

Dual N-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

- Surface-mounted package
 Advanced trench cell design
- Extremely low threshold voltage
 ESD:2KV

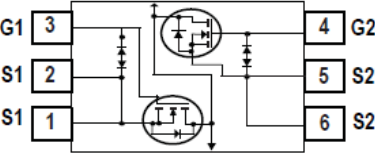
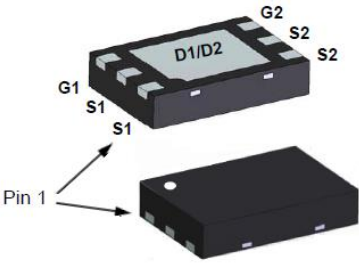
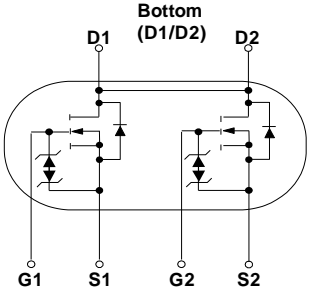
1.2 Applications

- Portable appliances
- Battery management

1.3 Quick reference

- $BV \geq 20\text{ V}$
 $P_{tot} \leq 1.25\text{ W}$
 $I_D \leq 10\text{ A}$
- $R_{DS(ON)} \leq 11\text{ m}\Omega @ V_{GS} = 4.5\text{ V}$
 $R_{DS(ON)} \leq 12\text{ m}\Omega @ V_{GS} = 3.9\text{ V}$
 $R_{DS(ON)} \leq 14\text{ m}\Omega @ V_{GS} = 2.5\text{ V}$

2. Pin Description

Pin	Description	Simplified Outline	Symbol
 <p>Schematic diagram</p>	 <p>DFN2x3-6L Pin definition and Top / Bottom View</p>	 <p>Bottom (D1/D2)</p>	



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	-	± 12	V
I _D *	Drain Current	T _A = 25 °C, V _{GS} = 4.5 V	-	10	A
I _{DM} **	Pulsed Drain Current	T _A = 25 °C, V _{GS} = 4.5 V	-	30	A
P _{tot} *	Total Power Dissipation	T _A = 25 °C	-	1.25	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		-	100	°C / W

Notes :

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

4. Marking Information

Product Name	Marking
KJ3R09A	<div style="display: inline-block; border: 1px solid black; padding: 2px;"> 3R09A YWWXXX </div> YWWXXX: Date Code

5. Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
KJ3R09A	DFN2*3			3000	

Note: KUAJIEXIN 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 °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	-	1.0	V
I _{DSS}	Drain Leakage Current	V _{DS} = 16 V, V _{GS} = 0 V T _J = 85 °C	-	-	1	μA
			-	-	30	μA
I _{GSS}	Gate Leakage Current	V _{GS} = ± 10 V, V _{DS} = 0 V	-	-	± 10	μA
R _{DS(ON)} ^a	On-State Resistance	V _{GS} = 4.5 V, I _{DS} = 7 A	-	10	11	mΩ
			-	11	12	
			-	12	14	
Diode Characteristics						
V _{SD} ^a	Diode Forward Voltage	I _{SD} = 7 A, V _{GS} = 0 V	-	-	1.2	V
Dynamic Characteristics^b						
C _{iss}	Input Capacitance	V _{GS} = 0 V, V _{DS} = 10 V Frequency = 10 KHz	-	938	-	pF
C _{oss}	Output Capacitance		-	139	-	
C _{rss}	Reverse Transfer Capacitance		-	122	-	
t _{d(on)}	Turn-on Delay Time	V _{DS} = 10 V, V _{GEN} = 4.5 V, R _G = 4.5 Ω, R _L = 1.42 Ω, I _{DS} = 7 A	-	0.1	-	μS
t _r	Turn-on Rise Time		-	0.3	-	
t _{d(off)}	Turn-off Delay Time		-	3.4	-	
t _f	Turn-off Fall Time		-	2.8	-	
Gate Charge Characteristics^b						
Q _g	Total Gate Charge	V _{GS} = 4.5 V, V _{DS} = 10 V, I _{DS} = 7 A	-	15	-	nC
Q _{gs}	Gate-Source Charge		-	3	-	
Q _{gd}	Gate-Drain Charge		-	4	-	

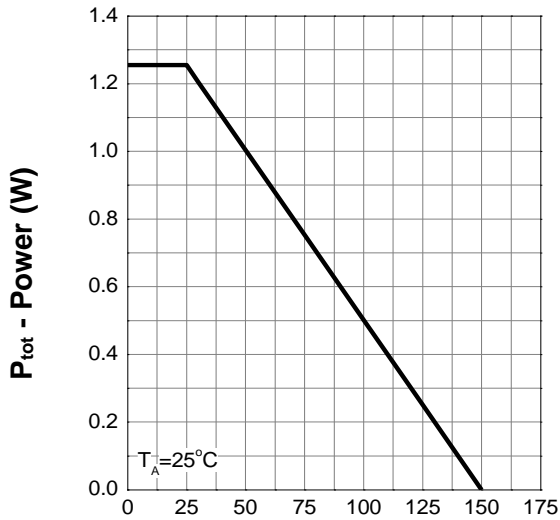
Notes :

- a : Pulse test ; pulse width ≤ 300 μs, duty cycle ≤ 2 %
- b : Guaranteed by design, not subject to production testing



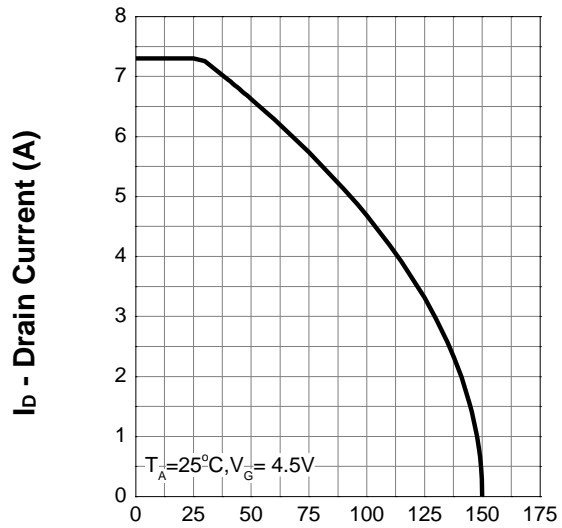
7. Typical Characteristics

Power Capability



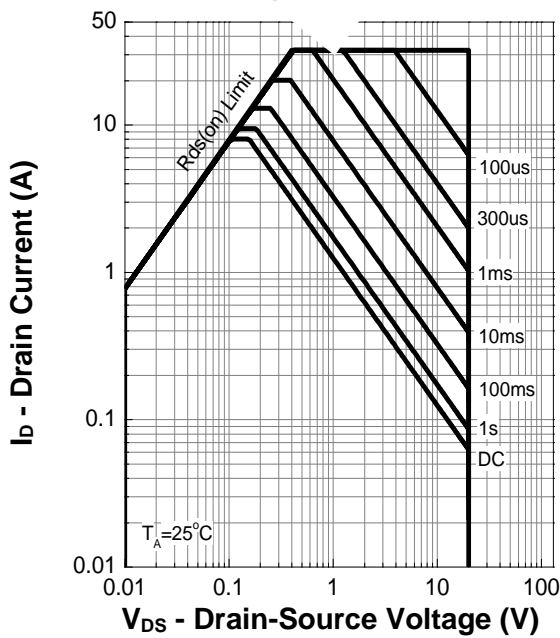
T_j - Junction Temperature (°C)

Current Capability

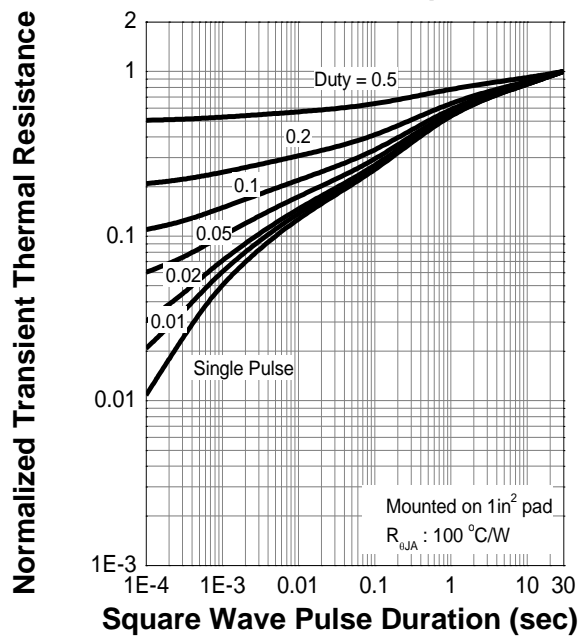


T_j - Junction Temperature (°C)

Safe Operation Area



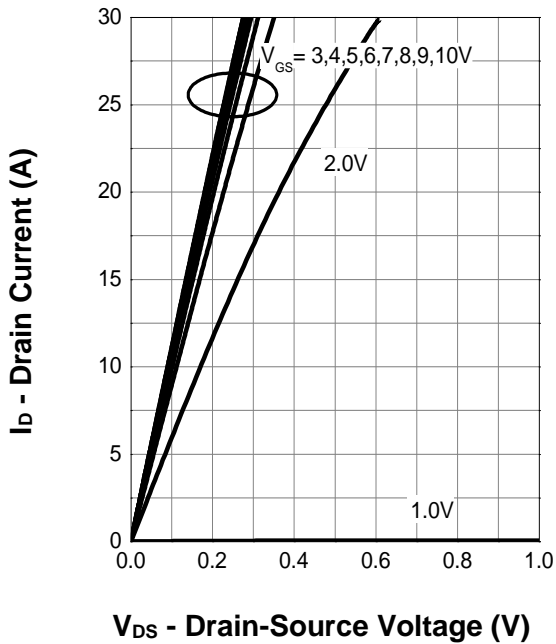
Transient Thermal Impedance



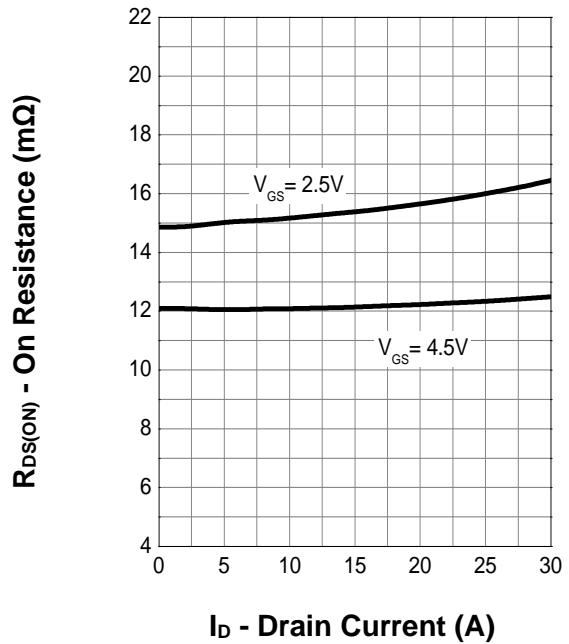


7. Typical Characteristics (cont.)

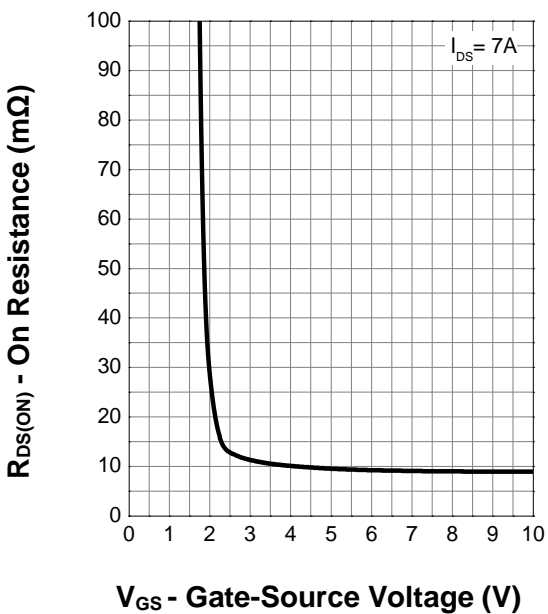
Output Characteristics



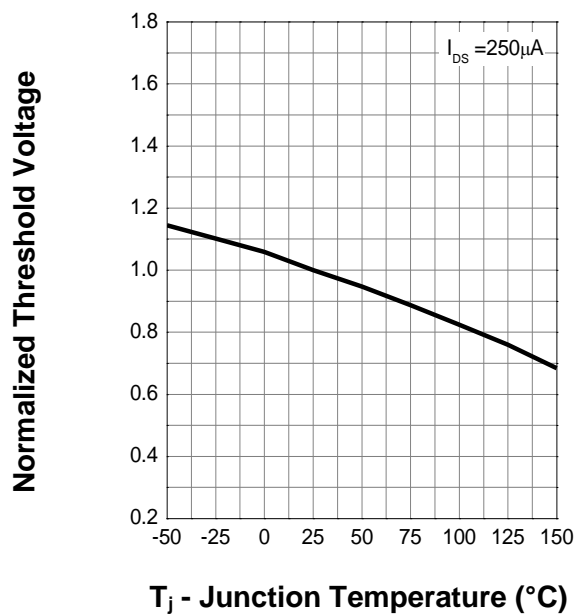
On Resistance



Transfer Characteristics

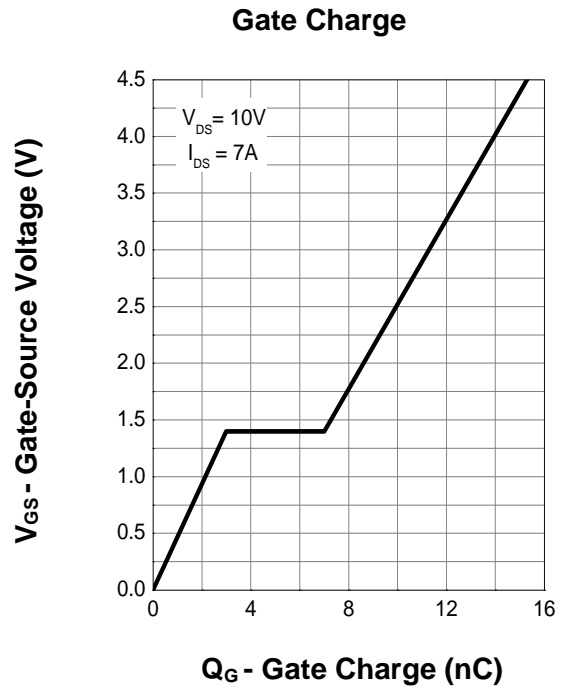
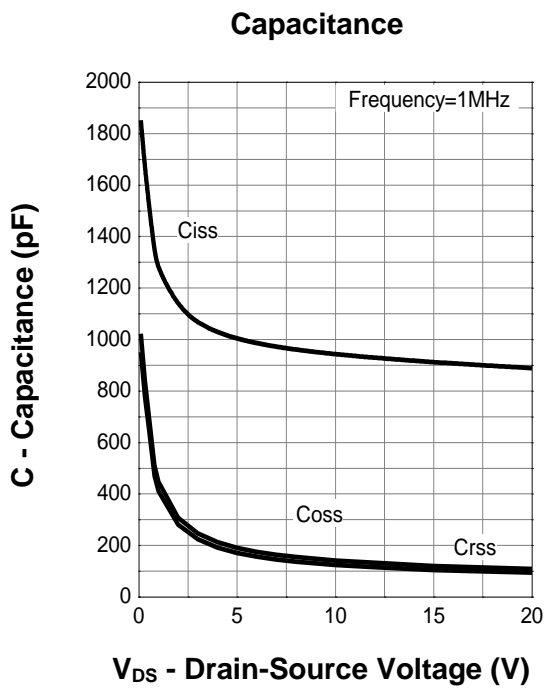
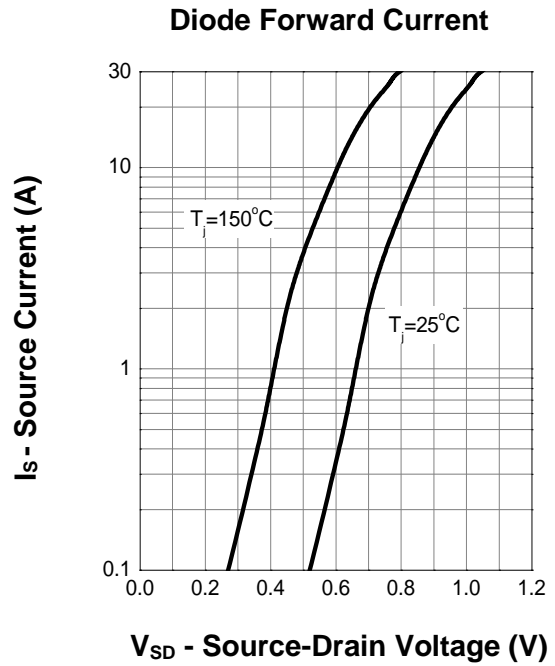
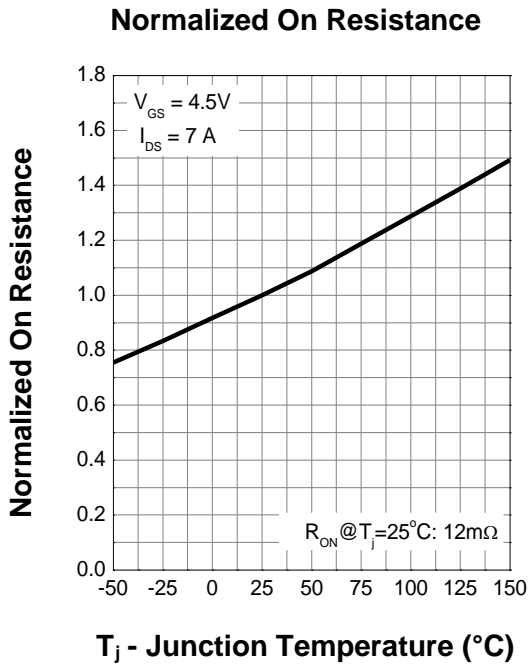


Normalized Threshold Voltage





7. Typical Characteristics (cont.)





8. Package Dimensions DFN2*3-6L

