P-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

- ☑ Advanced trench cell design
- ☑ Lead free product is acquired
- ☑ Low Thermal Resistance
- ☑ Surface mount package

1.2 Applications

- ☑ PWM applications
- ☑ Load switch

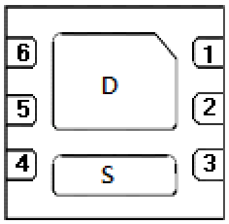
1.3 Quick reference

- ☑ BV ≧ -12 V
- ☑ P_{tot} ≦ 18W
- ☑ I_D ≦ -16 A
- ☑ $R_{DS(ON)}$ ≤ 23 mΩ @ V_{GS} = - 2.5 V
- ☑ $R_{DS(ON)}$ ≤ 15 mΩ @ V_{GS} = - 4.5 V

2. Pin Description

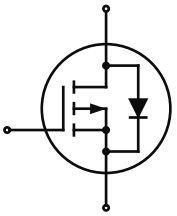
3. Pin Description

Pin	Description	Simplified Outline	Symbol
1,2,5,6	Drain		
3	Gate		
4	Source		



Bottom View

DFN2x2-6L



4. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	T_C = 25 ℃	-	-17	V
V_{GS}	Gate-Source Voltage	T_C = 25 ℃	-	± 12	V
I_D*	Drain Current-continuous	T_A = 25 ℃	-	-16	A
I_D*	Drain Current-continuous	T_A = 70 ℃	-	-12	A
P_D	Total Power Dissipation	T_C = 25 ℃	-	18	W
P_D	Total Power Dissipation	T_C = 70 ℃	-	12	W
T_{stg}	Storage Temperature		- 55	150	℃
T_J	Junction Temperature		-	150	℃
I_S	Diode Forward Current	T_C = 25 ℃	-	-16	A
R_{thJA}	Maximum junction-to-ambient	T≤5s		36	℃ / W
R_{thJC}	Maximum jumction-to-case(draim)	Steady state	-	6.5	℃ / W

Notes：

* Surface Mounted on 1 in^2 pad area, t ≤ 10 sec

** Pulse width ≤ 10 μs, duty cycle ≤ 1 %

*** Limited by bonding wire

4. Marking Information

Product Name	Marking
KJX1216D	JX1216 YWWXXX YWW: Date Code

5. Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
KJX1216D	DFN2x2-6L			3000	

Note: KUAIJIEXIN defines " Green " as lead-free (RoHS compliant) and halogen free (Br or Cl does not exceed 900 ppm by weight in homogeneous material and total of Br and Cl does not exceed 1500 ppm by weight; Follow IEC 61249-2-21 and IPC / JEDEC J-STD-020C)

6. Electrical Characteristics (T_C = 25 °C Unless Otherwise Noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0 V, I_D = -250 μA	-12	-17	-	V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_{DS} = -250 μA	-0.5	-0.75	-1.2	V
I_{DSS}	Zero Gate Voltage Source Current	V_{DS} = -12V, V_{GS} = 0 V	-	-	-1	μA
I_{GSS}	Gate Leakage Current	V_{GS} = ± 12 V, V_{DS} = 0 V	-	-	± 100	nA
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS} = -4.5V, I_D = -8A	-	13	15	mΩ
		V_{GS} = -2.5 V, I_D = -6 A	-	18	23	mΩ
gfs	Forward transconductance	V_{GS} = -6 V, I_D = -7 A		32		S
Diode Characteristics						
V_{SD}	Diode Forward Voltage	I_{SD} = -1.25 A, V_{GS} = 0 V	-	-0.7	-1.2	V
Dynamic Characteristics[b]						
C_{iss}	Input Capacitance	V_{GS} = 0 V, V_{DS} = -6 V Frequency = 1 MHz	-	1300	-	pF
C_{oss}	Output Capacitance		-	380	-	
C_{rss}	Reverse Transfer Capacitance		-	280	-	
t_d(on)	Turn-on Delay Time	V_{DS} = -10 V, V_{EN} = -4.5 V, R_L = 1.2 Ω, I_D = -5 A R_{GEN}=1Ω	-	11	-	nS
t_r	Turn-on Rise Time		-	35	-	
t_d(off)	Turn-off Delay Time		-	30	-	
t_f	Turn-off Fall Time		-	10	-	
Gate Charge Characteristics[b]						
Q_g	Total Gate Charge	V_{GS} = -6 V, V_{DS} = -4.5 V, I_{DS} = -9 A	-	13	-	nC
Q_{gs}	Gate-Source Charge		-	5	-	
Q_{gd}	Gate-Drain Charge		-	5	-	

Notes：

a : Pulse test ; pulse width ≤ 300 μs, duty cycle ≤ 2 %

b : Guaranteed by design, not subject to production testing

7. Typical Characteristics

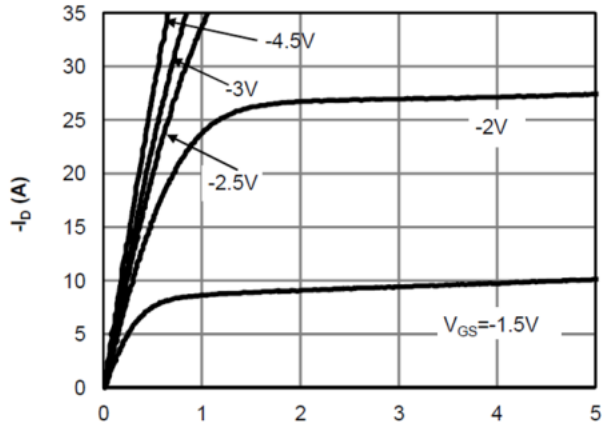


Fig 1: On-Region Characteristics

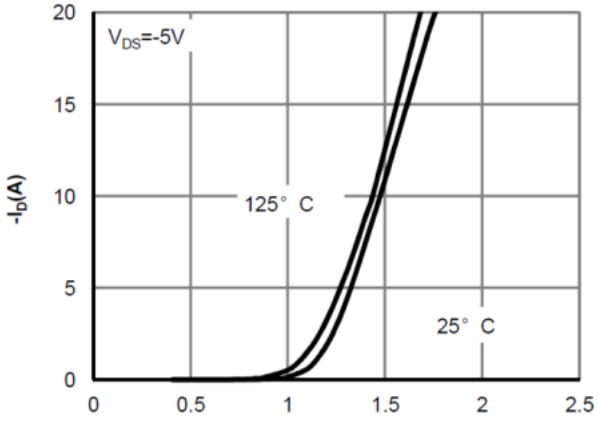


Figure 2: Transfer Characteristics

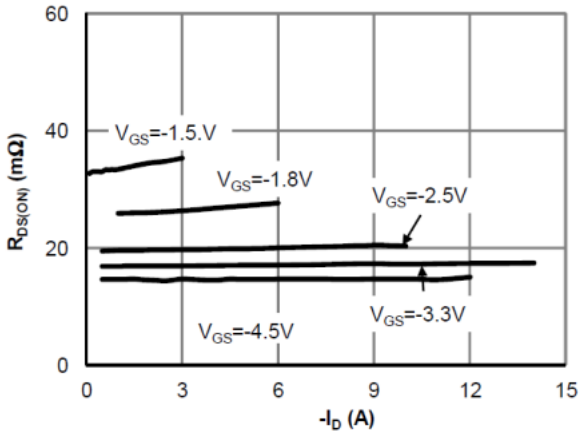


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

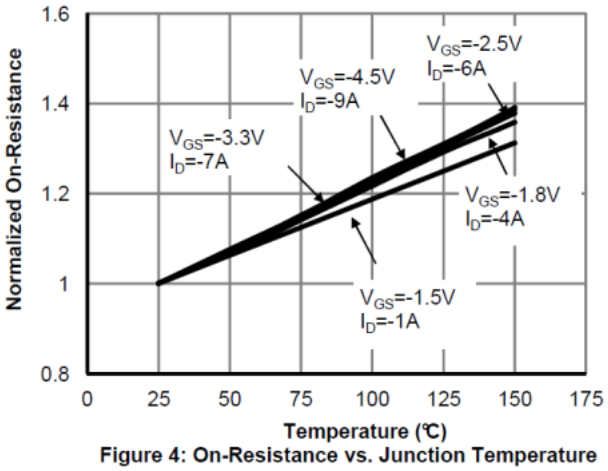


Figure 4: On-Resistance vs. Junction Temperature

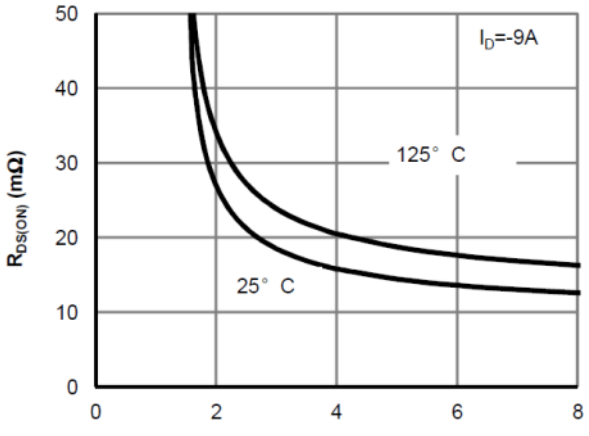


Figure 5: On-Resistance vs. Gate-Source Voltage

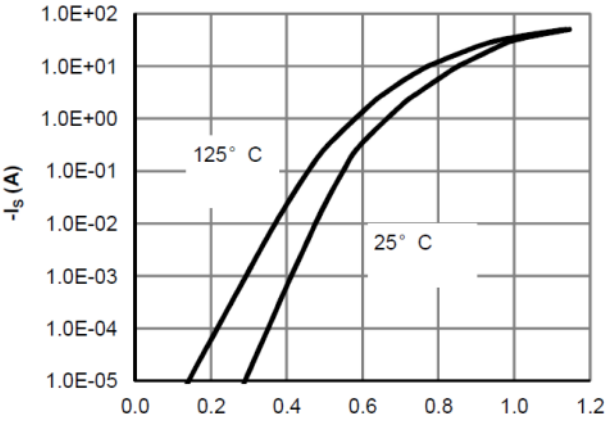


Figure 6: Body-Diode Characteristics

7. Typical Characteristics (cont.)

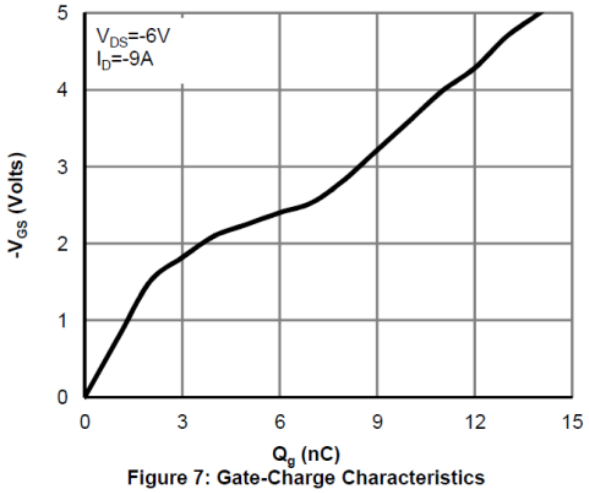


Figure 7: Gate-Charge Characteristics

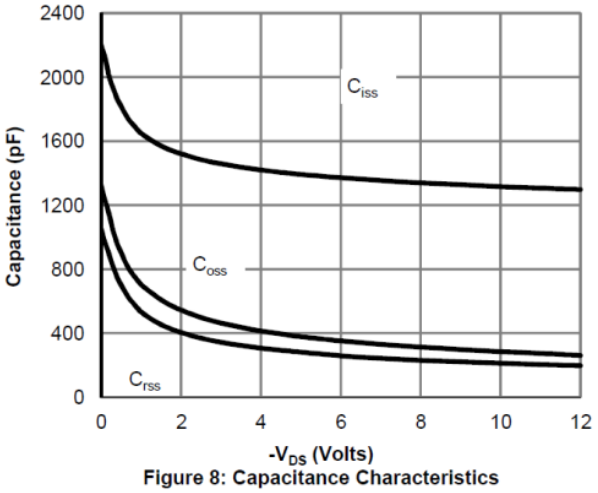


Figure 8: Capacitance Characteristics

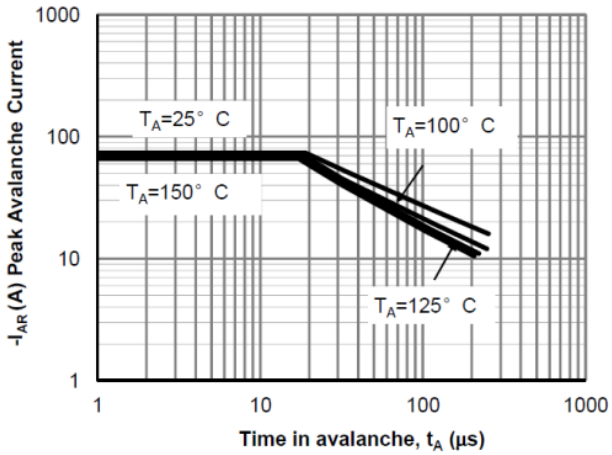


Figure 9: Single Pulse Avalanche capability

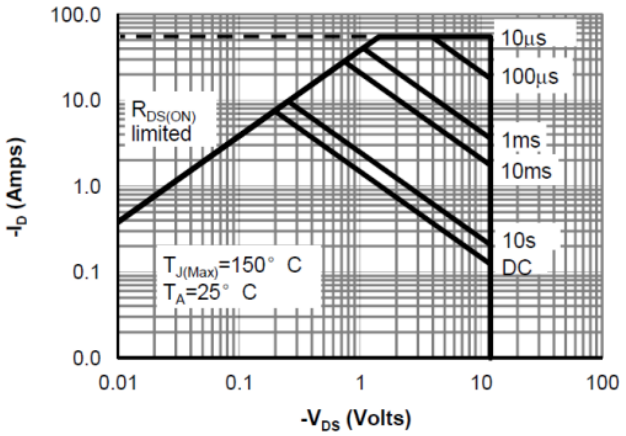


Figure 10: Maximum Forward Biased Safe Operating Area

7. Typical Characteristics (cont.)

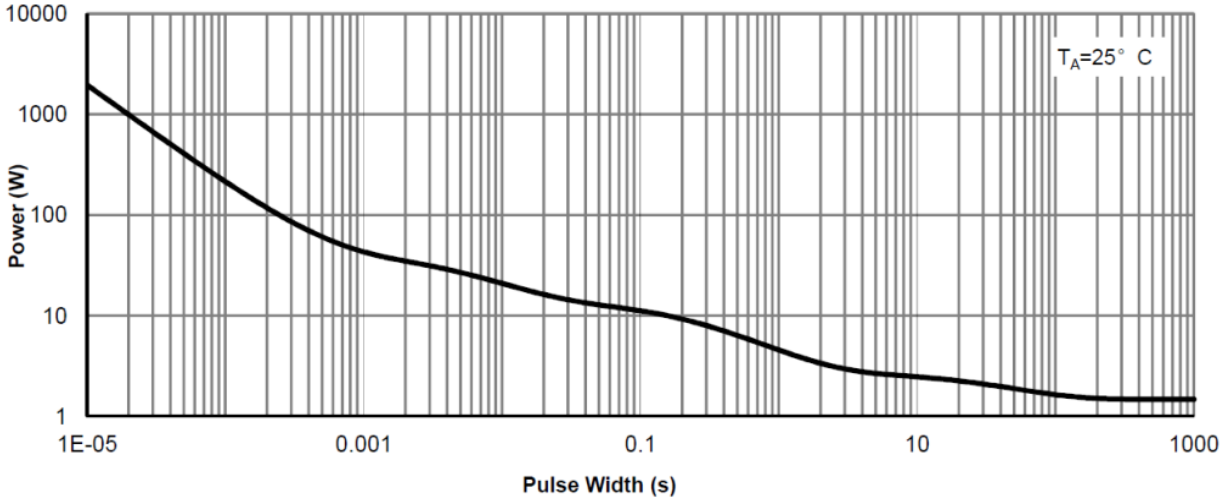


Figure 11: Single Pulse Power Rating Junction-to-Ambient

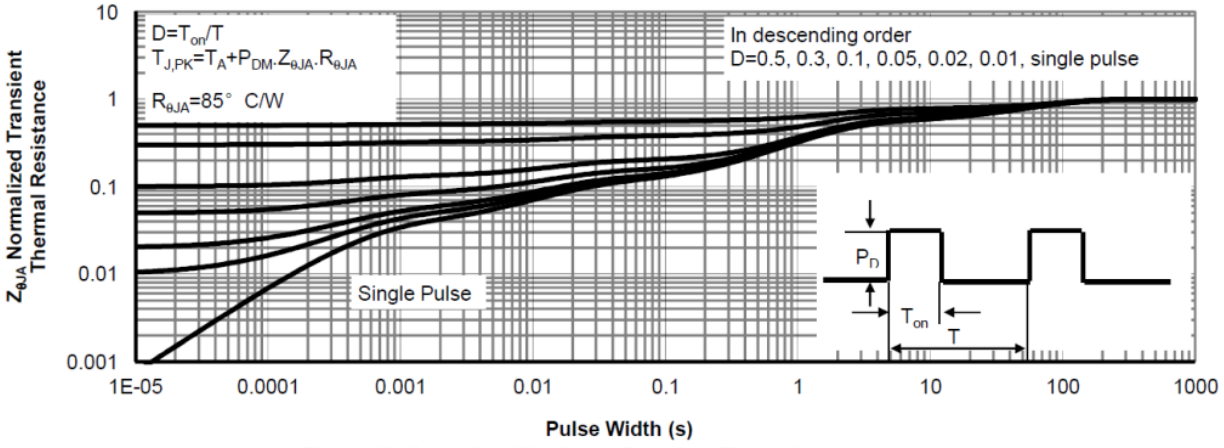
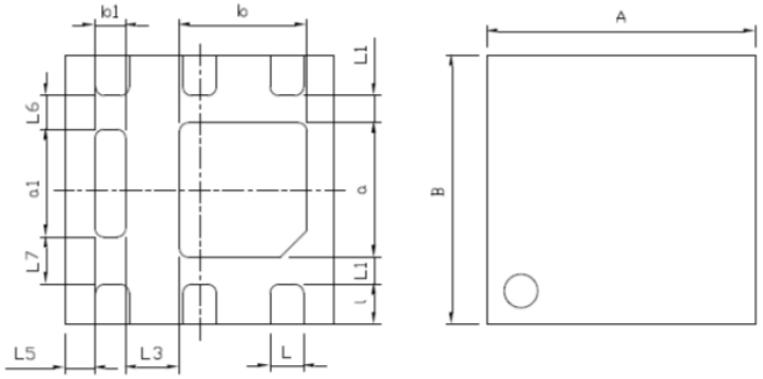
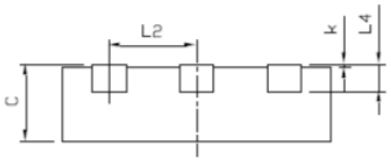


Figure 12: Normalized Maximum Transient Thermal Impedance

8.Package Dimensions

DFN2x2-6L





Dimensions In Millimeterer			
Symbol	MIN	TYP	MAX
A	1.95	2.00	2.05
B	1.95	2.00	2.05
C	0.45	0.50	0.55
L	0.25	0.30	0.35
L1	0.10	0.20	0.30
L2	–	0.65	–
L3	0.30	0.40	0.50
L4	–	0.152	–
L5	0.12	0.22	0.32
L6	0.15	0.25	0.35
L7	0.23	0.33	0.43
a	0.90	1.00	1.10
a1	0.72	0.82	0.92
b	0.85	0.95	1.05
b1	0.13	0.23	0.33
l	0.25	0.30	0.35
k	0.00	–	0.05