

Dual N-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

- CSP package
- Extremely low threshold voltage
- Advanced trench cell design
- ESD protected

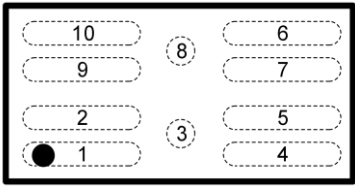
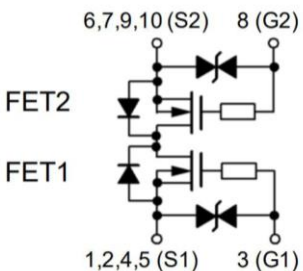
1.2 Applications

- Portable appliances
- Battery management

1.3 Quick reference

- $BV \geq 12\text{ V}$
- $R_{DS(ON)} \leq 2.4\text{ m}\Omega @V_{GS} = 4.5\text{ V}$
- $P_{tot} \leq 3.2\text{ W}$
- $R_{DS(ON)} \leq 2.6\text{ m}\Omega @V_{GS} = 3.8\text{ V}$
- $I_s \leq 30\text{ A}$
- $R_{DS(ON)} \leq 2.8\text{ m}\Omega @V_{GS} = 3.1\text{ V}$
- $R_{DS(ON)} \leq 3.4\text{ m}\Omega @V_{GS} = 2.5\text{ V}$

2. Pin Description

Pin	Description	Simplified Outline	Symbol
1,2,4,5	Source (S1)		
3	Gate (G1)		
6,7,9,10	Source (S2)		
8	Gate (G2)		

Top View
CSP 2.98x1.49

3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V _{SS}	Source-Source Voltage	T _A =25°C	12	-	V
V _{GS}	Gate-Source Voltage	T _A =25°C	-	±8	V
I _S *	Source Current	T _A =25°C, V _{GS} =4.5 V	-	30	A
I _{SM} **, **	Pulsed Source Current	T _A =25°C, V _{GS} =4.5 V	-	120	A
P _D *	Power Dissipation	T _A =25°C	-	3.2	W
T _J , T _{stg}	Operating Junction and Storage Temperature Range		-55	150	°C
R _{θJA} *	Maximum Junction to Ambient, t ≤ 10 sec		-	30	°C/W
	Maximum Junction to Ambient, Steady-State		-	40	°C/W

Notes:

* Surface Mounted on 1 in² pad area, t ≤ 10 sec.

** Pulse width ≤ 10 μs, duty cycle ≤ 1%.

4. Marking Information

Product Name	Marking
KJ605C	21490

5. Ordering Code

Product Name	Package	Reel size	Tape width	Quantity (pcs)
KJ605C	CSP 2.98×1.49	7"	8 mm	8000

Note: KUIJIEXIN 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 _{SSS}	Source-Source Breakdown Voltage	V _{GS} =0 V, I _S =250 μA	12	-	-	V
I _{SSS}	Zero Gate Voltage Source Current	V _{SS} =12 V, V _{GS} =0 V	-	-	1	μA
		T _J =55°C	-	-	5	μA
I _{GSS}	Gate Leakage Current	V _{GS} =±8 V, V _{SS} =0 V	-	-	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{SS} =V _{GS} , I _S =250 μA	0.4	0.9	1.5	V
R _{SS(ON)} ^a	Source-Source On-State Resistance	V _{GS} =4.5 V, I _S =6 A	1.5	1.95	2.4	mΩ
		V _{GS} =3.8 V, I _S =6 A	1.6	2.1	2.6	
		V _{GS} =3.1 V, I _S =6 A	1.8	2.3	2.8	
		V _{GS} =2.5 V, I _S =6 A	2.2	2.8	3.4	
g _{FS}	Forward Transconductance	V _{SS} =5 V, I _S =5 A	-	38	-	S
V _{FSS}	Forward Source to Source Voltage	I _S =1 A, V _{GS} =0 V	-	-	1.0	V
Dynamic Characteristics^b						
C _{iss}	Input Capacitance	V _{GS} =0 V, V _{SS} =10 V, Frequency=1 MHz	-	4250	-	pF
C _{oss}	Output Capacitance		-	460	-	
C _{rss}	Reverse Transfer Capacitance		-	122	-	
Switching Characteristics^b						
Q _g	Total Gate Charge	V _{GS} =4.5 V, V _{SS} =6 V, I _S =6 A	-	35	-	nC
Q _{gs}	Gate Source Charge		-	7	-	
Q _{gd}	Gate Drain Charge		-	5	-	
t _{d(on)}	Turn-on Delay Time	V _{SS} =6 V, V _{GS1} = 4.5 V, R _G =3 Ω, R _L =1 Ω, I _S =6 A	-	0.92	-	ns
t _r	Turn-on Rise Time		-	1.3	-	
t _{d(off)}	Turn-off Delay Time		-	2.85	-	
t _f	Turn-off Fall Time		-	3.5	-	

Notes:

a. Pulse test; pulse width ≤ 10 μs, duty cycle ≤ 1%.

b. Guaranteed by design, not subject to production testing.

7. Typical Characteristics

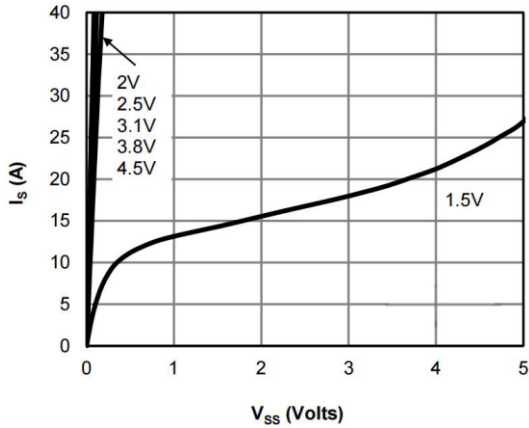


Figure 1. On-Region Characteristics

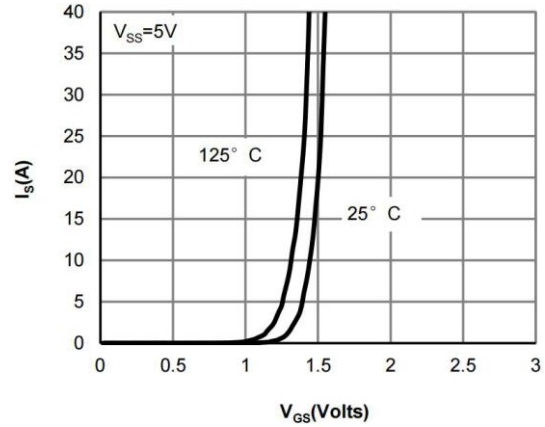


Figure 2. Transfer Characteristics

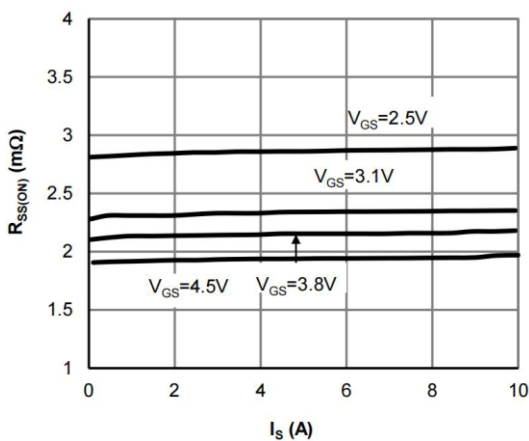


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

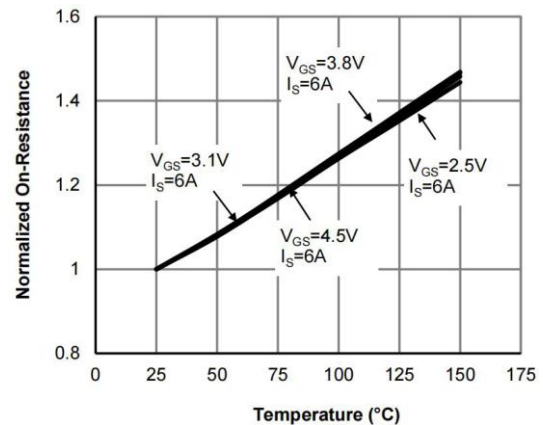


Figure 4. On-Resistance vs. Junction Temperature

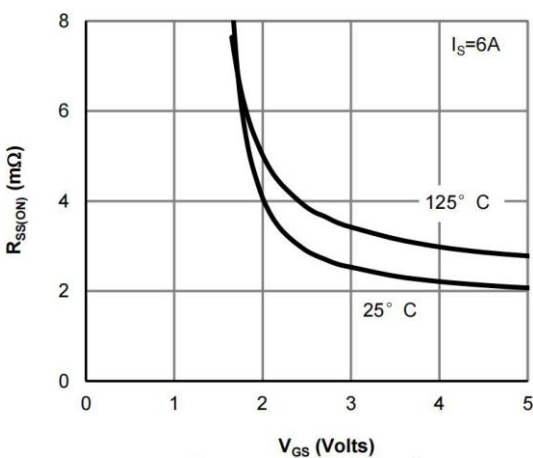


Figure 5. On-Resistance vs. Gate-Source Voltage

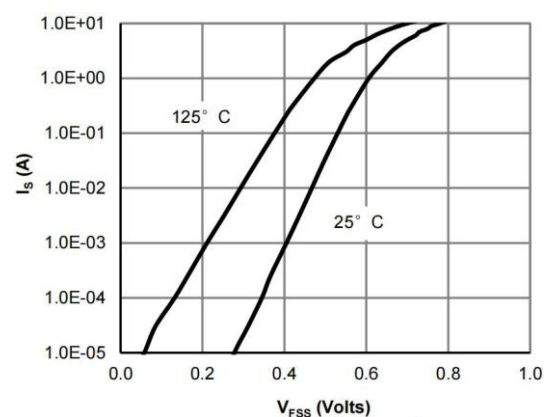


Figure 6. Forward Source to Source Characteristics

7. Typical Characteristics (cont.)

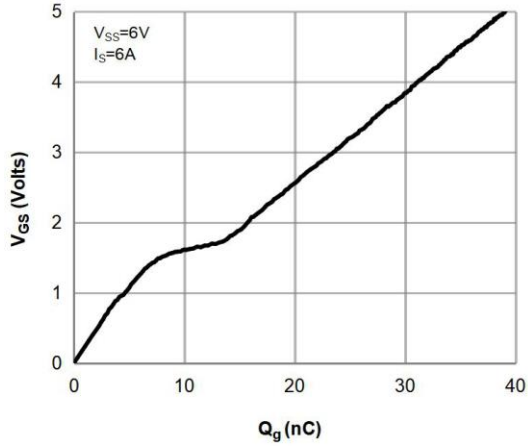


Figure 7. Gate-Charge Characteristics

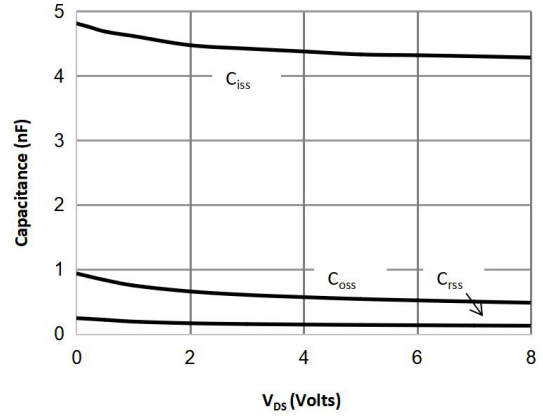


Figure 8. Capacitance Characteristics

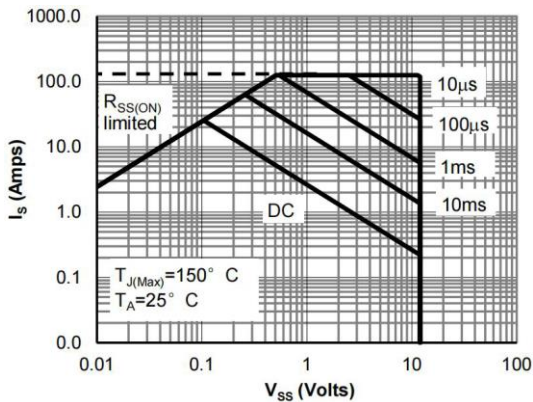


Figure 9. Maximum Forward Biased Safe Operating Area

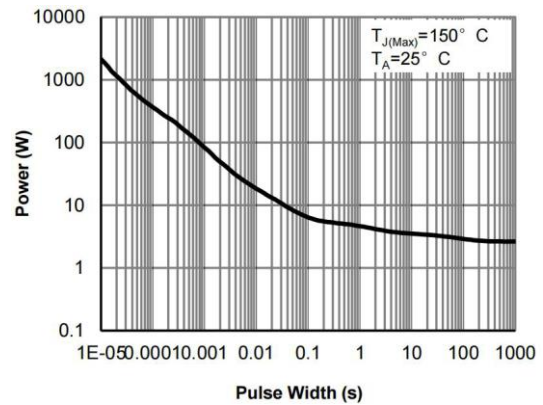
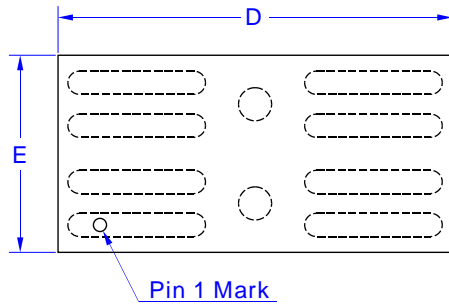


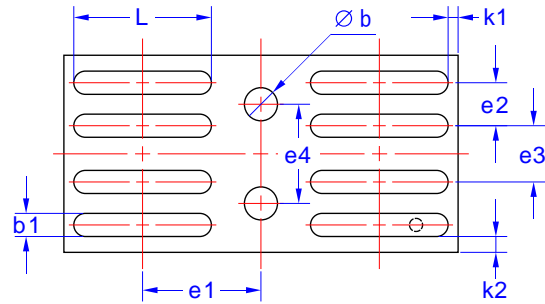
Figure 10. Single Pulse Power Rating Junction to Ambient

8. Package Dimensions

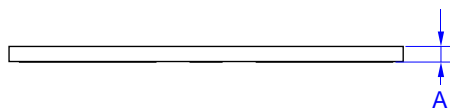
- CSP 2.98x1.49 Package



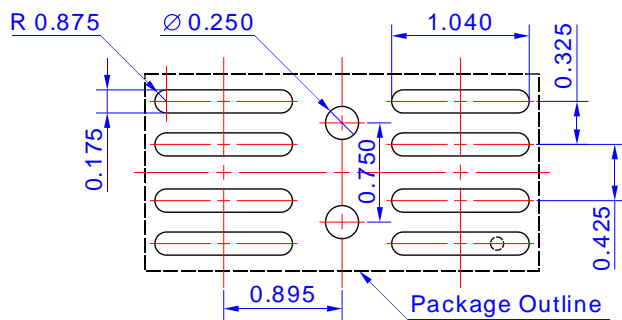
Top View



Bottom View



Side View



Unit: mm

Soldering Footprint

Symbol	Dimensions in Millimeters		
	MIN.	NOM.	MAX.
A	0.084	0.114	0.144
D	2.950	2.980	3.010
E	1.460	1.490	1.520
b	0.220	0.250	0.280
b1	0.145	0.175	0.205
e1	0.895 BSC.		
e2	0.325 BSC.		
e3	0.425 BSC.		
e4	0.750 BSC.		
L	1.010	1.040	1.070
k1		0.075	
k2		0.120	