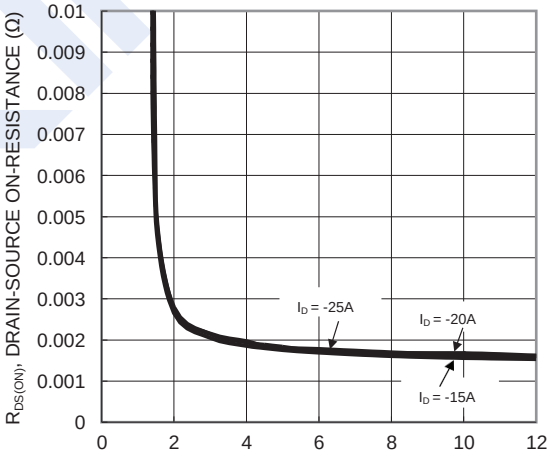

Figure 4. Typical Transfer Characteristic

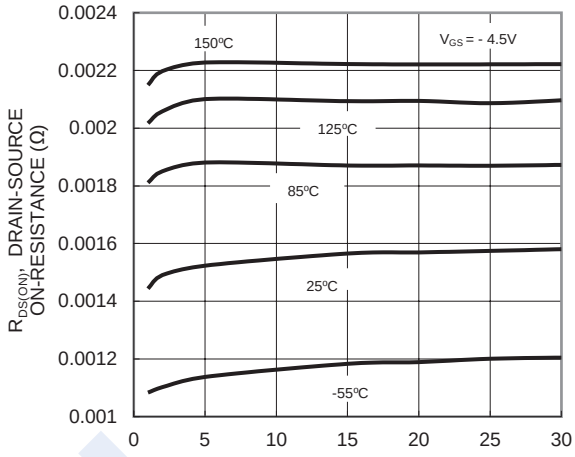

Figure 5. Typical On-Resistance vs. Drain Current and Temperature

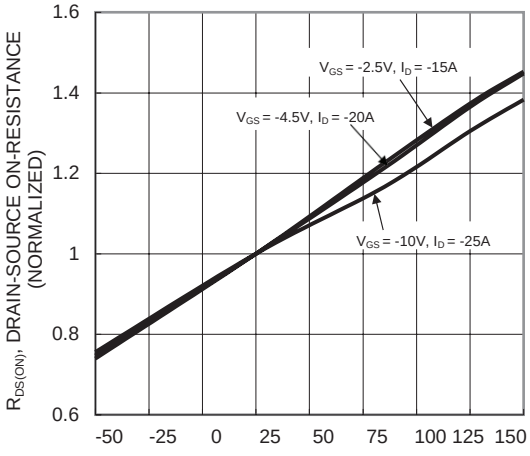

Figure 6. On-Resistance Variation with Temperature

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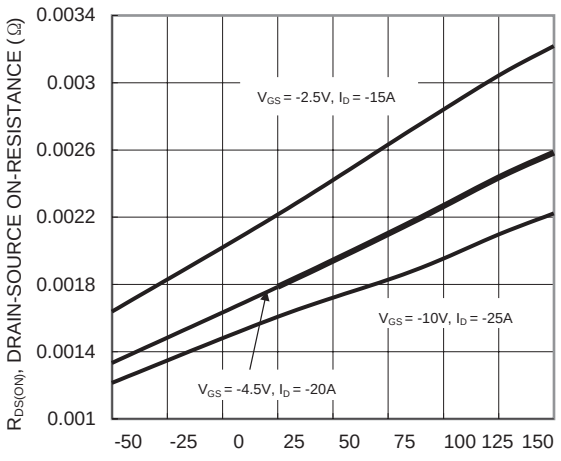

Figure 7. On-Resistance Variation with Temperature

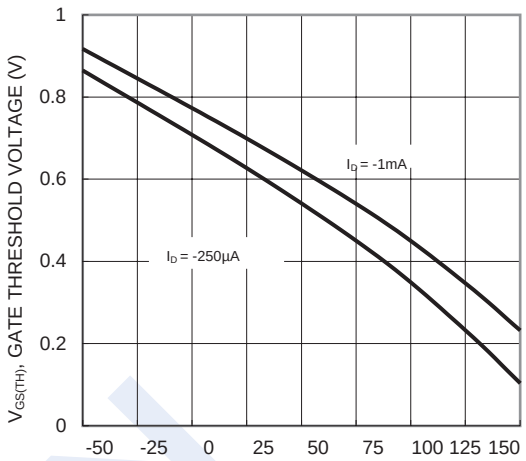

Figure 8. Gate Threshold Variation vs. Ambient Temperature

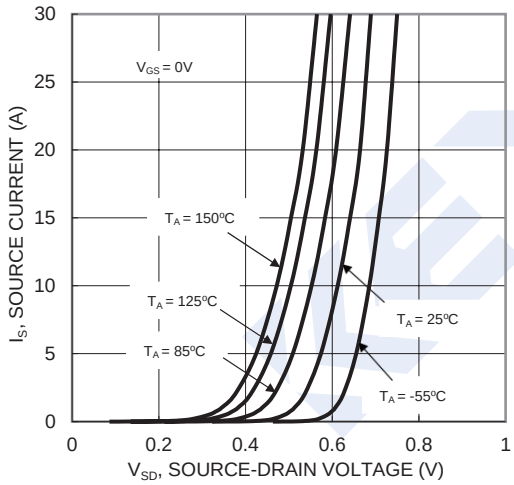

Figure 9. Diode Forward Voltage vs. Current

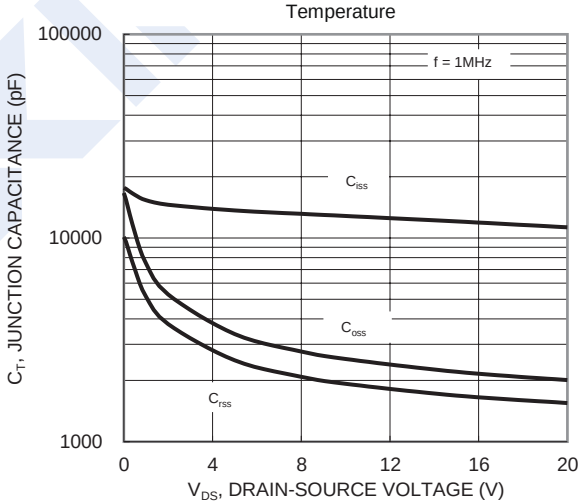

Figure 10. Typical Junction Capacitance

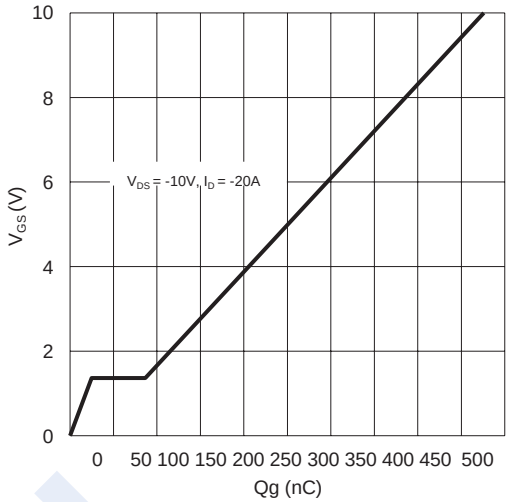

Figure 11. Gate Charge

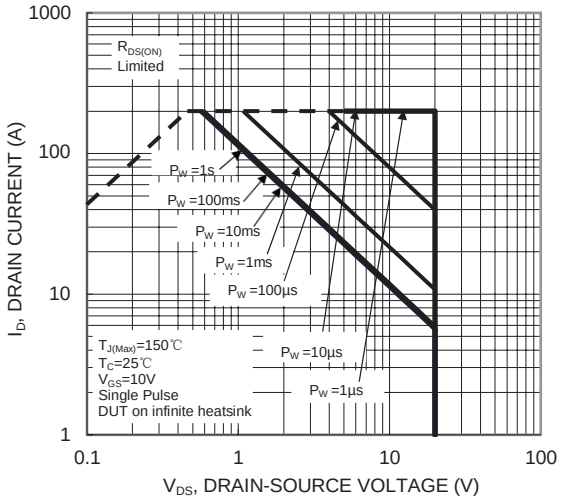

Figure 12. SOA, Safe Operation Area

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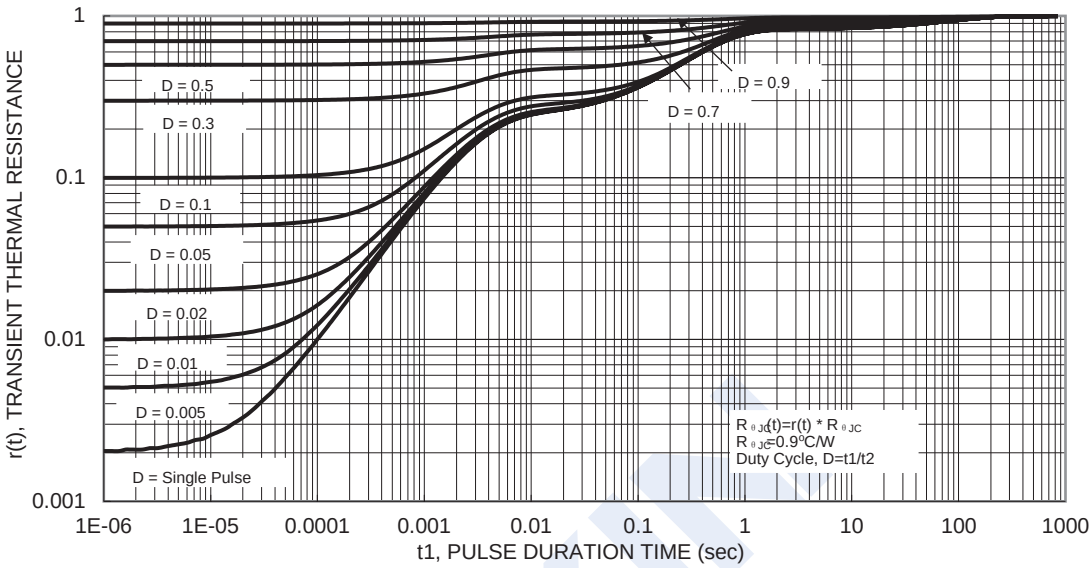

Figure 13. Transient Thermal Resistance

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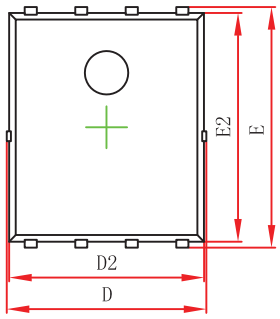
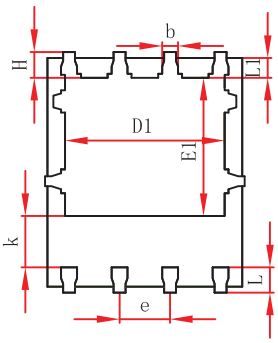
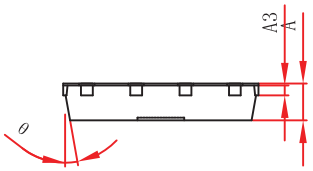
■ PDFN5x6-8 Package Outline Dimensions



Top View



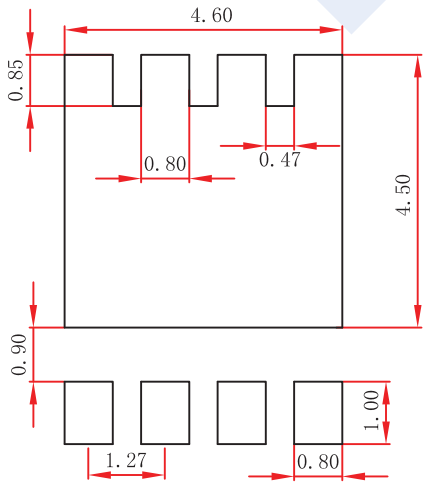
Bottom View



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.