

N-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

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

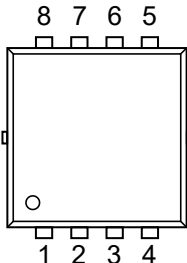
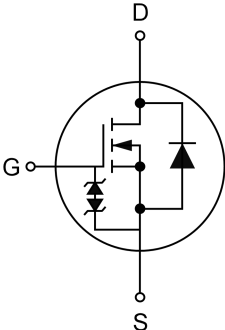
1.2 Applications

- ☒ Portable appliances
- ☒ Battery management

1.3 Quick reference

- ☒ $BV \geq 18\text{ V}$
- ☒ $R_{DS(ON)} \leq 13\text{ m}\Omega @V_{GS} = 4.5\text{ V}$
- ☒ $P_{tot} \leq 1.56\text{ W}$
- ☒ $R_{DS(ON)} \leq 15\text{ m}\Omega @V_{GS} = 2.5\text{ V}$
- ☒ $I_D \leq 10\text{ A}$

2. Pin Description

Pin	Description	Simplified Outline	Symbol
1,2,3	Source	 Top View PDFN3.3x3.3-8L	
4	Gate		
5,6,7,8	Drain		

3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	$T_A=25^{\circ}\text{C}$	18	-	V
V_{GS}	Gate-Source Voltage	$T_A=25^{\circ}\text{C}$	-	± 12	V
I_D	Drain Current	$T_A=25^{\circ}\text{C}, V_{GS}=4.5\text{ V}$	-	10	A
I_{DM}^*	Pulsed Drain Current	$T_A=25^{\circ}\text{C}, V_{GS}=4.5\text{ V}$	-	35	A
P_{tot}	Total Power Dissipation	$T_A=25^{\circ}\text{C}$	-	1.56	W
T_J, T_{stg}	Operating Junction and Storage Temperature Range		-55	150	$^{\circ}\text{C}$
$R_{\theta JA}^{**}$	Thermal Resistance-Junction to Ambient		-	80	$^{\circ}\text{C/W}$

Notes:

- * Pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.
- ** Surface mounted on 1 in² pad area, $t \leq 10\text{ sec}$.
- *** Limited by bonding wire.

4. Marking Information

Product Name	Marking
KJ8816Q	KJ8816Q

5. Ordering Code

Product Name	Package	Reel size	Tape width	Quantity (pcs)
KJ6016Q	PDFN 3.3×3.3-8L	13"	12 mm	5000

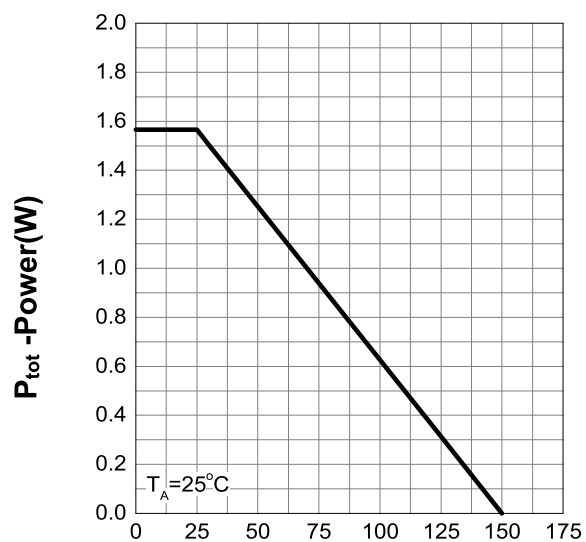
Note: KUAJIEXIN defines "Green" as lead-free (RoHS compliant) and halogen free (Br or Cl does not exceed 900 ppm by weight in homogeneous material and total of Br and Cl does not exceed 1500 ppm by weight; Follow IEC 61249-2-21 and IPC/JEDEC J-STD-020C).

6. Electrical Characteristics (T_A=25°C unless otherwise noted)

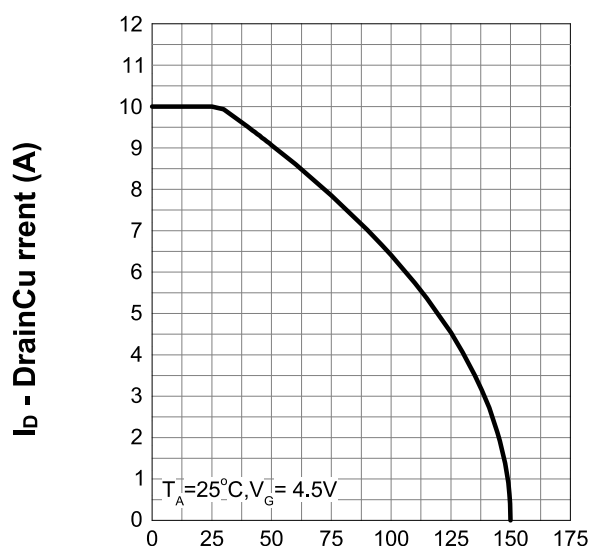
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0 V, I _{DS} =250 μA	18	-	-	V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250 μA	0.5	-	1.0	V
I _{DSS}	Drain Leakage Current	V _{DS} =12 V, V _{GS} =0 V	-	-	1	μA
		T _J =85°C	-	-	30	μA
I _{GSS}	Gate Leakage Current	V _{GS} =±10 V, V _{DS} =0 V	-	-	±100	nA
R _{DS(ON)}	On-State Resistance	V _{GS} =4.5 V, I _{DS} =8 A	-	10	13	mΩ
		V _{GS} =2.5 V, I _{DS} =5 A	-	14	15	
Diode Characteristics						
V _{SD}	Diode Forward Voltage	I _{SD} =8 A, V _{GS} =0 V	-	-	1.2	V
Dynamic Characteristics						
C _{iSS}	Input Capacitance	V _{GS} =0 V, V _{DS} =10 V, Frequency=1 MHz	-	963	-	pF
C _{oSS}	Output Capacitance		-	301	-	
C _{rSS}	Reverse Transfer Capacitance		-	284	-	
t _{d(on)}	Turn-on Delay Time	V _{DS} =7.5 V, V _{GEN} =4.5 V, R _G =4.5 Ω, R _L =0.93 Ω, I _{DS} =8 A	-	0.1	-	ns
t _r	Turn-on Rise Time		-	0.03	-	
t _{d(off)}	Turn-off Delay Time		-	0.03	-	
t _f	Turn-off Fall Time		-	5.3	-	
Gate Charge Characteristics						
Q _g	Total Gate Charge	V _{DS} =7.5 V, V _{GS} =10 V, I _{DS} =8 A	-	22.6	-	nC
Q _{gs}	Gate-Source Charge		-	2.7	-	
Q _{gd}	Gate-Drain Charge		-	3.9	-	

7. Typical Characteristics

Power Capability



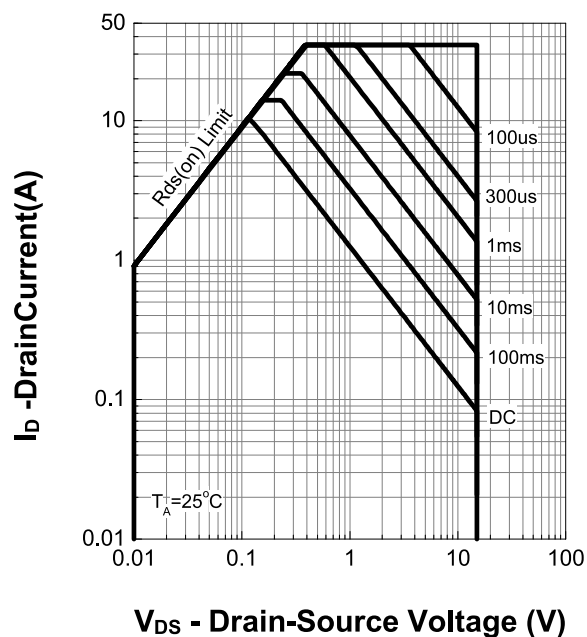
Current Capability



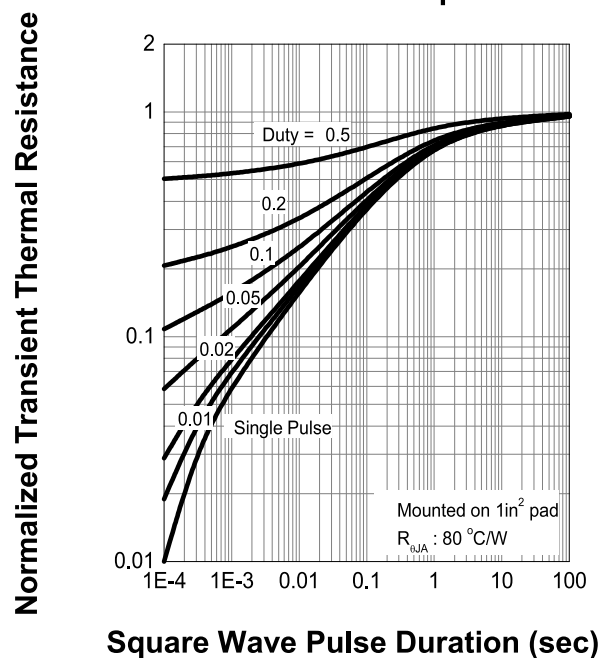
T_J - Junction Temperature(°C)

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Safe Operation Area

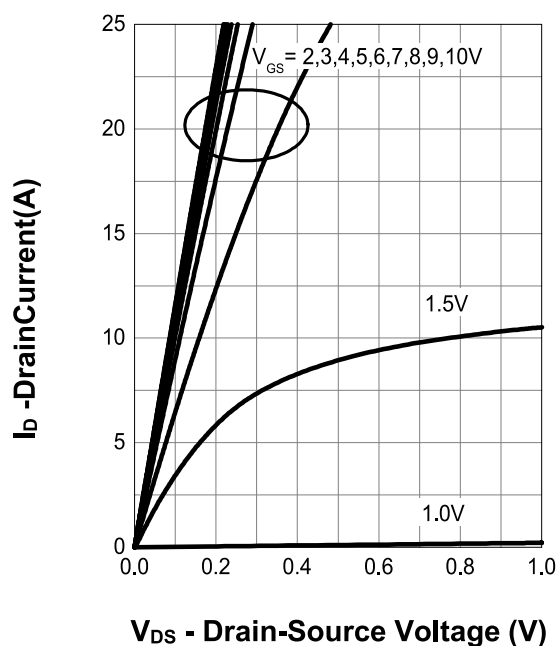


Transient Thermal Impedance

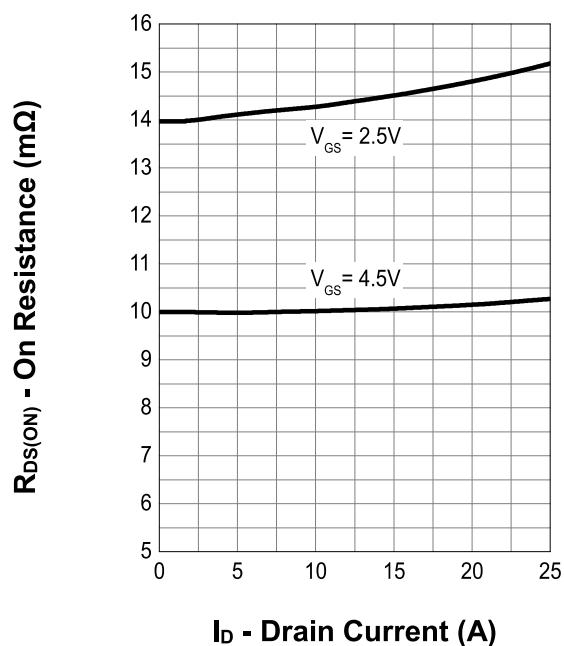


7. Typical Characteristics (cont.)

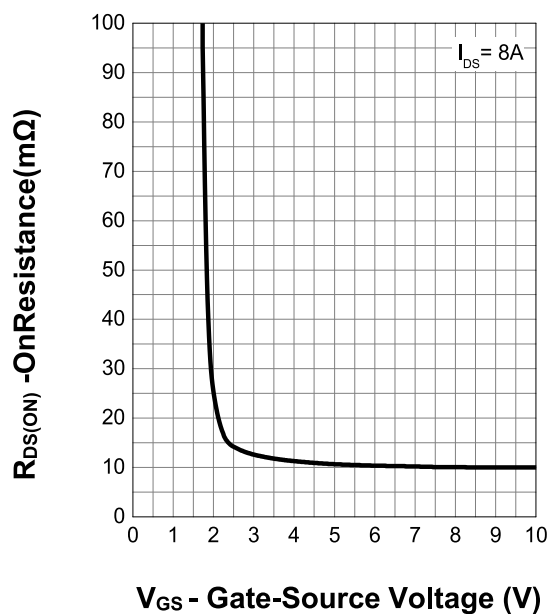
Output Characteristics



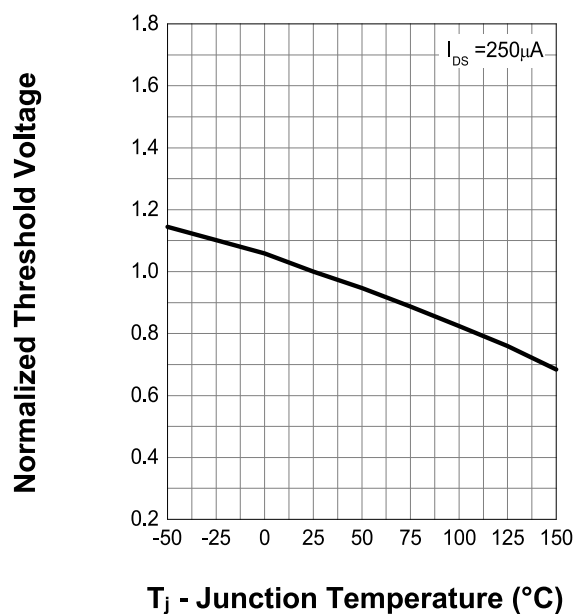
On Resistance



Transfer Characteristics

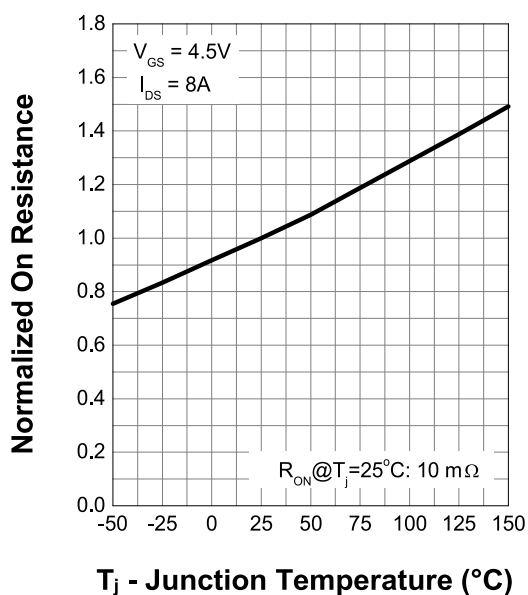


Normalized Threshold Voltage

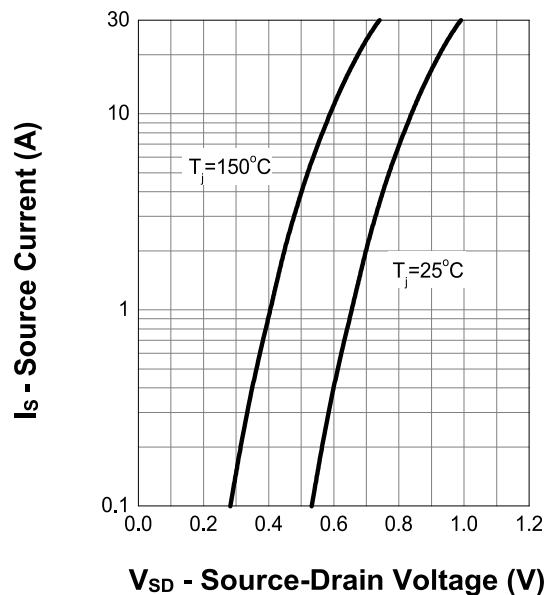


7. Typical Characteristics (cont.)

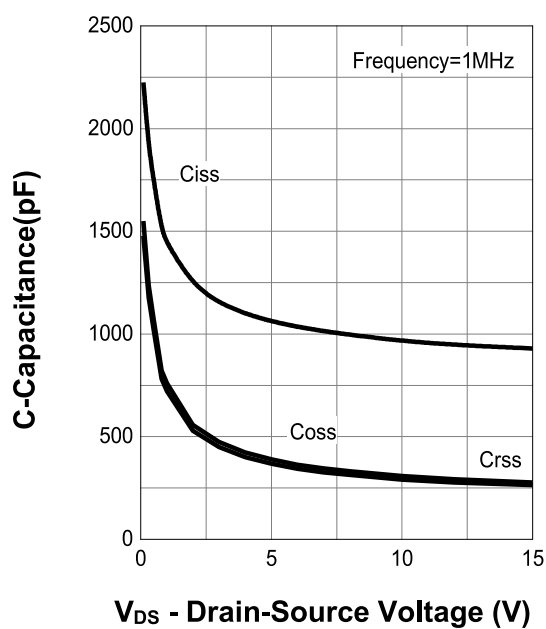
Normalized On Resistance



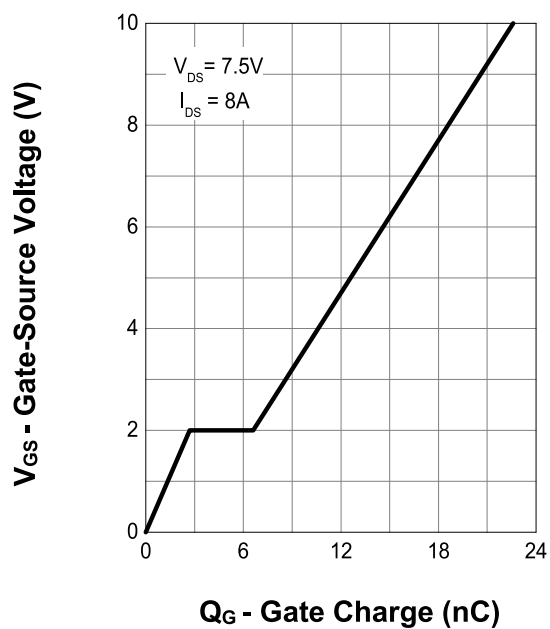
Diode Forward Current



Capacitance

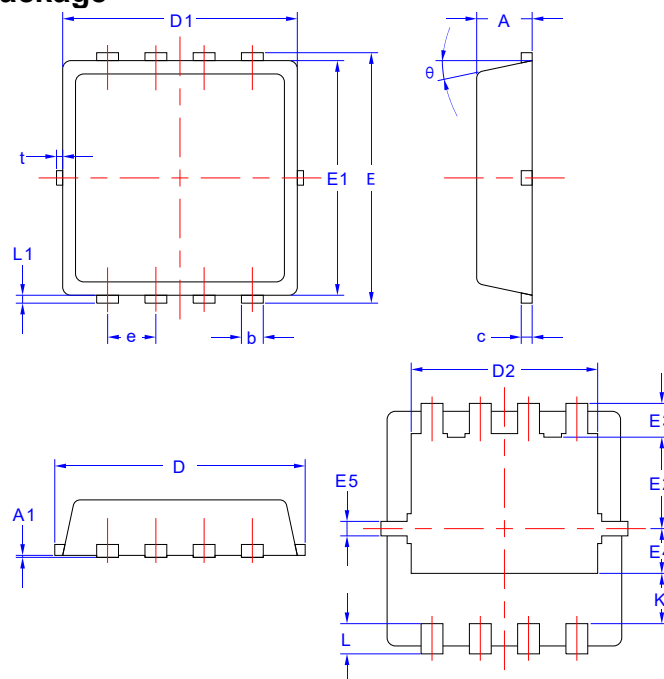


Gate Charge



8. Package Dimensions

PDFN 3.3x3.3-8L Package



Symbol	Dimensions in Millimeters	
	MIN	MAX
A	0.70	0.85
A1	/	0.05
b	0.20	0.40
c	0.10	0.25
D	3.15	3.45
D1	3.00	3.25
D2	2.29	2.65
E	3.15	3.45
E1	2.90	3.20
E2	1.54	1.94
E3	0.28	0.68
E4	0.37	0.77
E5	0.10	0.30
e	0.60	0.70
K	0.59	0.89
L	0.30	0.50
L1	0.06	0.20
t	0.00	0.13
θ	/	12°