快捷芯
KUAIJIEXIN

KJ1KP10N

P-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

- ☑ Surface-mounted package
- ☑ Advanced trench cell design
- ☑ Extremely low threshold voltage

1.2 Applications

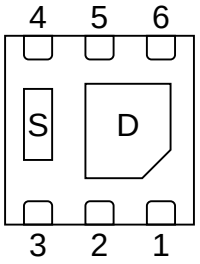
- ☑ Portable appliances

1.3 Quick reference

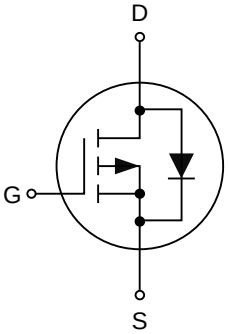
- ☑ BV ≧-100V
- ☑ P_{tot} ≦2W
- ☑ I_D ≦-1.5A
- ☑ $R_{DS(ON)}$ ≦ 1Ω @ V_{GS} = -10V
- ☑ $R_{DS(ON)}$ ≦ 1.45Ω @ V_{GS} = -6V

2. Pin Description

Pin	Description
1,2,5,6	Drain(D)
3	Gate(G)
4	Source(S)



Bottom View
DFN2x2-6L



3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	T_A=25℃	-100	-	V
V_{GS}	Gate-Source Voltage	T_A=25℃	-	±20	V
I_D*	Drain Current	T_A=25℃, V_{GS}=-10V	-	-1.5	A
I_{DM}*,**	Pulsed Drain Current	T_A=25℃, V_{GS}=-10V	-	-0.8	A
P_{tot}*	Total Power Dissipation	T_A=25℃	-	2	W
		T_A=100℃	-	1.2	
T_{stg}	Storage Temperature		-55	150	℃
T_J	Junction Temperature		-	150	℃
I_S*	Diode Forward Current	T_A=25℃	-	-1.5	A
$R_{\theta JA}$*	Thermal Resistance-Junction to Ambient		-	90	℃/W

Notes:

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

** Pulse width ≤ 300μs, duty cycle ≤ 2%

*** Limited by bonding wire

4. Marking Information

Product Name	Marking
KJ1KP10N	1KP10 YWWXXX YWW: Date Code

5. Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
KJ1KP10N	DFN2x2-6L			-	

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_A=25℃ Unless Otherwise Noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_{DS}=-250μA	-100	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_{DS}=-250μA	-2	-	-4	V
I_{DSS}	Drain Leakage Current	V_{DS}=-80V, V_{GS}=0V	-	-	-25	uA
		T_J=85℃	-	-	-30	μA
I_{GSS}	Gate Leakage Current	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
$R_{DS(ON)}$[a]	On-State Resistance	V_{GS}=-10V, I_{DS}=-0.8A	-	-	1	Ω
		V_{GS}=-6V, I_{DS}=-0.4A	-	-	1.45	
Diode Characteristics						
V_{SD}[a]	Diode Forward Voltage	I_{SD}=-0.8A, V_{GS}=0V	-	-	-1.3	V
t_{rr}	Reverse Recovery Time	I_{SD}=-1A, dI_{SD}/dt=100A/μs	-	24	-	ns
Q_{rr}	Reverse Recovery Charge		-	27	-	nC
Dynamic Characteristics [b]						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=-50V, Frequency=1MHz	-	325	670	pF
C_{oss}	Output Capacitance		-	22	-	
C_{rss}	Reverse Transfer Capacitance		-	19	-	
t_d(on)	Turn-on Delay Time	V_{DS}=-50V, V_{GEN}=-10V, R_G=3.3Ω, I_{DS}=-1A	-	8	-	ns
t_r	Turn-on Rise Time		-	4	-	
t_d(off)	Turn-off Delay Time		-	14	-	
t_f	Turn-off Fall Time		-	3	-	
Gate Charge Characteristics [b]						
Q_g	Total Gate Charge	V_{GS}=-10V, V_{DS}=-50V, I_{DS}=-1A	-	7.8	-	nC
Q_{gs}	Gate-Source Charge		-	1.8	-	
Q_{gd}	Gate-Drain Charge		-	1.8	-	

Notes:

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

b. Guaranteed by design, not subject to production testing

7. Typical Characteristics

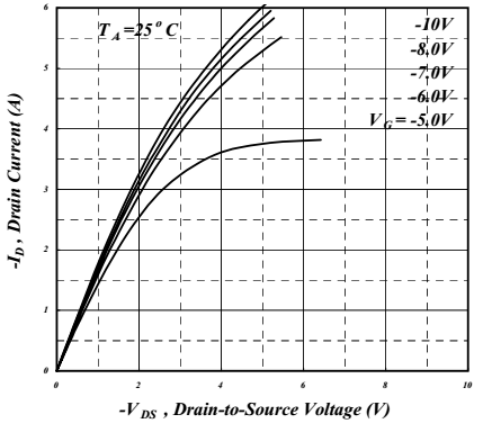


Fig 1. Typical Output Characteristics

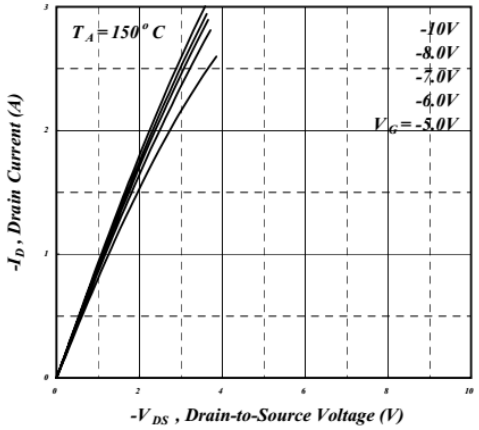


Fig 2. Typical Output Characteristics

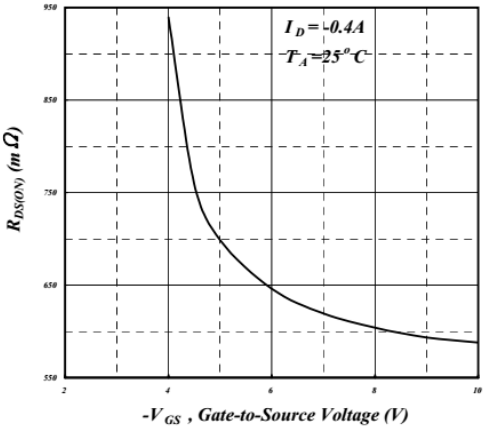


Fig 3. On-Resistance v.s. Gate Voltage

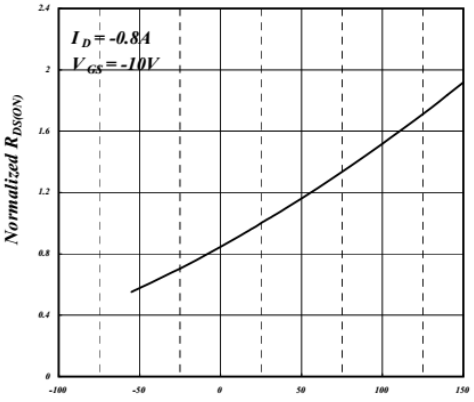


Fig 4. Normalized On-Resistance

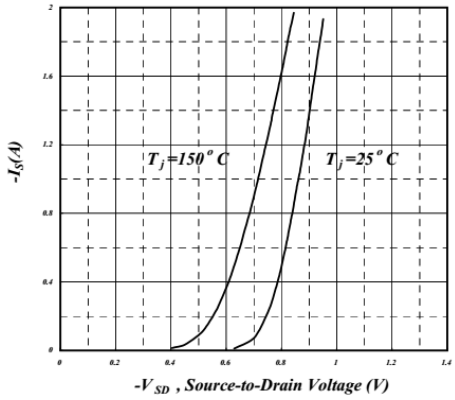


Fig 5. Forward Characteristic of Reverse Diode

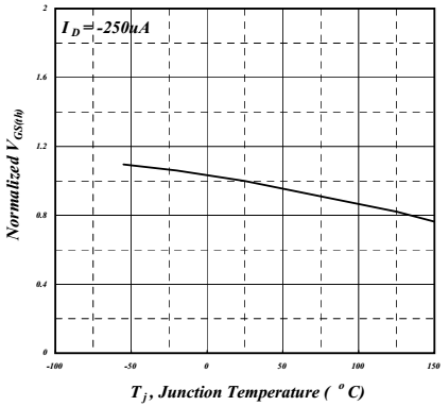


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

7. Typical Characteristics (cont.)

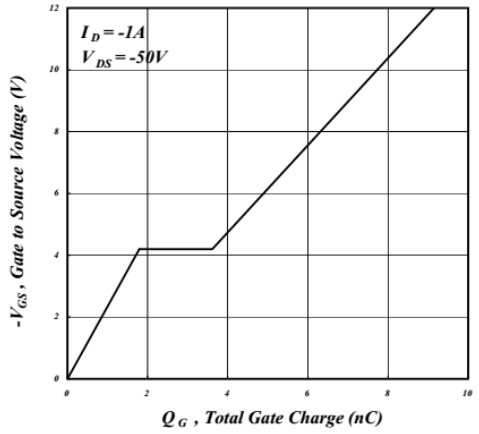


Fig 7. Gate Charge Characteristics

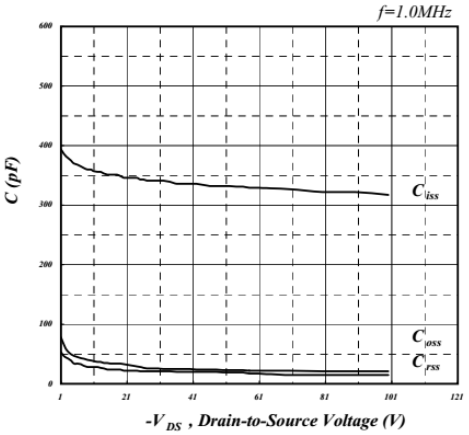


Fig 8. Typical Capacitance Characteristics

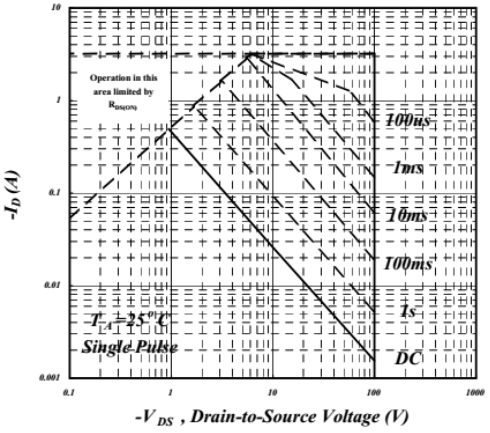


Fig 9. Maximum Safe Operating Area

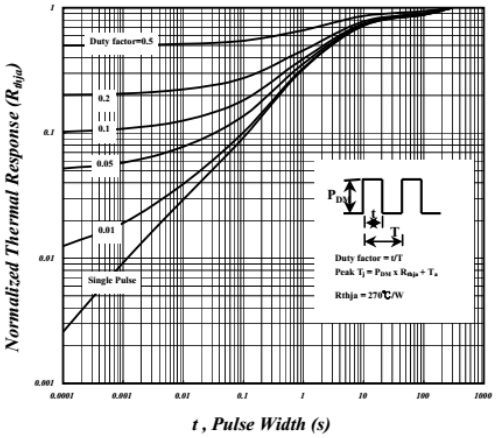


Fig 10. Effective Transient Thermal Impedance

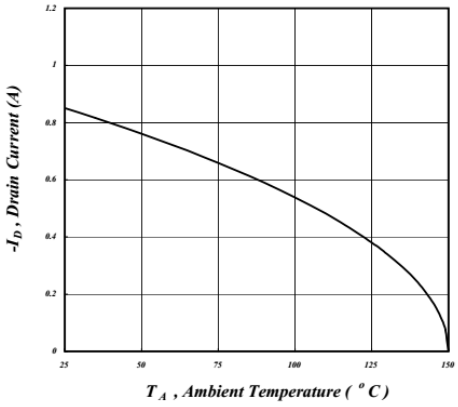


Fig 11. Drain Current v.s. Ambient Temperature

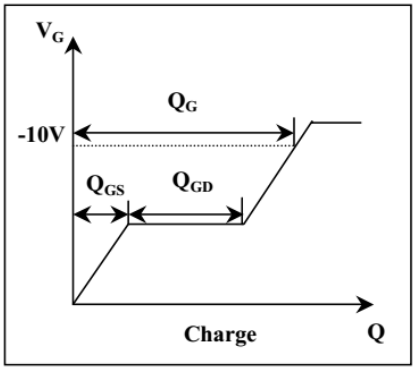


Fig 12. Gate Charge Waveform

7. Typical Characteristics (cont.)

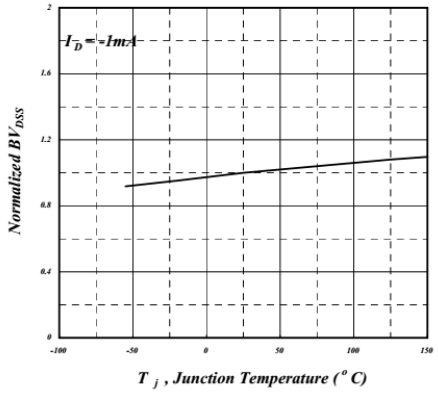


Fig 13. Normalized BV_{DSS} v.s. Junction Temperature

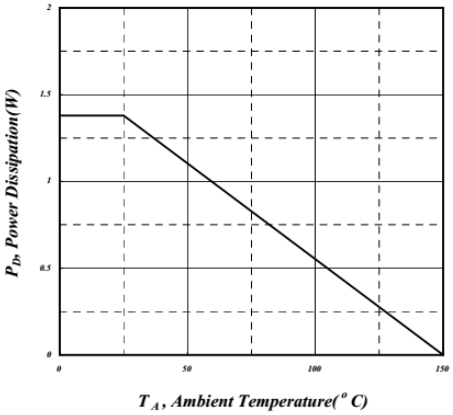


Fig 14. Total Power Dissipation

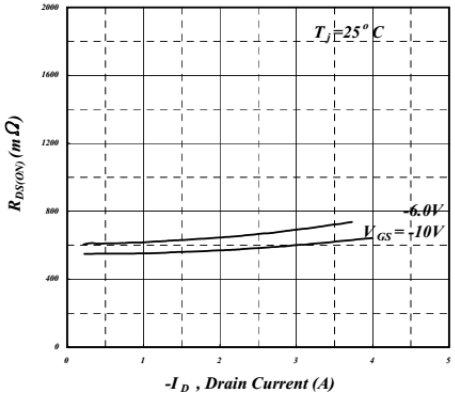
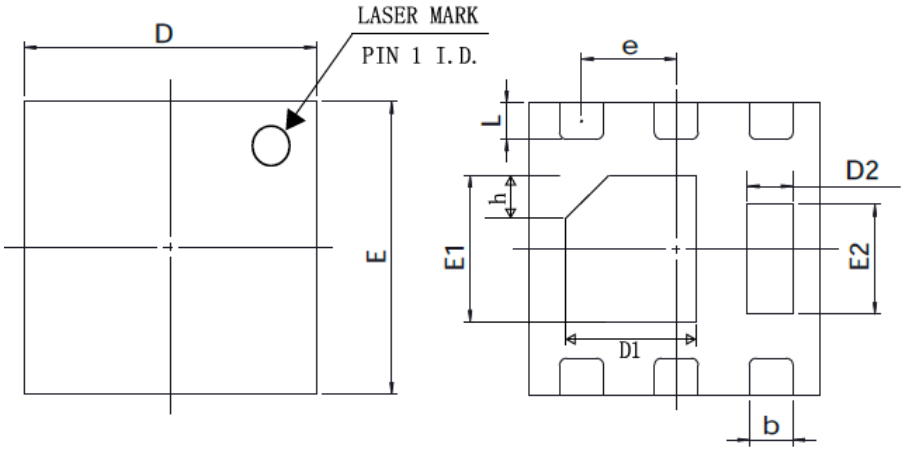
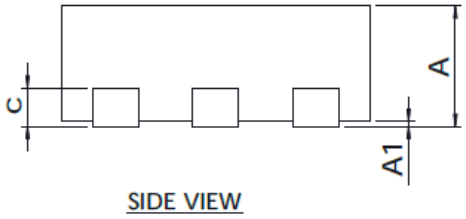


Fig 15. Typ. Drain-Source on State Resistance

8.Package Dimensions

DFN2x2-6L





Symbol	Dimensions In Millimeters		
	MIN	NOM	MAX
A	0.70	0.75	0.80
A1	NA	0.02	0.05
b	0.20	0.27	0.34
c	0.18	0.20	0.25
D	1.95	2.00	2.07
E	1.95	2.00	2.07
D1	0.80	0.90	1.00
E1	0.90	1.00	1.10
D2	0.20	0.30	0.40
E2	0.65	0.75	0.85
L	0.20	0.25	0.35
h	0.20	0.25	0.30
e	0.65BSC		