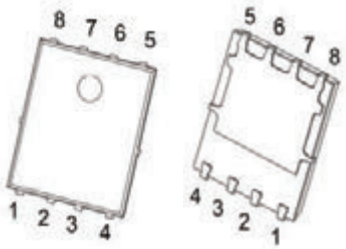
P-Channel MOSFET

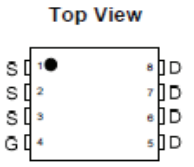
2KJ6036DFN

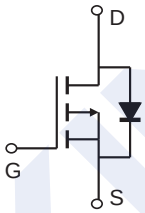
PDFN5x6-8



■ Features

- $V_{DS\ (V)}$ = -20V
- I_D = -60A
- $R_{DS(ON)}$ <4mΩ @ V_{GS}=-4.5V
- Pb−Free, Halogen Free and RoHS compliant.
- Low $R_{DS(on)}$ to Minimize Conduction Losses.
- Ohmic Region Good $R_{DS(on)}$ Ratio.
- Optimized Gate Charge to Minimize Switching Losses.





■ 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}	-150	
Avalanche Current		I_{AS}	-54	
Avalanche Energy	L = 0.1mH	E_{AS}	150	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	℃
Storage Temperature Range		T_{stg}	-55 to 150	

Notes

1. Package limitation current is 50A.
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	-0.55	-0.9	V
Drain-Source On-Resistance (Note 1)	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-20A		3	4	mΩ
		V_{GS}=-2.5V, I_D=-10A		3.8	5	
		V_{GS}=-1.8V, I_D=-2A		4.8	6	
Forward Transconductance	g_{FS}	V_{DS}=-5V, I_D=-20A		50		S
Dynamic Characteristics (Note 2)						
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-10V, f=1MHz		8579		pF
Output Capacitance	C_{oss}			856		
Reverse Transfer Capacitance	C_{rss}			669		
Gate Resistance	R_g	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		2.6		Ω
Total Gate Charge	Q_g	V_{DS}=-10V, I_D=-3.5A, V_{GS} = –4.5V		101		nC
Gate Source Charge	Q_{gs}			9.3		
Gate Drain Charge	Q_{gd}			18		
Turn-On DelayTime	$t_{d(on)}$	V_{DS}=-10V, I_D=-3.5A, V_{GS} = –4.5 V,R_{GS} = 6Ω		37		ns
Turn-On Rise Time	t_r			60		
Turn-Off DelayTime	$t_{d(off)}$			250		
Turn-Off Fall Time	t_f			131		
Drain-Source Diode Characteristics						
Maximum Body-Diode Continuous Current	I_S				-19	A
Diode Forward Voltage	V_{SD}	I_{SD}=-3.5 A,V_{GS}=0V			-1.3	V
Reverse Recovery Time	t_{rr}	I_F = -3.5A , dI_F/dt = 100 A / μS		61		nS
Reverse Recovery Charge	Q_{rr}			47		nC

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

2. Independent of operating temperature.

■ Marking

Marking	J6036 KC***

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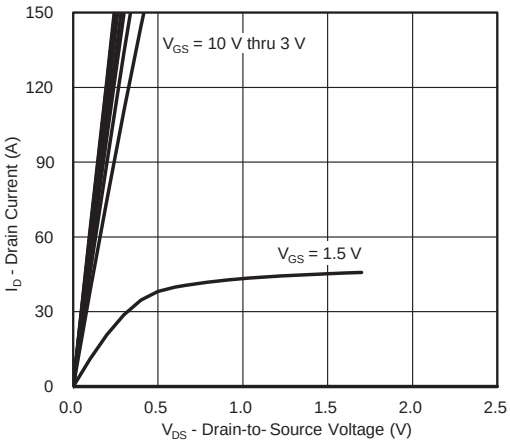
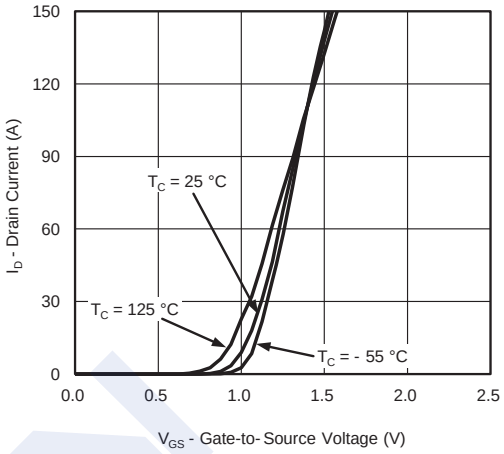
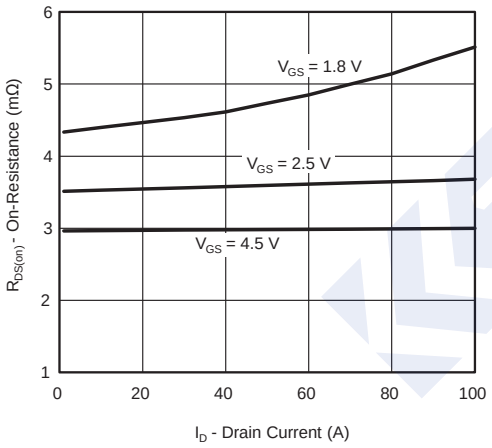
■ Typical Characterisitics



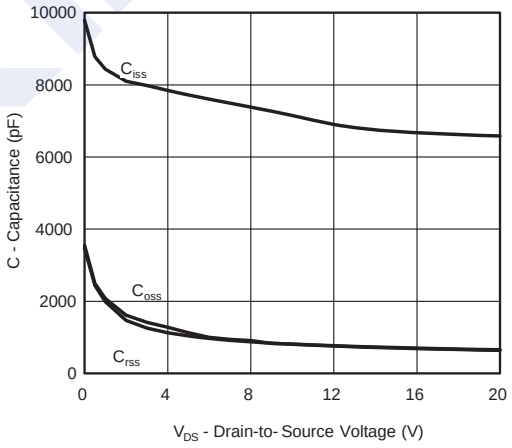
Output Characteristics



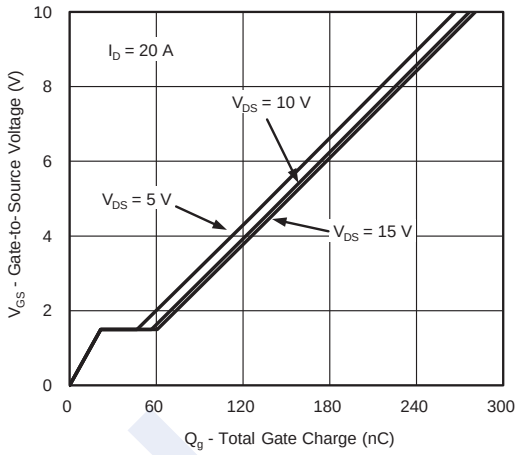
Transfer Characteristics



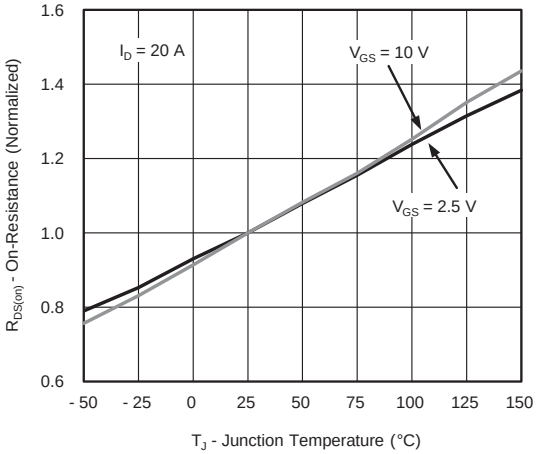
On-Resistance vs. Drain Current



Capacitance



Gate Char ge



On-Resistance vs. Junction Temperature

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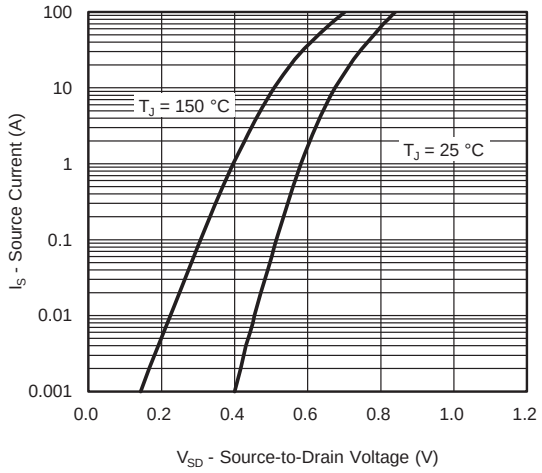
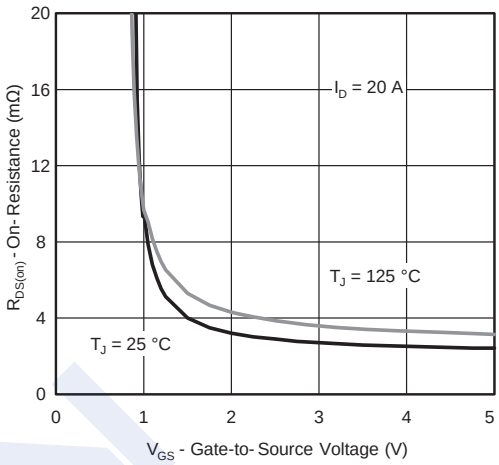
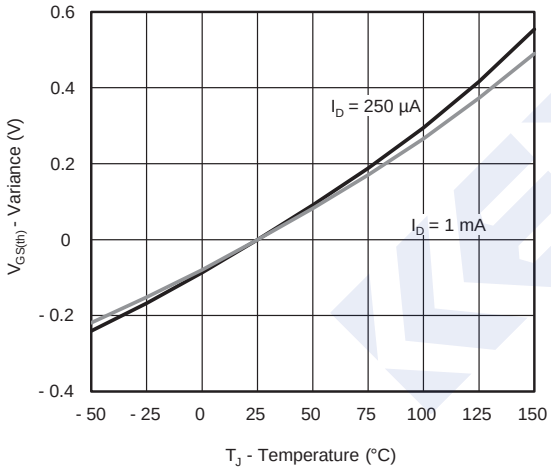


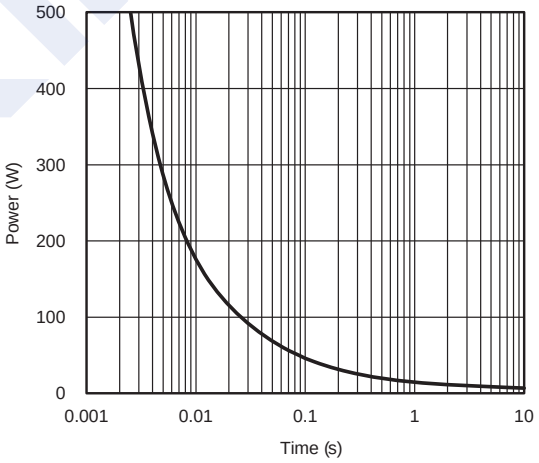
Source-Drain Diode Forward Voltage



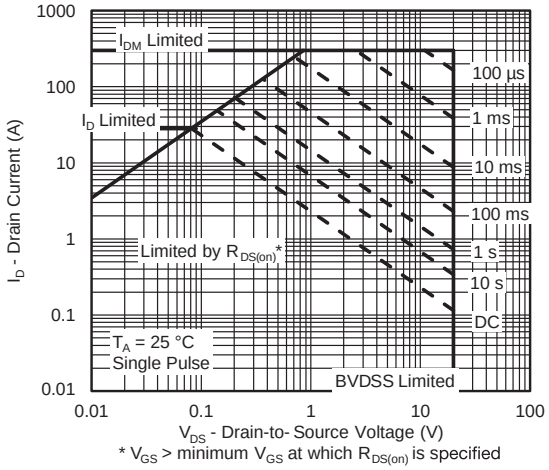
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power, Junction-to-Ambient



Safe Operating Area

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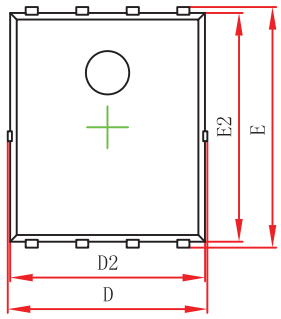
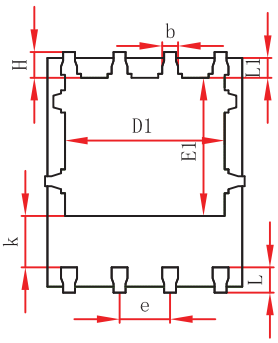
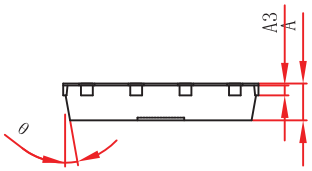
■ PDFN5x6-8 Package Outline Dimensions



Top View



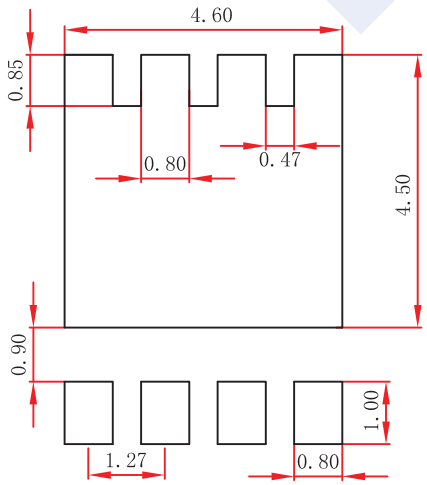
Bottom View



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.