KJ30H100G

N-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

- ☑ SGT Technology
- ☑ Fast switching
- ☑ Low F_{OM} $R_{DS(ON)} \times Q_{gd}$
- ☑ Low Crss

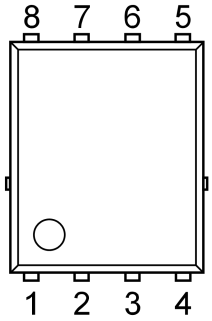
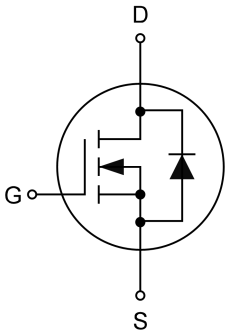
1.2 Applications

- ☑ PWM Application
- ☑ Load Switch
- ☑ Power management

1.3 Quick reference

- ☑ BV ≧ 30 V
- ☑ P_{tot} ≦ 78 W
- ☑ I_D ≦ 110 A
- ☑ $R_{DS(ON)}$ ≦ 4.0 mΩ @V_{GS} = 10 V
- ☑ $R_{DS(ON)}$ ≦ 7.5 mΩ @V_{GS} = 4.5 V

2. Pin Description

Pin	Description	Simplified Outline	Symbol
1,2,3	Source	 Top View PDFN5x6-8L	
4	Gate		
5,6,7,8	Drain		

3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	T_C=25℃	30	-	V
V_{GS}	Gate-Source Voltage	T_C=25℃	-	±20	V
I_D	Drain Current (DC)	T_C=25℃, V_{GS}=10 V	-	110	A
		T_C=100℃, V_{GS}=10 V	-	70	A
I_{DM} *	Pulsed Source Current	T_C=25℃, V_{GS}=10 V	-	440	A
P_{tot}	Total Power Dissipation	T_C=25℃	-	78	W
T_J, T_{stg}	Operating Junction and Storage Temperature Range		-55	150	℃
E_{AS}	Single Pulsed Avalanche Energy	V_{DD}=15 V, L=0.5 mH	-	245	mJ
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient		-	62.5	℃/W
$R_{\theta JC}$	Thermal Resistance, Junction to Case		-	1.6	

Notes:

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

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

*** Limited by maximum junction temperature.

4. Marking Information

Product Name	Marking
KJ30H100G	**KJ30H100G XXXXXX**

5. Ordering Code

Product Name	Package	Reel size	Tape width	Quantity (pcs)
KJ30H100G	**PDFN 5×6-8L**	**13"**	**12 mm**	**5000**

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_J=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0 V, I_{DS}=250 μA	30	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_{DS}=250 μA	1	1.5	2.5	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=30 V, V_{GS}=0 V	-	-	1	μA
I_{GSS}	Gate Leakage Current	V_{DS}=0 V, V_{GS}=±20 V	-	-	±100	nA
$R_{DS(ON)}$	On-State Resistance	V_{GS}=10 V, I_{DS}=20 A	-	3	4	mΩ
		V_{GS}=4.5 V, I_{DS}=15 A	-	5.5	7.5	
Diode Characteristics						
V_{SD}	Diode Forward Voltage	I_{SD}=20 A, V_{GS}=0 V	-	0.8	1.2	V
t_{rr}	Reverse Recovery Time	I_{DS}=20 A, V_{GS}=0V, dI_{SD}/dt=100 A/μs	-	13	-	ns
Q_{rr}	Reverse Recovery Charge		-	9.5	-	nC
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{GS}=0 V, V_{DS}=15 V, Frequency=1.0 MHz	-	2701	-	pF
C_{oss}	Output Capacitance		-	272	-	
C_{rss}	Reverse Transfer Capacitance		-	245	-	
$t_{d(on)}$	Turn-on Delay Time	V_{DS}=15 V, V_{GEN}=10 V, R_G=3 Ω, R_L=1 Ω, I_{DS}=20 A	-	14	-	ns
t_r	Turn-on Rise Time		-	233	-	
$t_{d(off)}$	Turn-off Delay Time		-	32	-	
t_f	Turn-off Fall Time		-	154	-	
Gate Charge Characteristics						
Q_g	Total Gate Charge	V_{DS}=15 V, V_{GS}=10 V, I_{DS}=20 A	-	55	-	nC
Q_{gs}	Gate-Source Charge		-	12	-	
Q_{gd}	Gate-Drain Charge		-	18	-	

7. Typical Characteristics

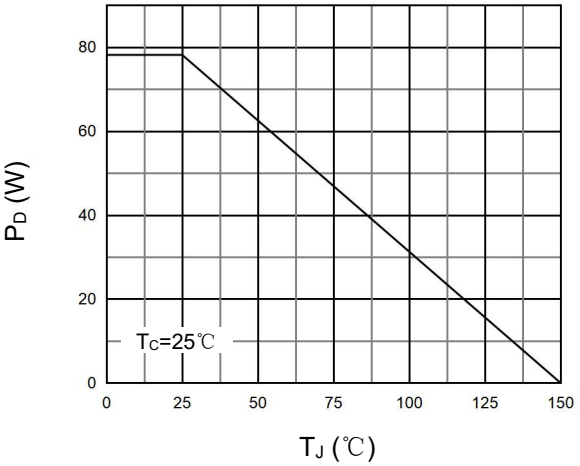


Figure 1. Power Capability

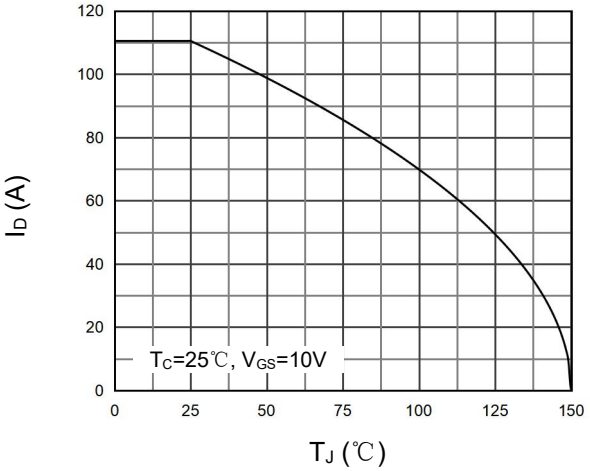


Figure 2. Current Capability

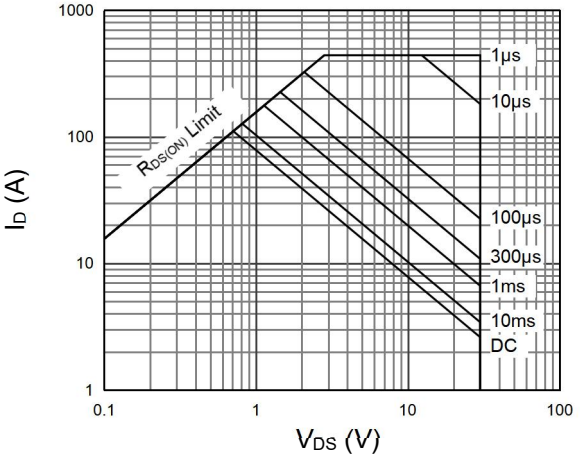


Figure 3. Transient thermal impedance

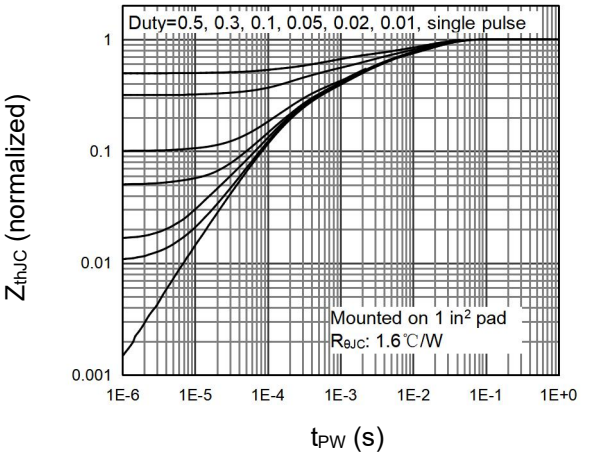


Figure 4. Safe operating area

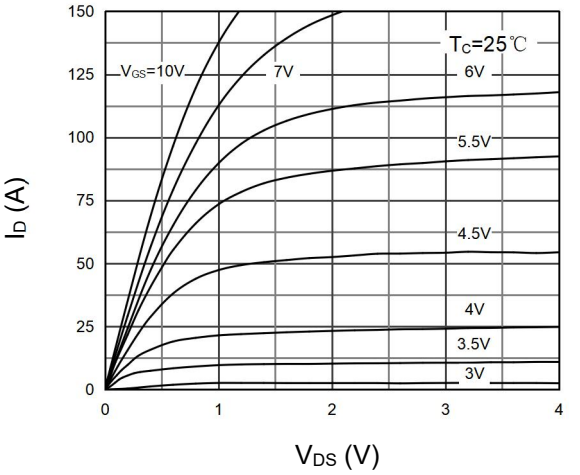


Figure 5. Output characteristics

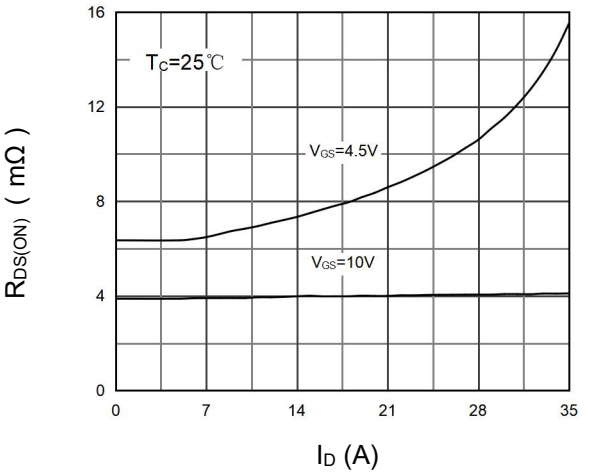


Figure 6. On-resistance vs I_D

7. Typical Characteristics (cont.)

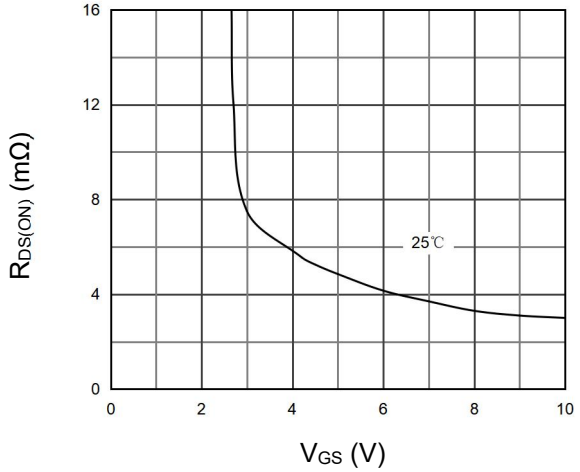


Figure 7. On-resistance vs gate-source voltage

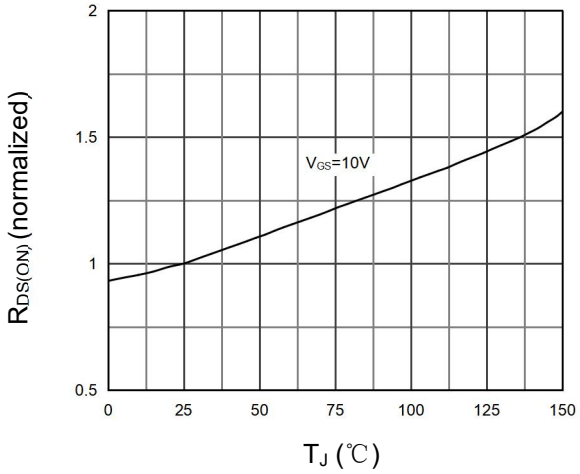


Figure 8. Normalized on-resistance vs junction temperature

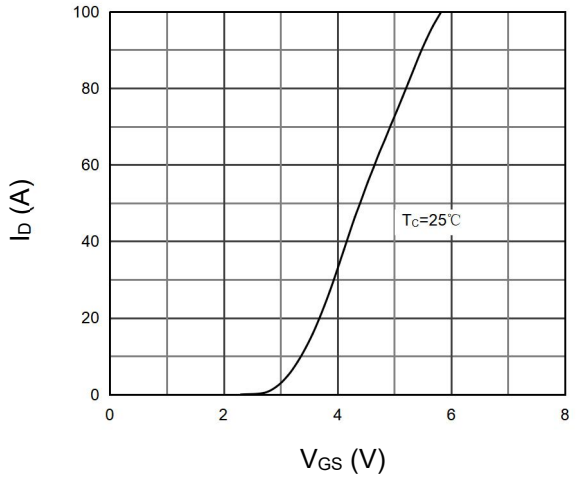


Figure 9. Typical Transfer Characteristics

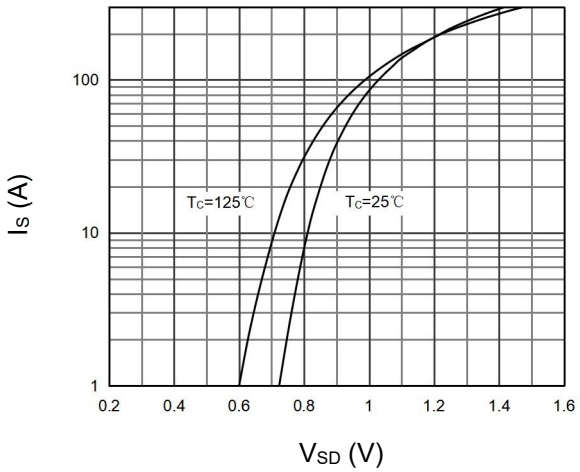


Figure 10. Forward characteristics of body diode

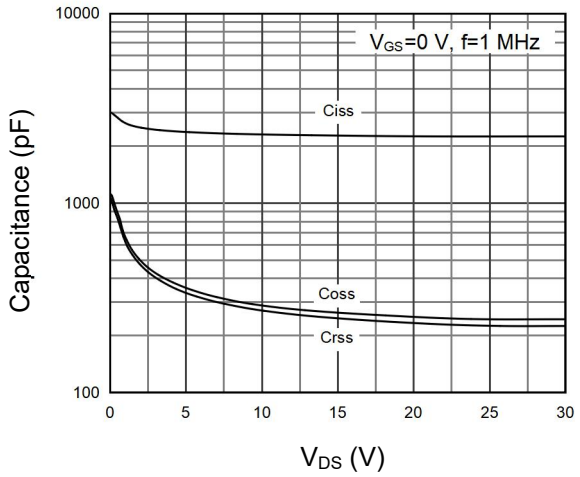


Figure 11. Capacitance

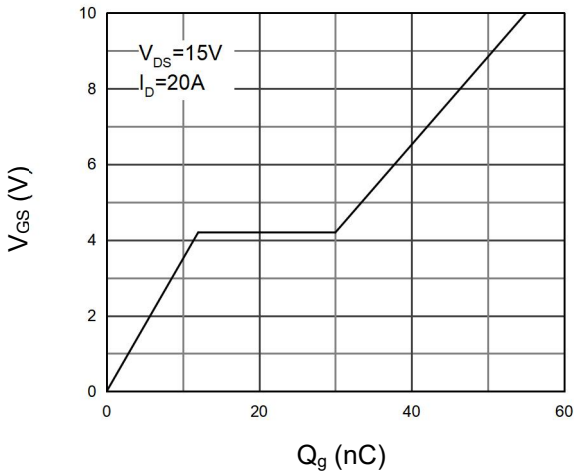
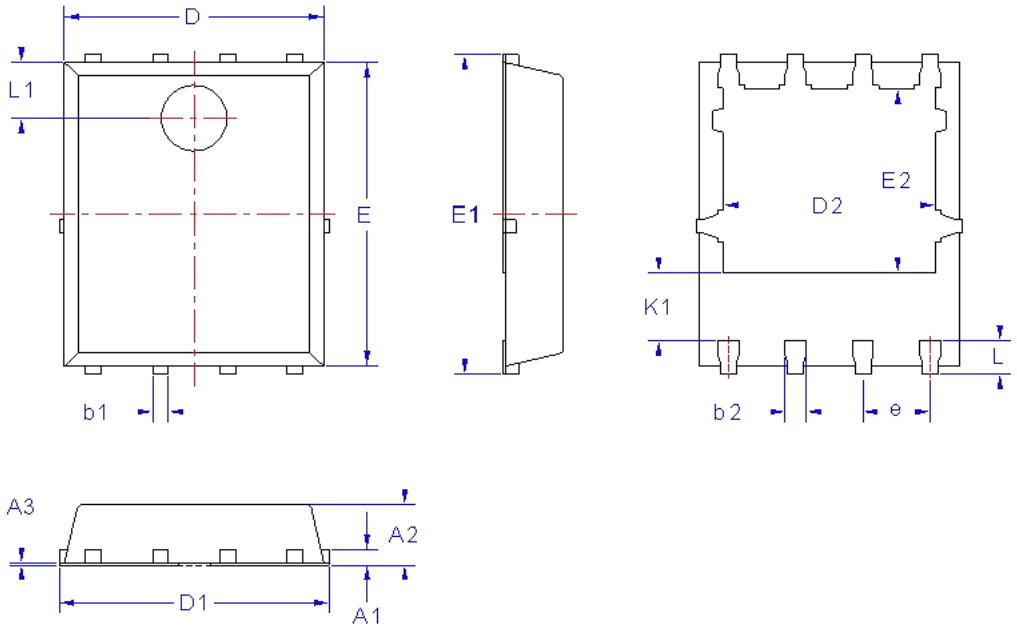


Figure 12. Gate charge

8. Package Dimensions

PDFN 5×6-8L Package



Symbol	Dimensions in Millimeters		
	MIN	NOM	MAX
A1		0.254 BSC	
A2	1.000	1.100	1.200
A3	0.005		0.020
b1	0.250	0.300	0.350
b2	0.350	0.400	0.450
D	4.800	4.900	5.000
D1	5.000	5.100	5.200
D2	3.910	4.010	4.110
E	5.650	5.750	5.850
E1	5.950	6.050	6.150
E2	3.375	3.475	3.575
e		1.270 TYPE	
K		0.600 REF	
K1		1.235 REF	
L	0.530	0.630	0.730
L1		1.000 REF	