

Dual N-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

- ☒ Surface-mounted package
- ☒ Advanced trench cell design
- ☒ ESD $\geq 2\text{KV}$

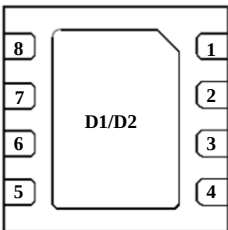
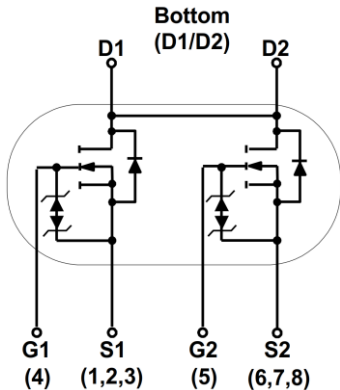
1.2 Applications

- ☒ MB and NB
- ☒ Motor drivers
- ☒ Half – bridge Drivers

1.3 Quick reference

- ☒ $BV \geq 18\text{ V}$
- ☒ $P_{\text{tot}} \leq 25\text{ W}$
- ☒ $I_D \leq 58\text{ A}$
- ☒ $R_{\text{DS(ON)}} \leq 3.5\text{ m}\Omega @ V_{\text{GS}} = 4.5\text{ V}$
- $R_{\text{DS(ON)}} \leq 5.5\text{ m}\Omega @ V_{\text{GS}} = 2.5\text{ V}$

2. Pin Description

Pin	Description	Simplified Outline	Symbol
1,2,3	Source(S1)	 Bottom View DFN 3x3-8L	 Bottom (D1/D2)
4	Gate(G1)		
5	Gate(G2)		
6,7,8	Source(S2)		

3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	$T_C=25^{\circ}\text{C}$	18	-	V
V_{GS}	Gate-Source Voltage	$T_C=25^{\circ}\text{C}$	-	± 10	V
$I_D^{*, **, ***}$	Drain Current	$T_C=25^{\circ}\text{C}, V_{GS}=10\text{ V}$	-	58	A
		$T_C=100^{\circ}\text{C}, V_{GS}=10\text{ V}$	-	45	A
$I_{DM}^{*, **, ***}$	Pulsed Source Current	$T_C=25^{\circ}\text{C}, V_{GS}=10\text{ V}$	-	174	A
P_{tot}^{*}	Total Power Dissipation	$T_C=25^{\circ}\text{C}$	-	25	W
E_{AS}	Single Pulsed Avalanche Energy	$V_{DD}=10\text{ V}, L=0.5\text{ mH}$	-	56	mJ
T_J, T_{stg}	Operating Junction and Storage Temperature Range		-55	150	$^{\circ}\text{C}$
$R_{\theta JA}^{*}$	Thermal Resistance, Junction to Ambient		-	62	$^{\circ}\text{C/W}$
$R_{\theta JC}$	Thermal Resistance, Junction to Case		-	5	

Notes:

* Surface mounted on 1 in² pad area, $t \leq 10\text{ sec.}$

** Pulse width $\leq 10\text{ }\mu\text{s}$, duty cycle $\leq 1\%$.

*** Limited by bonding wire.

4. Marking Information

Product Name	Marking
KJ3323Q	3323Q XXXXXX

5. Ordering Code

Product Name	Package	Reel size	Tape width	Quantity (pcs)
KJ3323Q	DFN 3x3-8L	7"	12 mm	3000
		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)

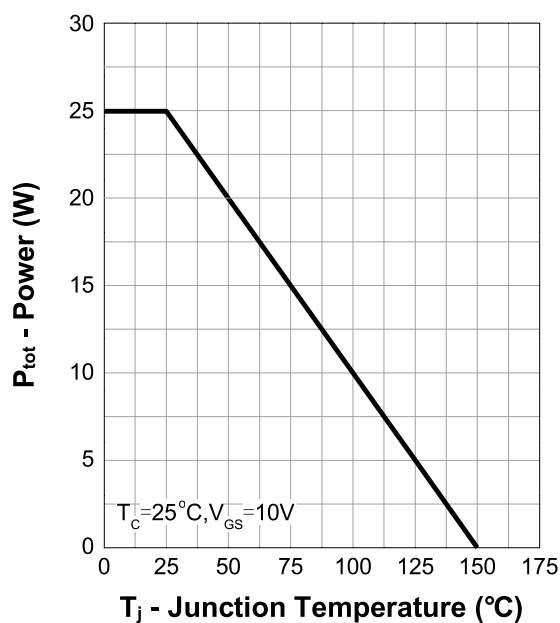
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0 V, I _D =250 μA	18	-	-	V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250 μA	0.5	-	1.0	V
I _{DSS}	Zero Gate Voltage Source Current	V _{DS} =10 V, V _{GS} =0 V	-	-	1	μA
I _{GSS}	Gate Leakage Current	V _{GS} =±10 V, V _{DS} =0 V	-	-	± 10	μA
R _{DS(ON)} ^a	Drain-Source On-State Resistance	V _{GS} =4.5 V, I _D =8 A	-	2.9	3.3	mΩ
		V _{GS} =2.5 V, I _D =6 A	-	4.2	5.5	
Diode Characteristics						
V _{SD} ^a	Diode Forward Voltage	I _{SD} =1 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	-	2590	-	pF
C _{oSS}	Output Capacitance		-	590	-	
C _{rSS}	Reverse Transfer Capacitance		-	570	-	
t _{d(on)}	Turn-on Delay Time	V _{DS} =10 V, V _{GEN} =4.5 V, R _G =3 Ω, R _L =0.5 Ω, I _D =2 A	-	16	-	ns
t _r	Turn-on Rise Time		-	38	-	
t _{d(off)}	Turn-off Delay Time		-	55	-	
t _f	Turn-off Fall Time		-	11	-	
Gate Charge Characteristics ^b						
Q _g	Total Gate Charge	V _{GS} =4.5 V, V _{DS} =10 V, I _{DS} =8 A	-	39	-	nC
Q _{gs}	Gate-Source Charge		-	6.5	-	
Q _{gd}	Gate-Drain Charge		-	14	-	

Notes:

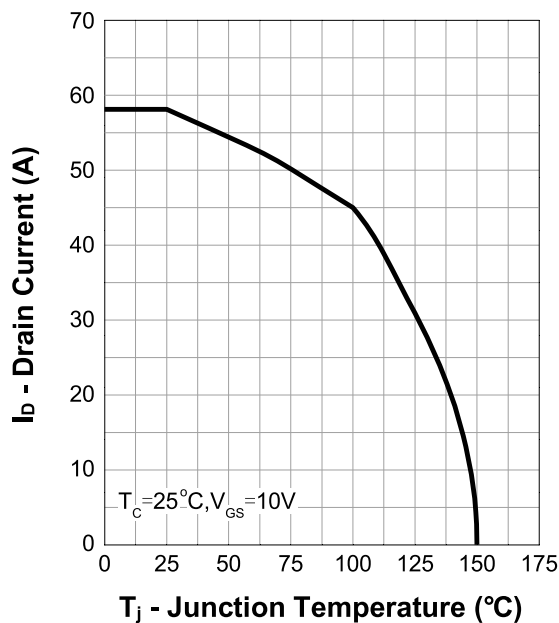
- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
 b. Guaranteed by design, not subject to production testing.

7. Typical Characteristics

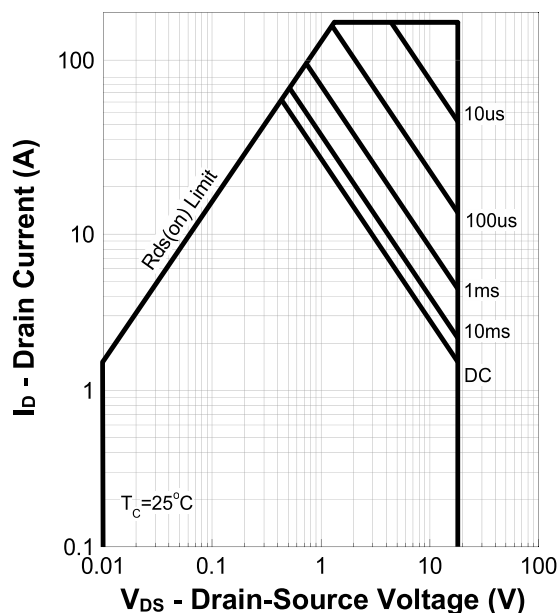
Power Capability



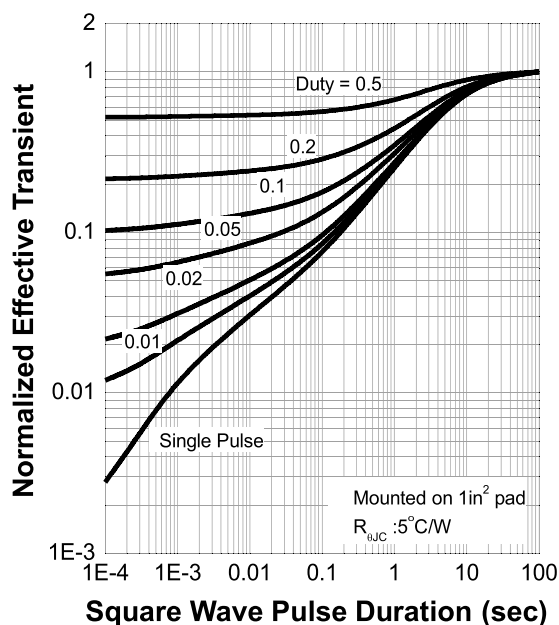
Current Capability



Safe Operation Area

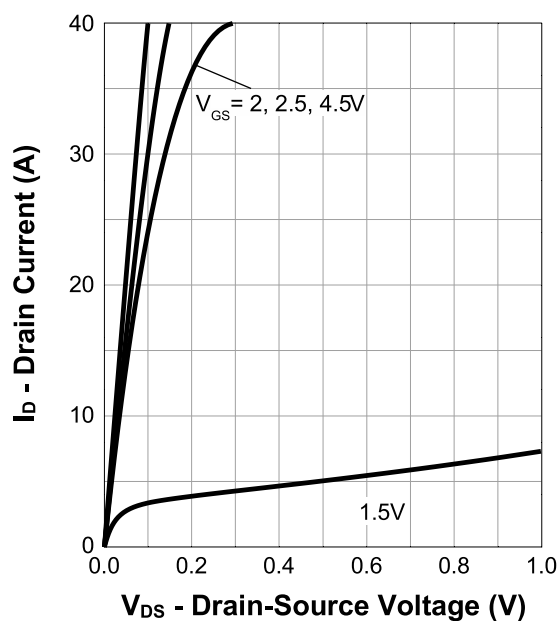


Transient Thermal Impedance

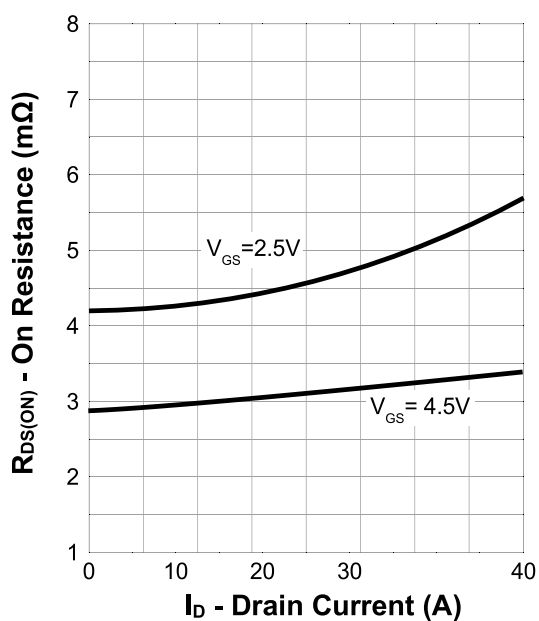


7. Typical Characteristics (cont.)

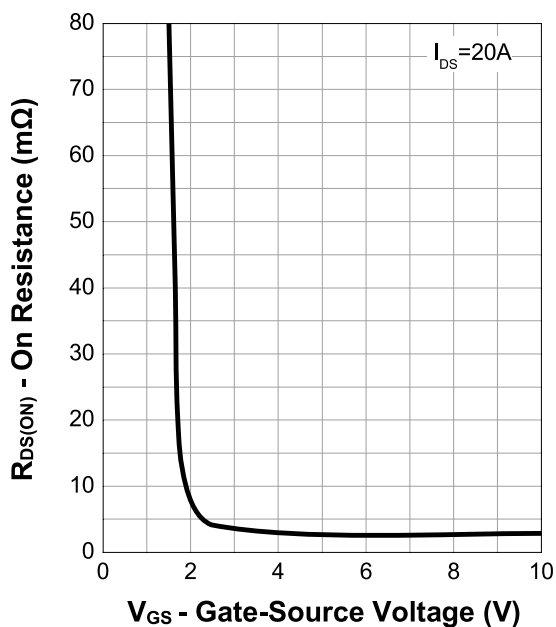
Output Characteristics



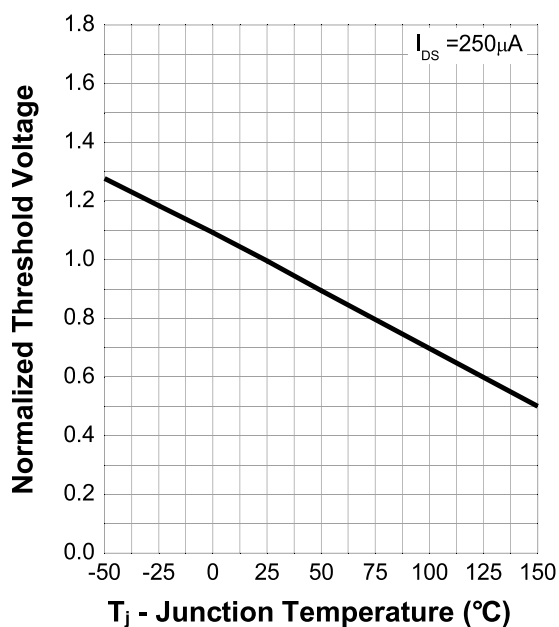
On Resistance



Transfer Characteristics

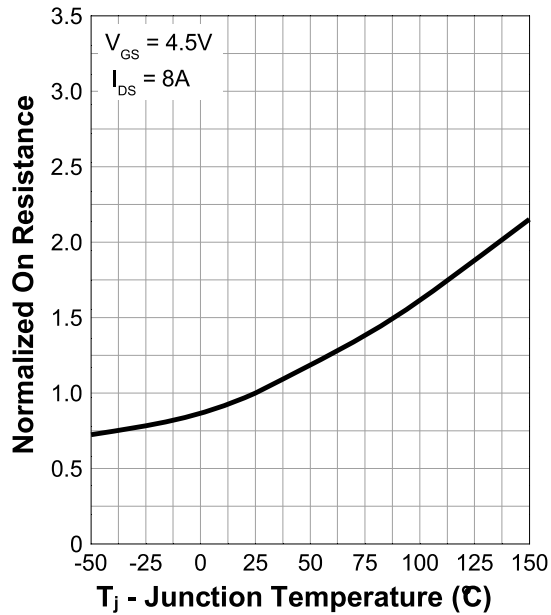


Normalized Threshold Voltage

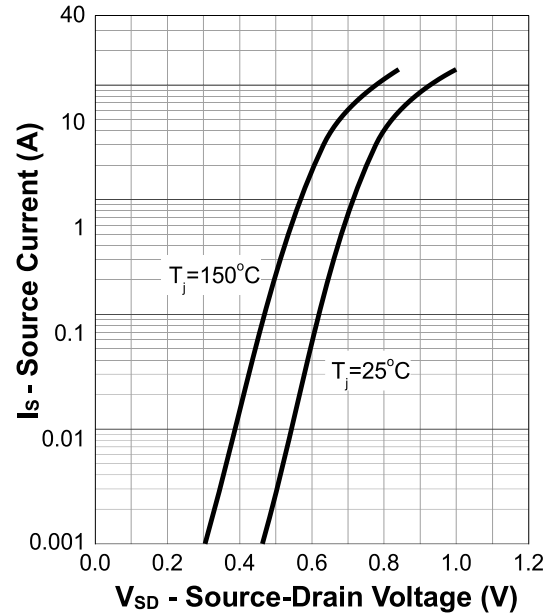


7. Typical Characteristics (cont.)

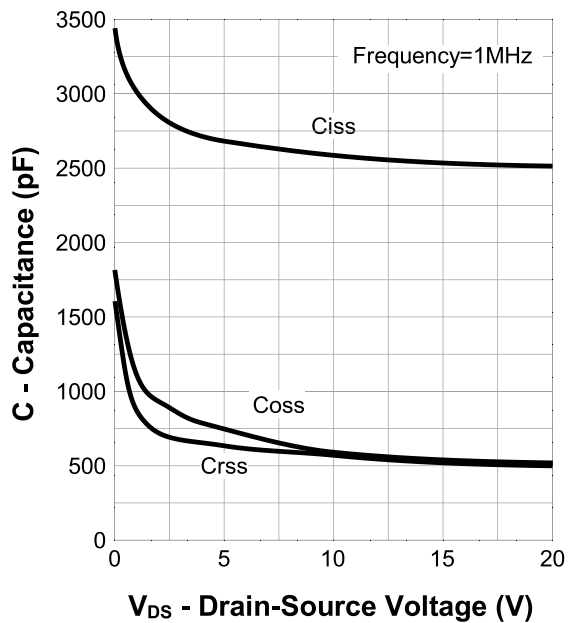
Normalized On Resistance



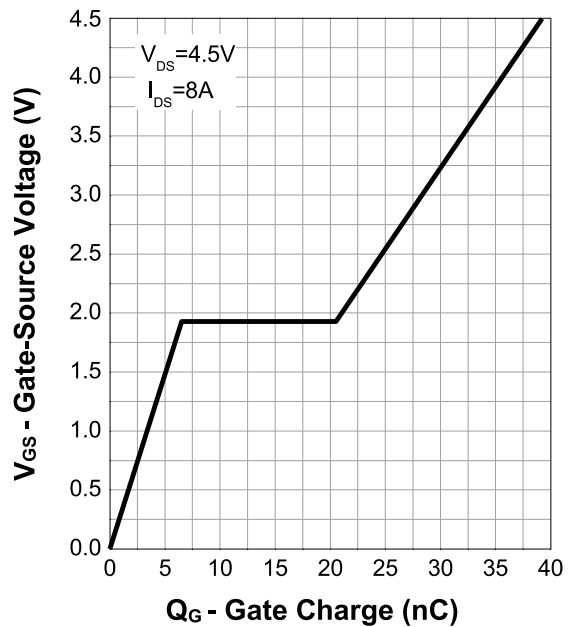
Diode Forward Current



Capacitance



Gate Charge



8. Package Dimensions

DFN 3x3-8L Package

