

N-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

- ☒ Surface-mounted package
- ☒ Advanced trench cell design

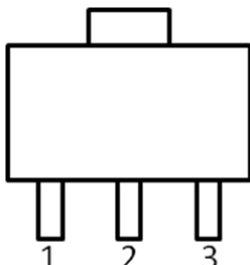
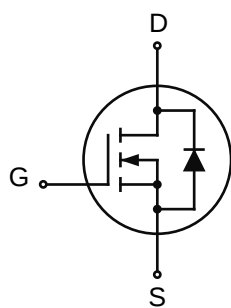
1.2 Applications

- ☒ LCD TV appliances
- ☒ LCDM appliances
- ☒ High power inverter system

1.3 Quick reference

- ☒ $BV \geq 60\text{ V}$
- ☒ $P_{tot} \leq 15\text{ W}$
- ☒ $I_D \leq 10\text{ A}$
- ☒ $R_{DS(ON)} \leq 50\text{ m}\Omega @ V_{GS} = 10\text{ V}$
- ☒ $R_{DS(ON)} \leq 58\text{ m}\Omega @ V_{GS} = 4.5\text{ V}$

2. Pin Description

Pin	Description	Simplified Outline	Symbol
1	Gate(G)	 Top View SOT89	
2	Drain(D)		
3	Source(S)		

3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V _{DS}	Drain-Source Voltage	T _C = 25 °C	60	-	V
V _{GS}	Gate-Source Voltage	T _C = 25 °C	-	±20	V
I _D ^{***}	Drain Current	T _C = 25 °C, V _{GS} = 10 V	-	10	A
		T _C = 100 °C, V _{GS} = 10 V	-	8	A
I _{DM} ^{*,***}	Drain Current (Pulsed)	T _C = 25 °C, V _{GS} = 10 V	-	20	A
P _{tot}	Drain power dissipation	T _C = 25 °C	-	35	W
T _{stg}	Storage Temperature		-55	150	°C
T _J	Junction Temperature		-	150	°C
I _S	Continuous-Source Current	T _C = 25 °C	-	20	A
R _{θJA} ^{**}	Thermal Resistance-Junction to Ambient		-	50	°C/W
R _{θJC} ^{**}	Thermal Resistance-Junction to Case		-	3.5	

Notes:

- * Pulse width ≤ 300 μs, duty cycle ≤ 2%
- ** Mounted on Large Heat Sink
- *** Limited by bonding wire

4. Marking Information

Product Name	Marking
KJ60N15QU	SN60N15Q YWWXXX YWW: Date Code

5. Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
KJ60N15QU	SOT89	-	-	1000	

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)

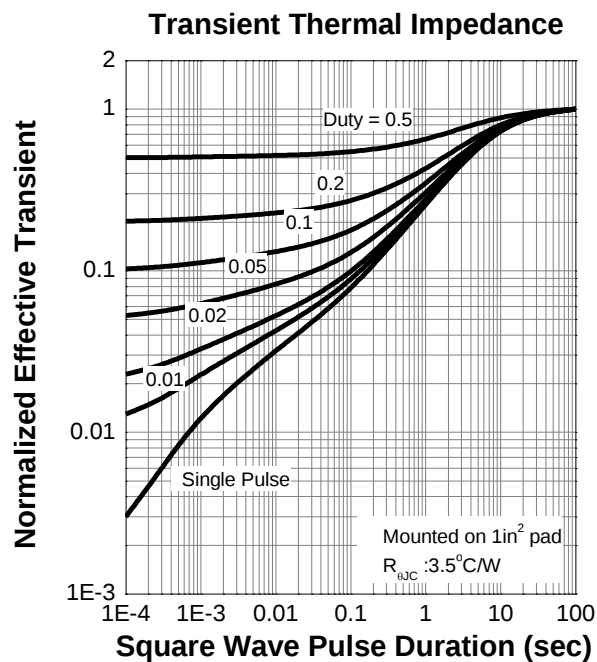
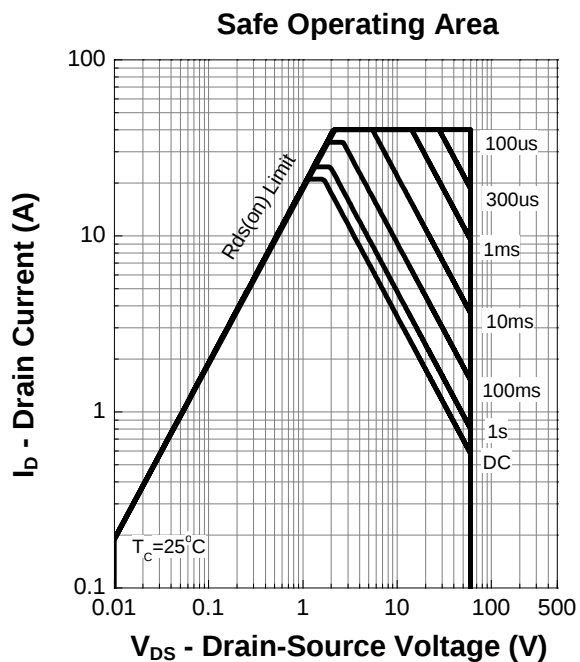
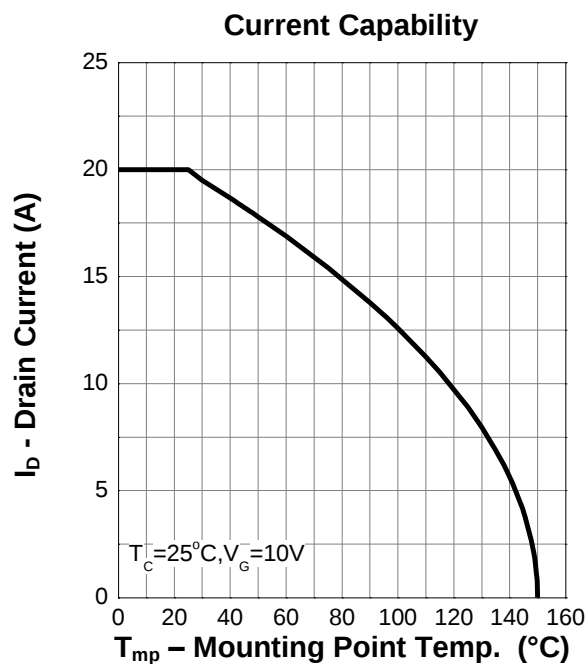
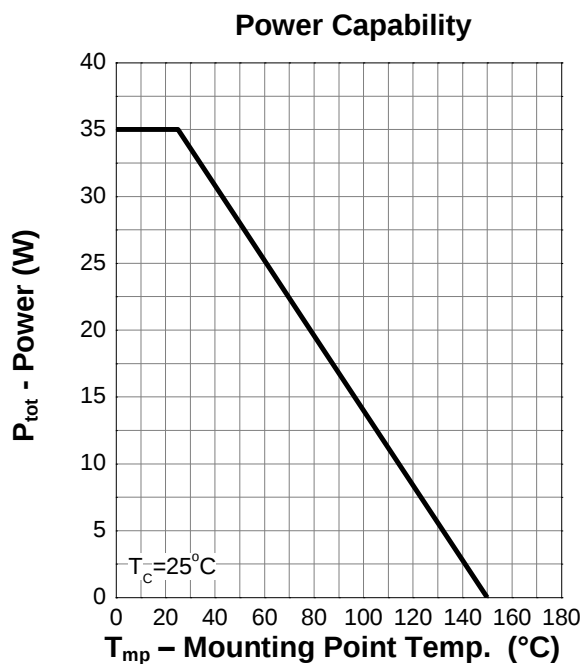
6. Electrical Characteristics (T_A=25°C Unless Otherwise Noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0 V, I _{DS} = 250 μA	60	-	-	V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _{DS} = 250 μA	1.0	-	2.0	V
I _{DSS}	Drain Leakage Current	V _{DS} = 48 V, V _{GS} = 0 V	-	-	1	μA
I _{GSS}	Gate Leakage Current	V _{GS} = 0 V, V _{GS} = ± 20 V	-	-	±100	nA
R _{DS(ON)} ^a	On-State Resistance	V _{GS} = 10 V, I _{DS} = 6 A	-	44	50	mΩ
		V _{GS} = 4.5 V, I _{DS} = 4 A	-	50	58	
Diode Characteristics						
V _{SD} ^a	Diode Forward Voltage	I _{SD} = 6 A, V _{GS} = 0 V	-	-	1.3	V
t _{rr}	Reverse Recovery Time	I _{DS} = 6 A, V _{GS} = 0 V dI _{SD} /dt = 100 A/μs	-	26	-	ns
Q _{rr}	Reverse Recovery Charge		-	2.8	-	μC
Dynamic Characteristics ^b						
C _{iss}	Input Capacitance	V _{GS} = 0 V, V _{DS} = 30 V Frequency = 1 MHz	-	651	-	pF
C _{oss}	Output Capacitance		-	28	-	
C _{rss}	Reverse Transfer Capacitance		-	26	-	
t _{d(on)}	Turn-on Delay Time	V _{DS} = 30 V, V _{GEN} = 10 V, R _G = 4.5 Ω, R _L = 5 Ω, I _{DS} = 6 A	-	5	-	ns
t _r	Turn-on Rise Time		-	21	-	
t _{d(off)}	Turn-off Delay Time		-	15	-	
t _f	Turn-off Fall Time		-	23	-	
Gate Charge Characteristics ^b						
Q _g	Total Gate Charge	V _{DS} = 30 V, V _{GS} = 10 V, I _{DS} = 6 A	-	12	-	nC
Q _{gs}	Gate-Source Charge		-	3	-	
Q _{gd}	Gate-Drain Charge		-	1.5	-	

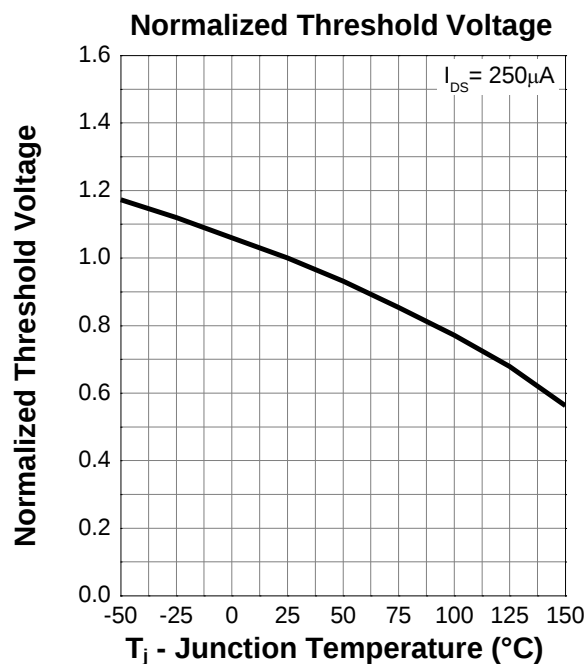
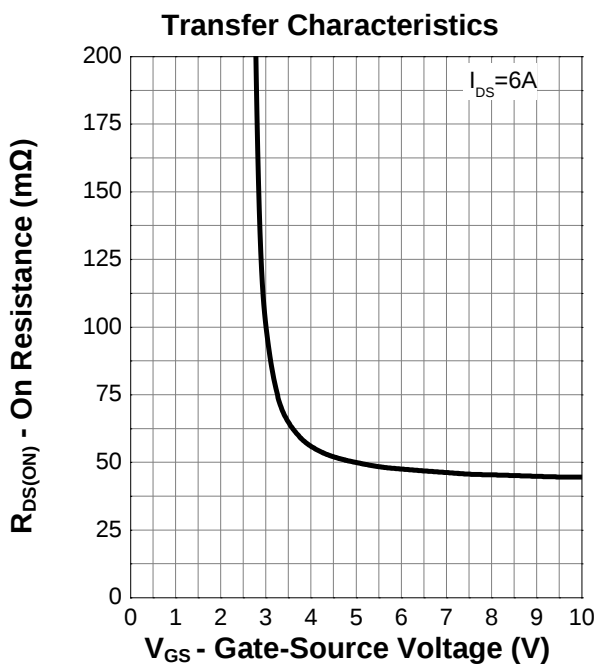
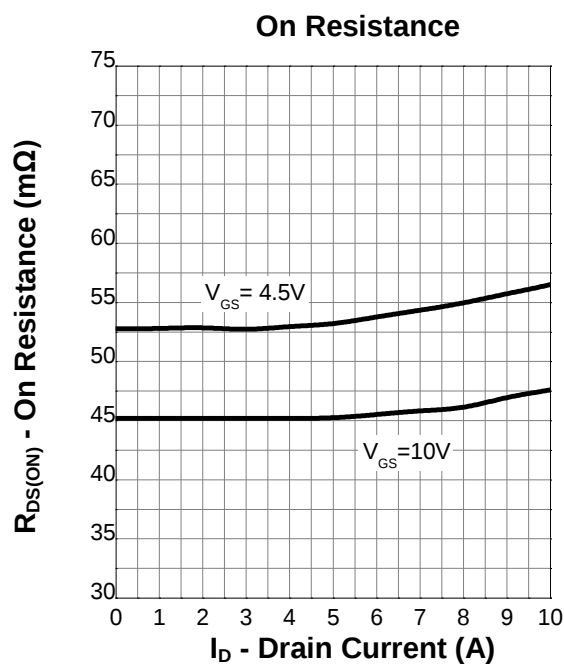
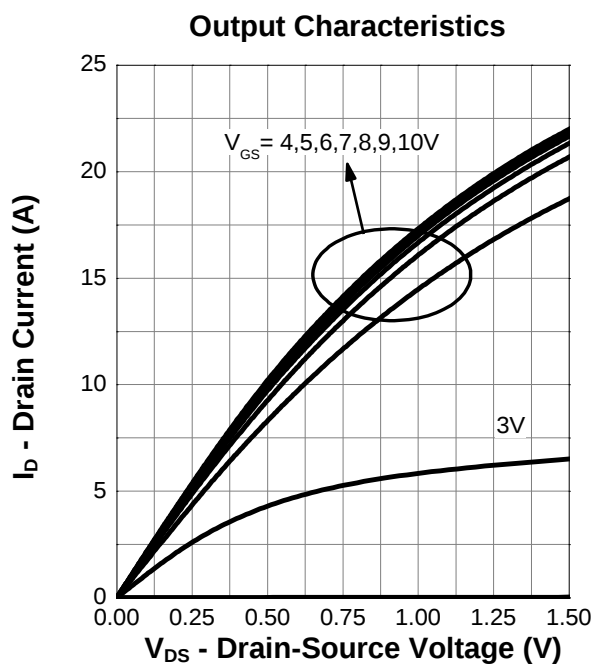
Notes :

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

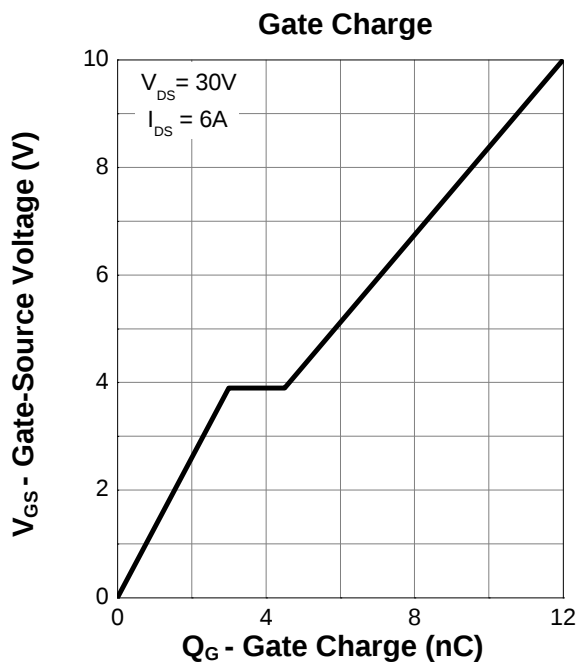
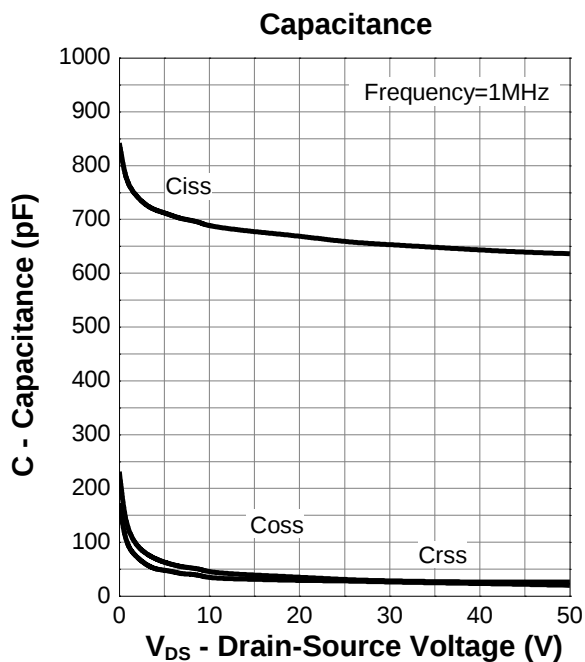
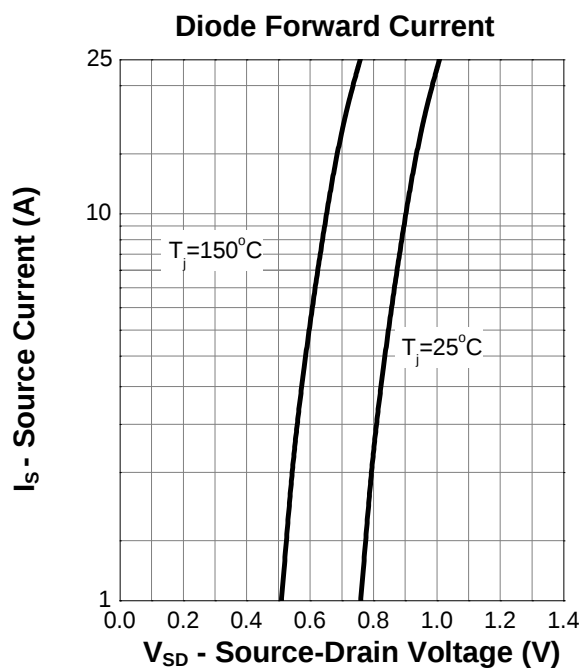
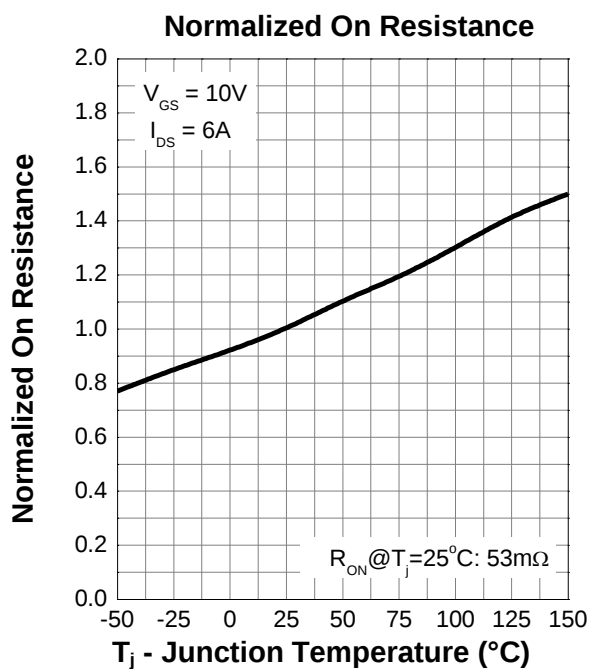
7. Typical Characteristics



7. Typical Characteristics (Cont.)

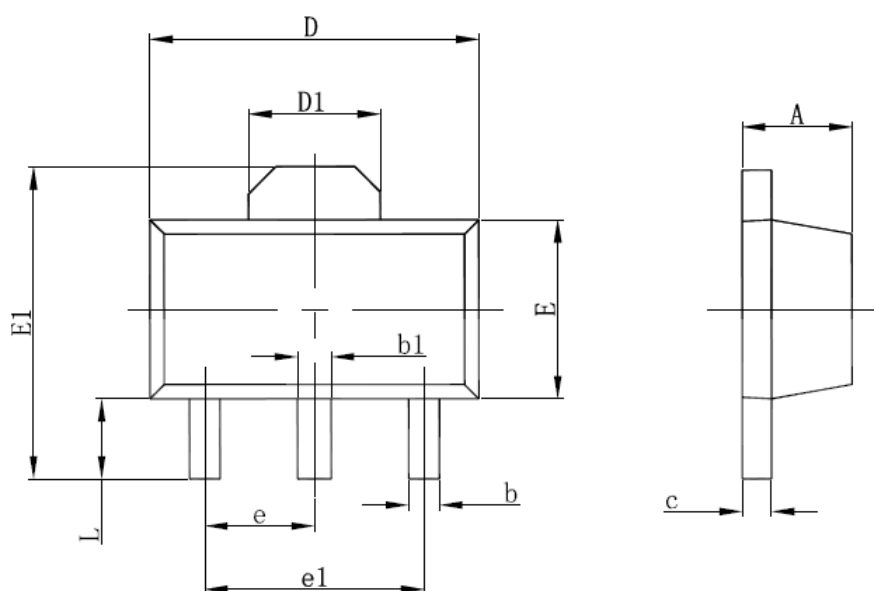


7. Typical Characteristics (Cont.)



8. Package Dimensions

SOT89 Package



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047