

N-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

- ☑ Surface-mounted package
- ☑ Extremely low threshold voltage
- ☑ Advanced trench cell design
- ☑ ESD protected

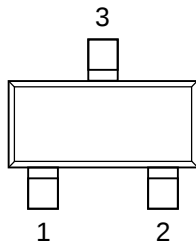
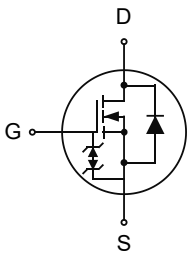
1.2 Applications

- ☑ Portable appliances
- ☑ Battery management
- ☑ High speed switch
- ☑ Low power DC to DC Converter

1.3 Quick reference

- ☑ $BV \geq 30V$
- ☑ $R_{DS(ON)} \leq 380m\Omega @ V_{GS} = 10V$
- ☑ $P_{tot} \leq 0.83W$
- ☑ $R_{DS(ON)} \leq 450m\Omega @ V_{GS} = 4.5V$
- ☑ $I_D \leq 1.05A$
- ☑ $R_{DS(ON)} \leq 750m\Omega @ V_{GS} = 2.5V$

2. Pin Description

Pin	Description	Simplified Outline	Symbol
1	Gate(G)	 Top View SOT23	
2	Source(S)		
3	Drain(D)		

3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	$T_A=25^{\circ}C$	30	-	V
V_{GS}	Gate-Source Voltage	$T_A=25^{\circ}C$	-	± 20	V
I_D^*	Drain Current (DC)	$T_A=25^{\circ}C, V_{GS}=10V$	-	1.05	A
I_D^*	Drain Current (DC)	$T_A=100^{\circ}C, V_{GS}=10V$	-	0.66	A
$I_{DM}^{*,**}$	Drain Current (Pulsed)	$T_A=25^{\circ}C, V_{GS}=10V$	-	4.2	A
P_{tot}	Total Power Dissipation	$T_A=25^{\circ}C$	-	0.83	W
T_{stg}	Storage Temperature		-55	150	$^{\circ}C$
T_J	Junction Temperature		-	150	$^{\circ}C$
I_S	Diode Forward Current	$T_A=25^{\circ}C$	-	1.05	A
$R_{\theta JA}^*$	Thermal Resistance-Junction to Ambient		-	150	$^{\circ}C/W$

Notes:

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

4. Marking Information

Product Name	Marking
KJ3001S	34K

5. Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
KJ3001S	SOT23	-	-	3000	

Note: KUAIJIEXIN 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)

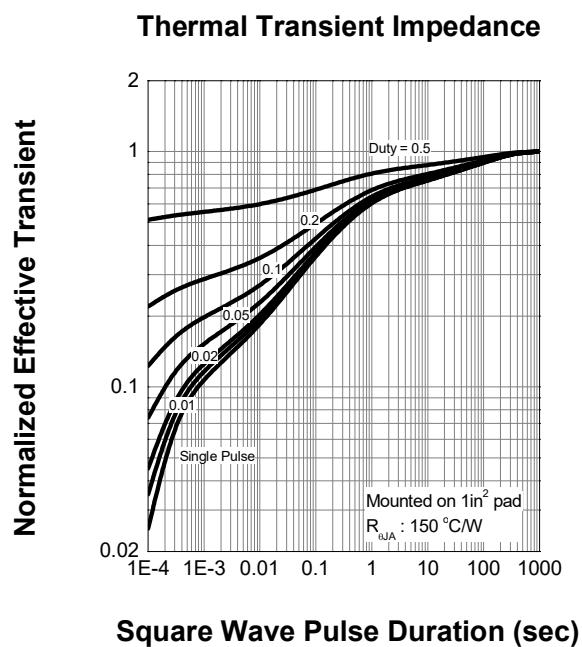
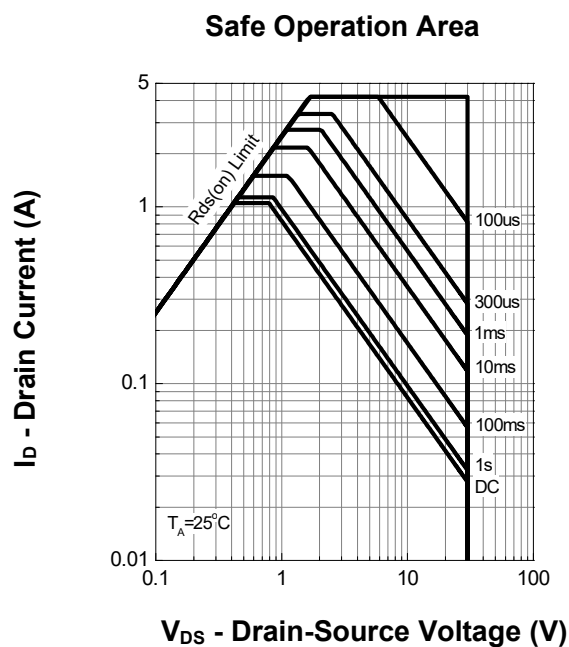
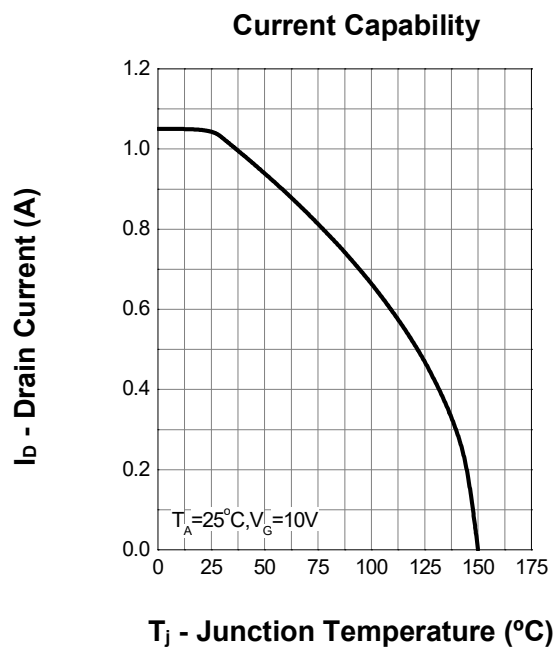
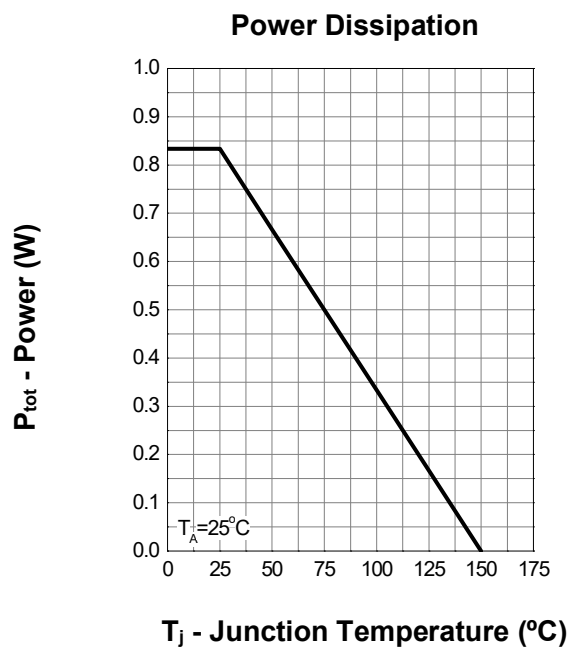
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	30	-	-	V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	0.5	-	1.5	V
I _{DSS}	Drain Leakage Current	V _{DS} =24V, V _{GS} =0V	-	-	1	uA
I _{GSS}	Gate Leakage Current	V _{GS} =±12V, V _{DS} =0V	-	-	±10	uA
R _{DS(ON)} ^a	On-State Resistance	V _{GS} =10V, I _{DS} =0.5A	-	330	380	mΩ
		V _{GS} =4.5V, I _{DS} =0.4A	-	400	450	
		V _{GS} =2.5V, I _{DS} =0.3A	-	623	750	
Diode Characteristics						
V _{SD} ^a	Diode Forward Voltage	I _{SD} =0.5A, V _{GS} =0V	-	-	1.3	V
Dynamic Characteristics ^b						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =15V Frequency=1MHz	-	62	-	pF
C _{oss}	Output Capacitance		-	14	-	
C _{rss}	Reverse Transfer Capacitance		-	7.2	-	
t _{d(on)}	Turn-on Delay Time	V _{DS} =15V, V _{GEN} =10V, R _G =3.9Ω, R _L =30Ω, I _{DS} =0.5A	-	2.5	-	ns
t _r	Turn-on Rise Time		-	1.9	-	
t _{d(off)}	Turn-off Delay Time		-	14	-	
t _f	Turn-off Fall Time		-	6.3	-	
Gate Charge Characteristics ^b						
Q _g	Total Gate Charge	V _{GS} =10V, V _{DS} =15V, I _{DS} =0.5A	-	1.78	-	nC
Q _{gs}	Gate-Source Charge		-	0.32	-	
Q _{gd}	Gate-Drain Charge		-	0.17	-	

Notes:

a: Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%

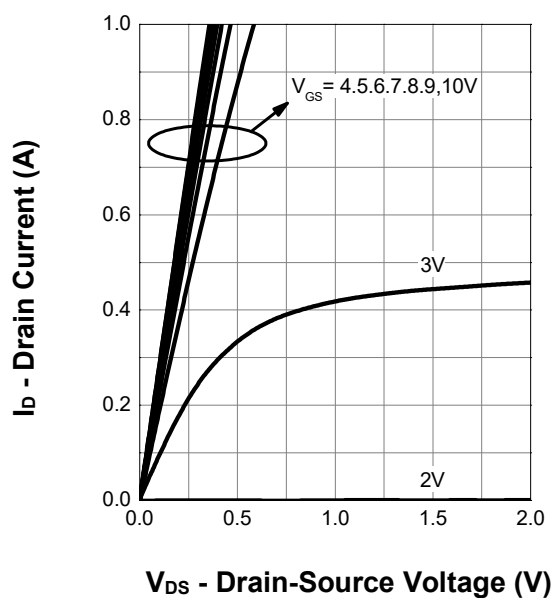
b: Guaranteed by design, not subject to production testing

7. Typical Characteristics

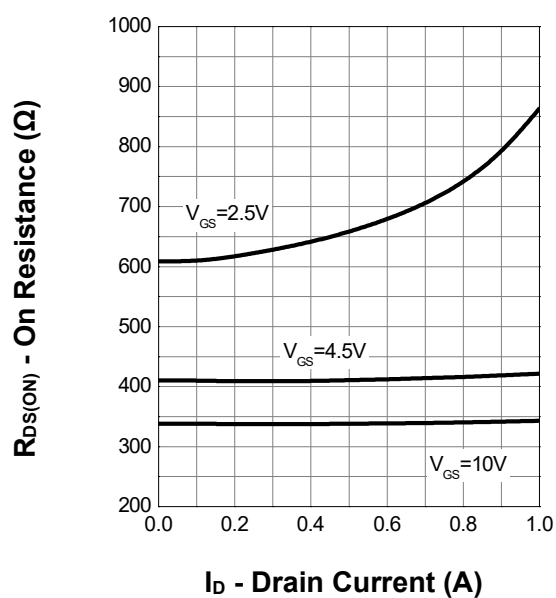


7. Typical Characteristics (cont.)

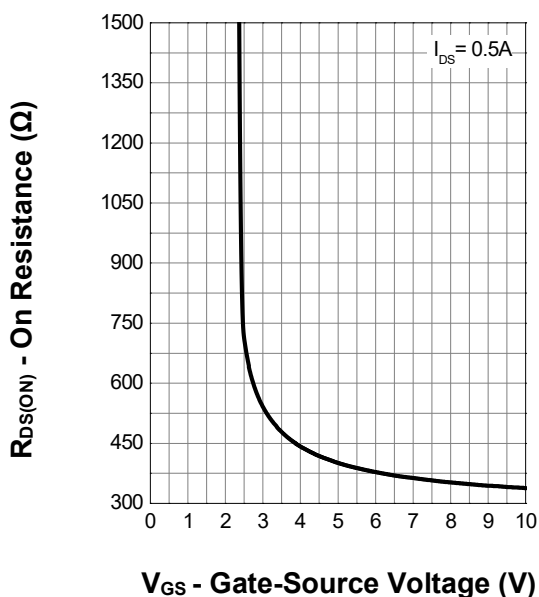
Output Characteristics



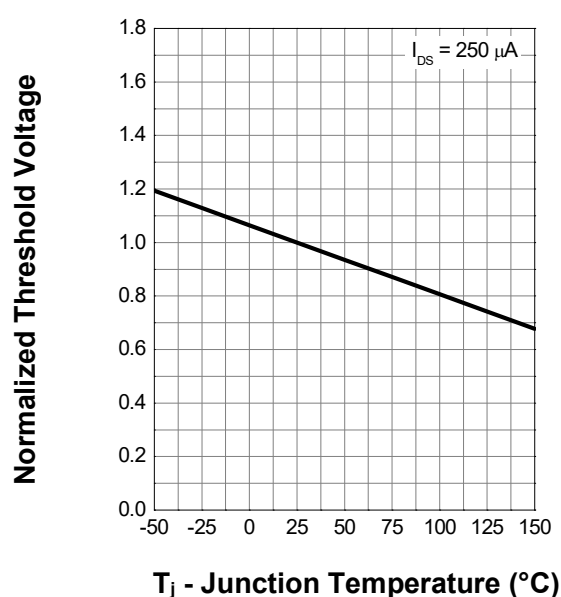
Drain-Source On Resistance



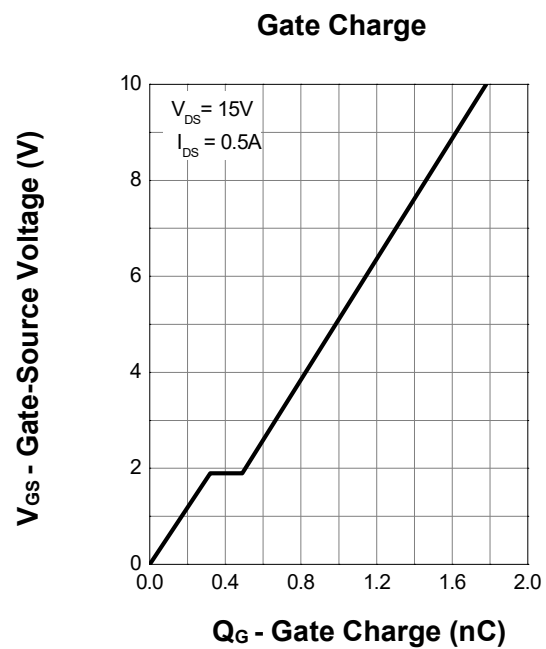
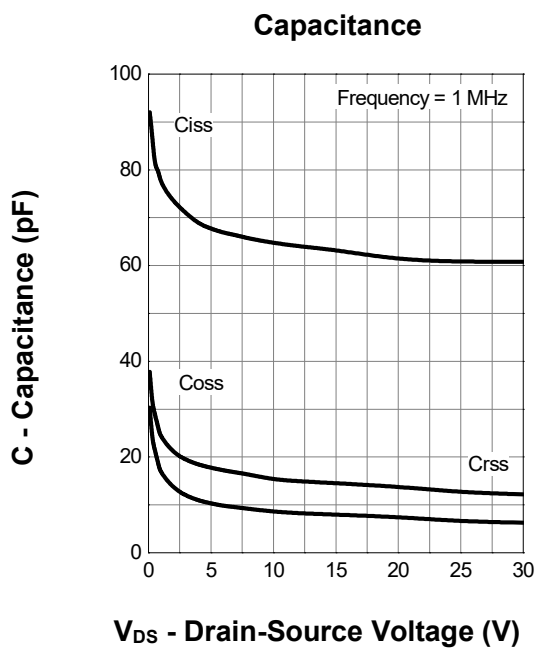
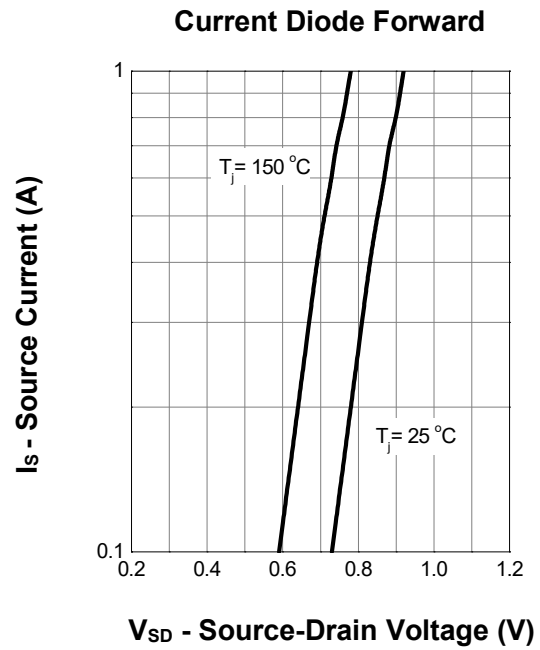
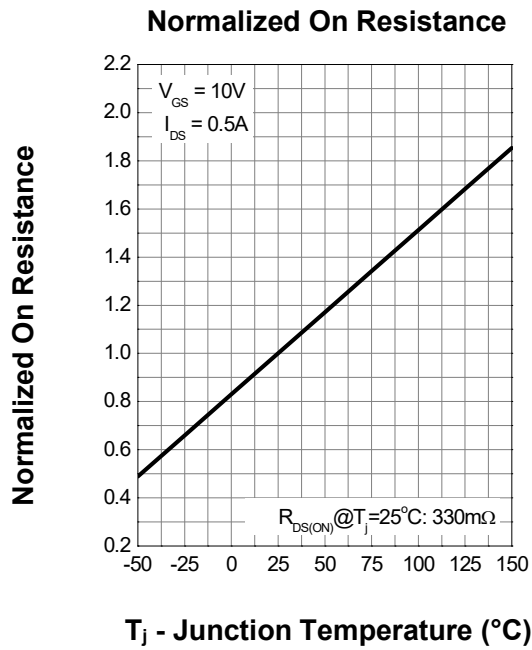
Transfer Characteristics



Normalized Threshold Voltage

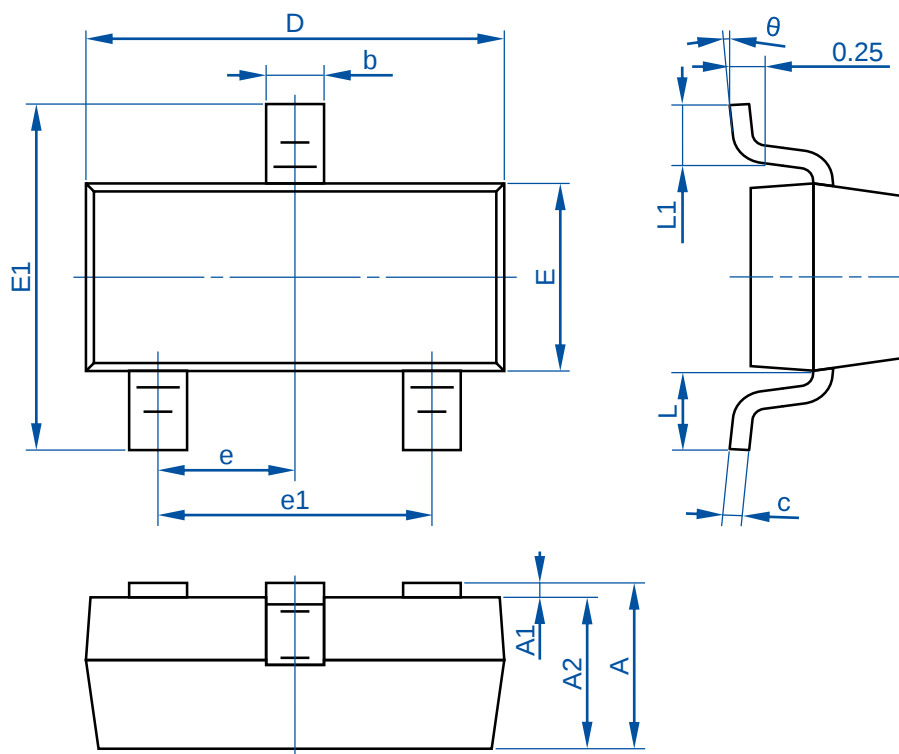


7. Typical Characteristics (cont.)



8. Package Dimensions

SOT23 Package



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.90	1.15	0.035	0.045
A1	0	0.10	0	0.004
A2	0.90	1.05	0.035	0.041
b	0.30	0.50	0.012	0.020
c	0.08	0.15	0.003	0.006
D	2.80	3.00	0.110	0.118
E	1.20	1.40	0.047	0.055
E1	2.25	2.55	0.089	0.100
e	0.95 TYP		0.037 TYP	
e1	1.80	2.00	0.071	0.079
L	0.55 REF		0.022 REF	
L1	0.30	0.50	0.012	0.020
θ	0°	8°	0°	8°