

P-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

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

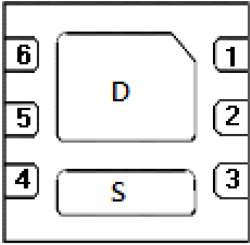
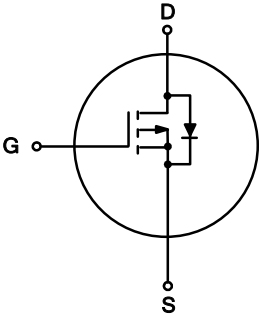
1.2 Applications

- Portable appliances
- Battery management

1.3 Quick reference

- $BV \geq -20\text{ V}$
- $P_{\text{tot}} \leq 1.56\text{ W}$
- $I_D \leq -10\text{ A}$
- $R_{\text{DS(ON)}} \leq 28\text{ m}\Omega @ V_{\text{GS}} = -4.5\text{ V}$
- $R_{\text{DS(ON)}} \leq 35\text{ m}\Omega @ V_{\text{GS}} = -2.5\text{ V}$
- $R_{\text{DS(ON)}} \leq 55\text{ m}\Omega @ V_{\text{GS}} = -1.8\text{ V}$

2. Pin Description

Pin	Description	Simplified Outline	Symbol
1,2,5,6	Drain	 <p>Bottom View DFN2X2-6L</p>	
3	Gate		
4	Source		



3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V _{DS}	Drain-Source Voltage	T _A = 25 °C	- 20	-	V
V _{GS}	Gate-Source Voltage	T _A = 25 °C	-	± 10	V
I _D *	Drain Current	T _A = 25 °C, V _{GS} = - 10 V	-	- 10	A
		T _A = 100 °C, V _{GS} = - 10 V	-	- 3.6	A
I _{DM} **	Pulsed Drain Current	T _A = 100 °C, V _{GS} = - 10 V	-	- 40	A
P _{tot} *	Total Power Dissipation	T _A = 25 °C	-	1.56	W
T _{stg}	Storage Temperature		- 55	150	°C
T _J	Junction Temperature		-	150	°C
I _S *	Diode Forward Current	T _A = 25 °C	-	- 10	A
R _{θJA} *	Thermal Resistance- Junction to Ambient		-	80	°C / W

Notes :

- * Surface Mounted on 1 in² pad area, t ≤ 10 sec
- ** Pulse width ≤ 300 μs, duty cycle ≤ 2 %
- *** Limited by bonding wire

4. Marking Information

Product Name	Marking
KJ2030N2	<div style="display: inline-block; border: 1px solid black; padding: 2px;"> 2030 YWWXXX </div> YWWXXX: Date Code

5. Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
KJ2030N2	DFN2*2				

Note: KUAJIJIXIN 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)



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KJ2030N2

6. Electrical Characteristics (T_A = 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 _{DS} = 250 μA	- 20	-	-	V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _{DS} = 250 μA	- 0.5	-	-1	V
I _{DSS}	Drain Leakage Current	V _{DS} = - 16 V, V _{GS} = 0 V	-	-	1	μA
		T _J = 85 °C	-	-	30	μA
I _{GSS}	Gate Leakage Current	V _{GS} = ± 8 V, V _{DS} = 0 V	-	-	± 10	uA
R _{DS(ON)} ^a	On-State Resistance	V _{GS} = - 4.5 V, I _{DS} = - 4 A	-	25	28	m Ω
		V _{GS} = - 2.5 V, I _{DS} = - 3 A	-	30	35	
		V _{GS} = - 1.8 V, I _{DS} = - 2 A	-	45	55	
Diode Characteristics						
V _{SD} ^a	Diode Forward Voltage	I _{SD} = - 4 A, V _{GS} = 0 V	-	-	- 1.2	V
Dynamic Characteristics^b						
C _{iss}	Input Capacitance	V _{GS} = 0 V, V _{DS} = - 10 V Frequency = 1 MHz	-	1380	-	pF
C _{oss}	Output Capacitance		-	200	-	
C _{rss}	Reverse Transfer Capacitance		-	180	-	
t _{d(on)}	Turn-on Delay Time	V _{DS} = - 10 V, V _{GEN} = - 10 V, R _G = 3.9 Ω, R _L = 2.5 Ω, I _{DS} = - 4 A	-	2.4	-	nS
t _r	Turn-on Rise Time		-	4.8	-	
t _{d(off)}	Turn-off Delay Time		-	26	-	
t _f	Turn-off Fall Time		-	4.2	-	
Gate Charge Characteristics^b						
Q _g	Total Gate Charge	V _{DS} = - 10 V, V _{GS} = - 4.5 V, I _{DS} = - 4 A	-	19.5	-	nC
Q _{gs}	Gate-Source Charge		-	4	-	
Q _{gd}	Gate-Drain Charge		-	4.8	-	

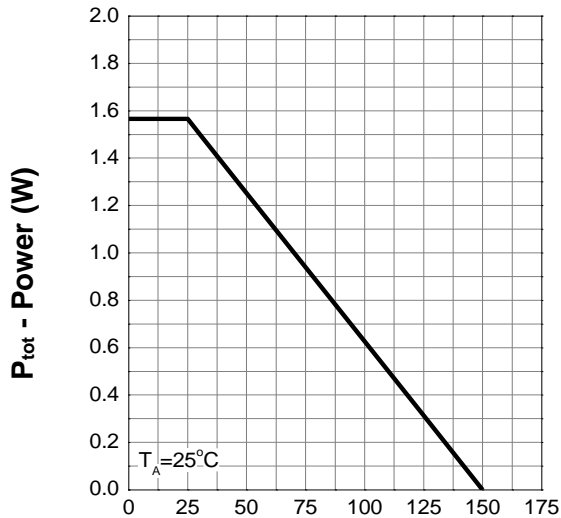
Notes :

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

b : Guaranteed by design, not subject to production testing

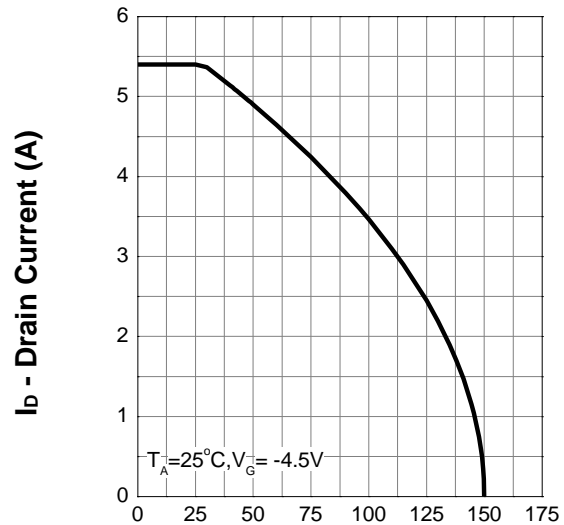
7. Typical Characteristics

Power Capability



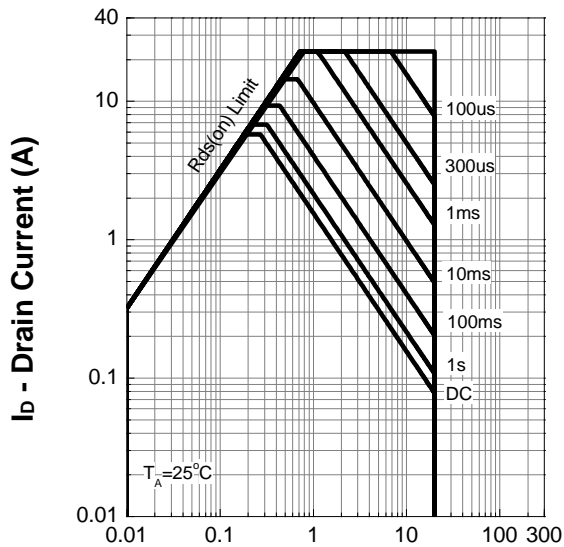
T_j - Junction Temperature (°C)

Current Capability



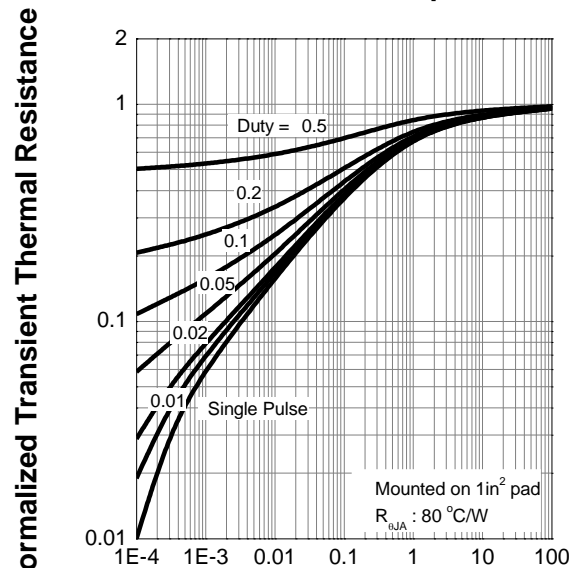
T_j - Junction Temperature (°C)

Safe Operation Area



-V_{DS} - Drain-Source Voltage (V)

Transient Thermal Impedance

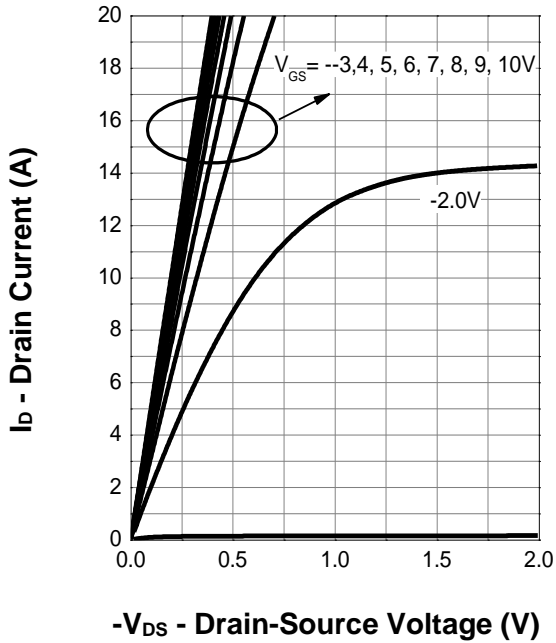


Square Wave Pulse Duration (sec)

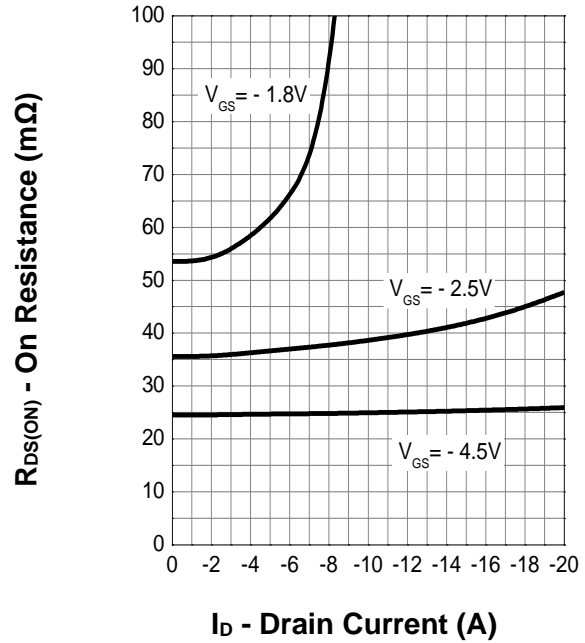


7. Typical Characteristics (cont.)

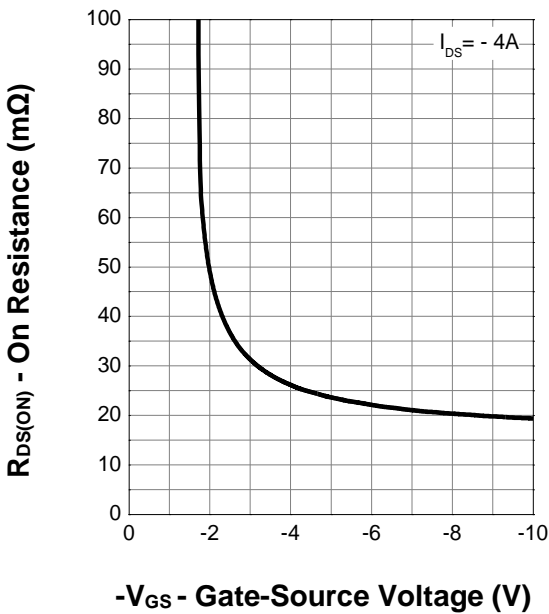
Output Characteristics



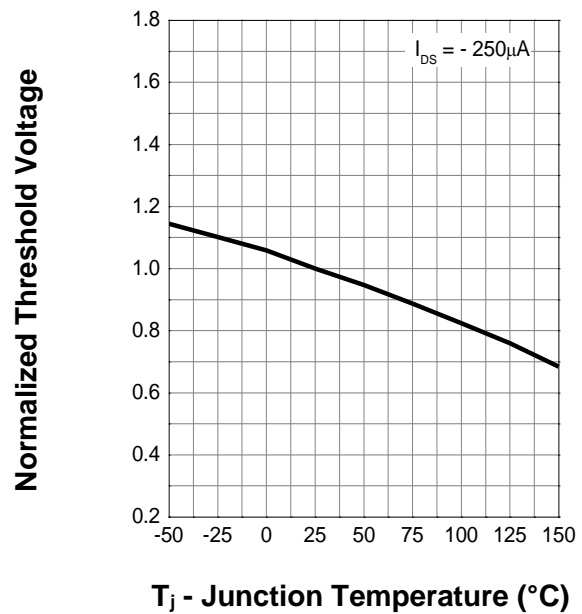
On Resistance



Transfer Characteristics

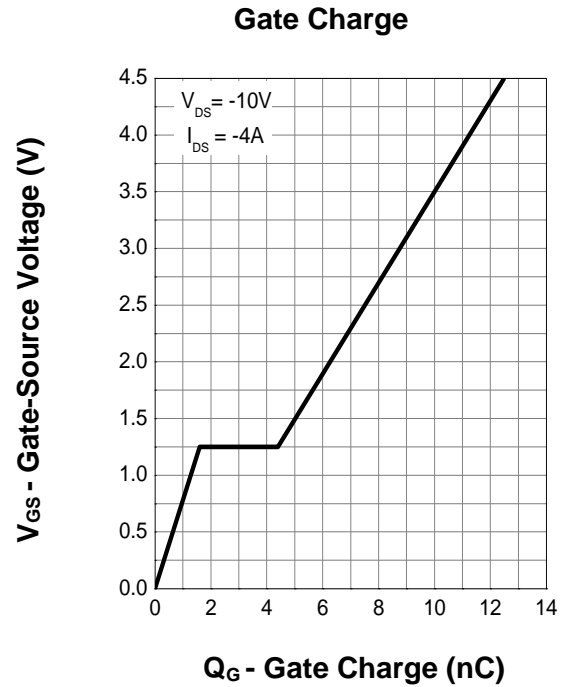
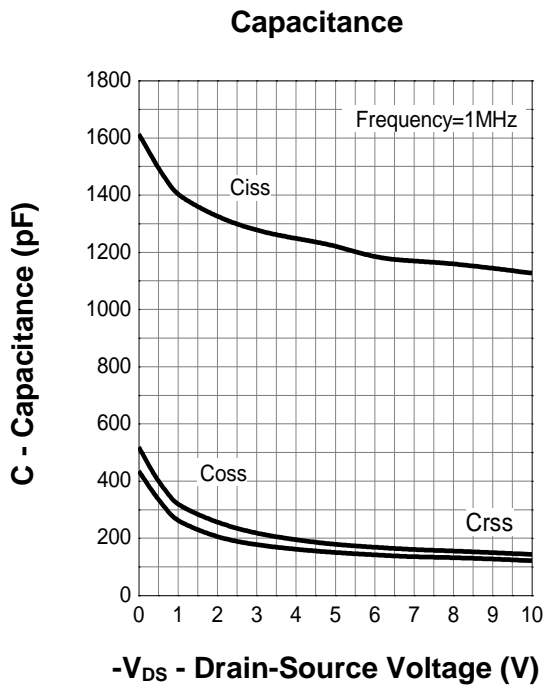
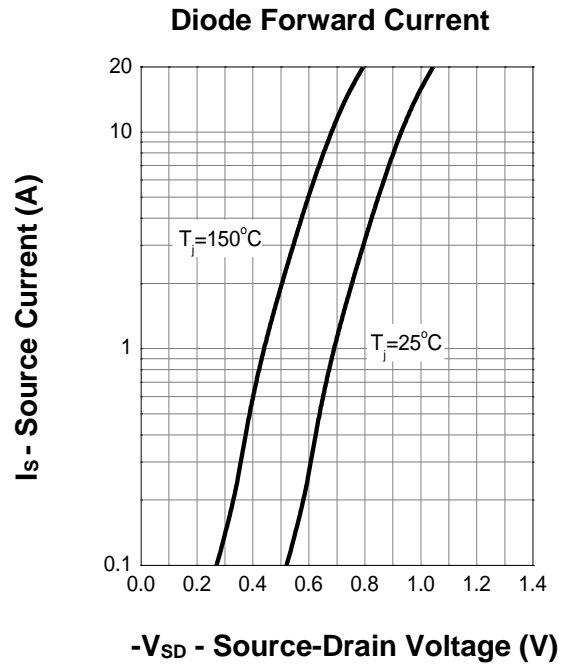
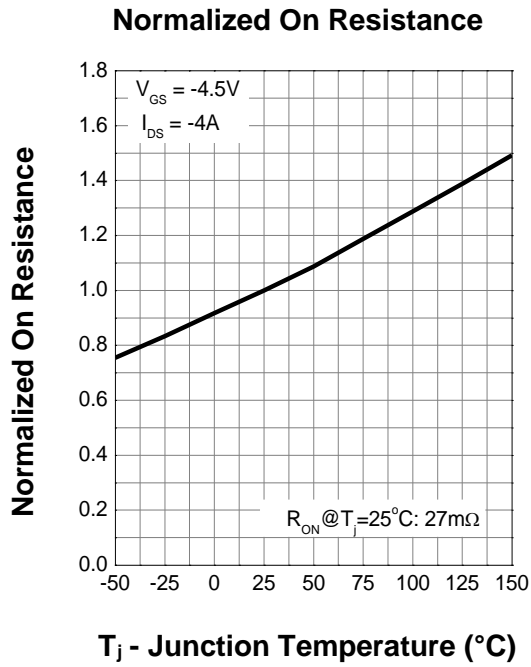


Normalized Threshold Voltage





7. Typical Characteristics (cont.)





8.Package Dimensions

DFN2*2-6L

