

P-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

- Surface-mounted package
- Low gate charge

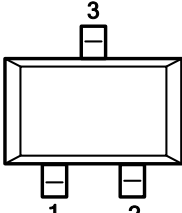
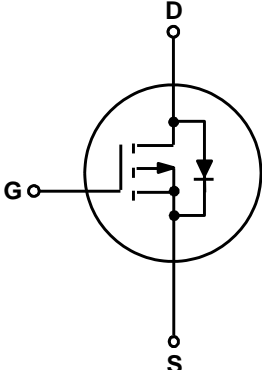
1.2 Applications

- Motor driver appliances
- High power inverter system
- Adapter appliances

1.3 Quick reference

- $BV \leq -60\text{ V}$
- $R_{DS(ON)} \leq 90\text{ m}\Omega @ V_{GS} = -10\text{ V}$
- $P_{tot} \leq 1.56\text{ W}$
- $R_{DS(ON)} \leq 120\text{ m}\Omega @ V_{GS} = -4.5\text{ V}$
- $I_D \leq -5\text{ A}$

2. Pin Description

Pin	Description	Simplified Outline	Symbol
1	Gate(G)	 <p>Top View SOT23-3L</p>	
2	Drain(D)		
3	Source(S)		



3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V _{DS}	Drain-Source Voltage	T _A = 25 °C	-60	-	V
V _{GS}	Gate-Source Voltage	T _A = 25 °C	-	± 20	V
I _D	Drain Current (DC)	T _A = 25 °C, V _{GS} = -10 V	-	- 5	A
I _{DM} *	Drain Current (Pulsed) *	T _A = 25 °C, V _{GS} = -10 V	-	- 12.8	A
P _{tot}	Drain power dissipation	T _A = 25 °C	-	1.56	W
T _{stg}	Storage Temperature		-55	150	°C
T _J	Junction Temperature		-	150	°C
I _S	Diode Forward Current	T _A = 25 °C	-	- 5	A
R _{θJA} **	Thermal Resistance- Junction to Ambient		-	80	°C/W
R _{θJC} ***	Thermal Resistance- Junction to Case		-	2.5	

Notes :

- * Pulse width ≤ 300 μs, duty cycle ≤ 2 %
- ** Mounted on PCB of 1 in² pad area
- *** Mounted on Large Heat Sink

4. Marking Information

Product Name	Marking
KJ2311S	<div style="display: inline-block; border: 1px solid black; padding: 2px;"> 2311 YWWXXX </div> YWWXXX: Date Code

5. Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
KJ2311S	SOT23-3L			3000	

Note: KUAJIJIXIN 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)



快捷冠

KJ2311S

6. Electrical Characteristics ($T_C=25\text{ }^\circ\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_{DS} = -250\text{ }\mu\text{A}$	-60	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_{DS} = -250\text{ }\mu\text{A}$	-1.0	-	-2.5	V
I_{DSS}	Drain Leakage Current	$V_{DS} = -48\text{ V}, V_{GS} = 0\text{ V}$	-	-	-1.0	μA
I_{GSS}	Gate Leakage Current	$V_{GS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$	-	-	± 100	nA
$R_{DS(on)}^a$	On-State Resistance	$V_{GS} = -10\text{ V}, I_{DS} = -2\text{ A}$	-	80	90	m Ω
		$V_{GS} = -4.5\text{ V}, I_{DS} = -1\text{ A}$	-	105	120	
Diode Characteristics						
V_{SD}^a	Diode Forward Voltage	$I_{SD} = -2\text{ A}, V_{GS} = 0\text{ V}$	-	-	-1.3	V
t_{rr}	Reverse Recovery Time	$I_{SD} = -2\text{ A}, dI_{SD}/dt = 100\text{ A}/\mu\text{s}$	-	15	-	nS
Q_{rr}	Reverse Recovery Charge		-	13	-	nC
Dynamic Characteristics ^b						
C_{iss}	Input Capacitance	$V_{GS} = 0\text{ V}, V_{DS} = -30\text{ V}$ Frequency = 1 MHz	-	934	-	pF
C_{oss}	Output Capacitance		-	44	-	
C_{rss}	Reverse Transfer Capacitance		-	37	-	
$t_d(on)$	Turn-on Delay Time	$V_{DS} = -30\text{ V}, V_{GEN} = -10\text{ V},$ $R_G = 4.5\text{ }\Omega, R_L = 15\text{ }\Omega,$ $I_{DS} = -2\text{ A}$	-	8.4	-	nS
t_r	Turn-on Rise Time		-	23	-	
$t_d(off)$	Turn-off Delay Time		-	109	-	
t_f	Turn-off Fall Time		-	48	-	
Gate Charge Characteristics ^b						
Q_g	Total Gate Charge	$V_{DS} = -30\text{ V}, V_{GS} = -10\text{ V},$ $I_{DS} = -2\text{ A}$	-	16	-	nC
Q_{gs}	Gate-Source Charge		-	3.8	-	
Q_{gd}	Gate-Drain Charge		-	1.8	-	

Notes :

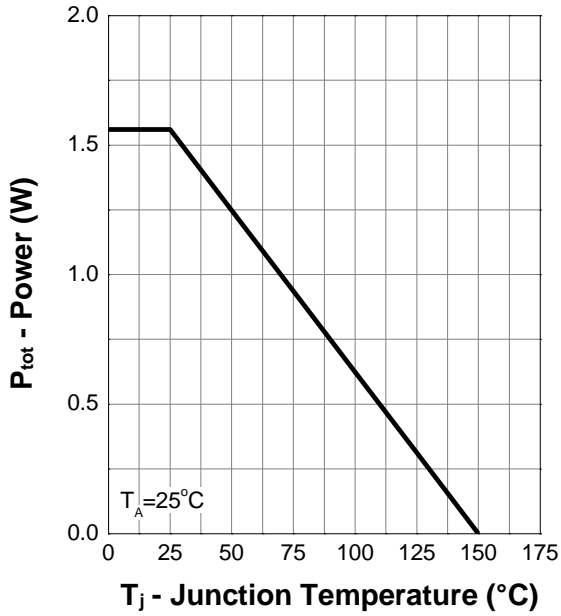
a : Pulse test ; pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$

b : Guaranteed by design, not subject to production testing

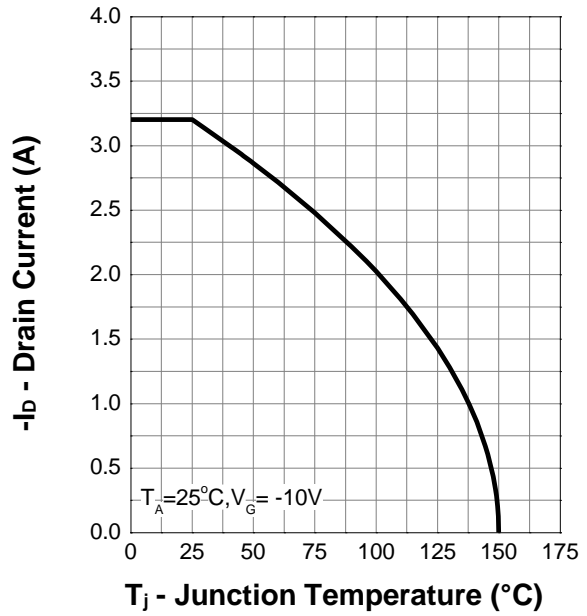


7. Typical Characteristics (Cont.)

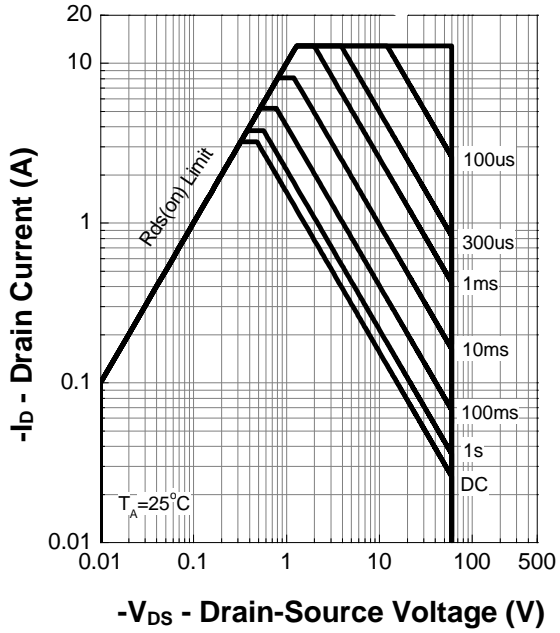
Power Capability



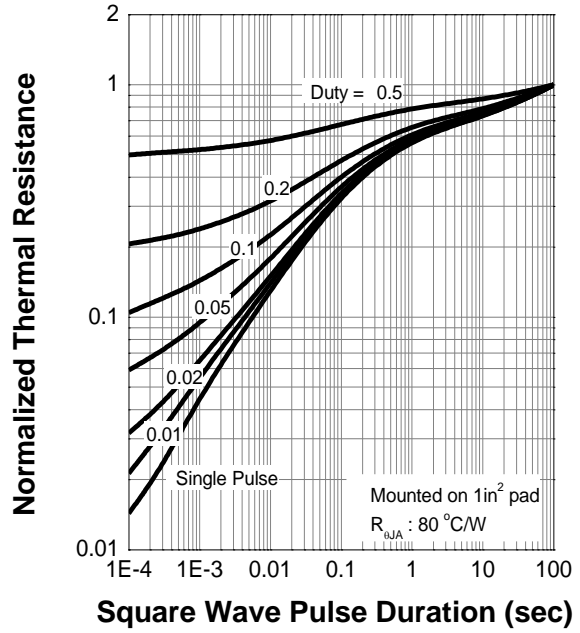
Current Capability



Safe Operating Area

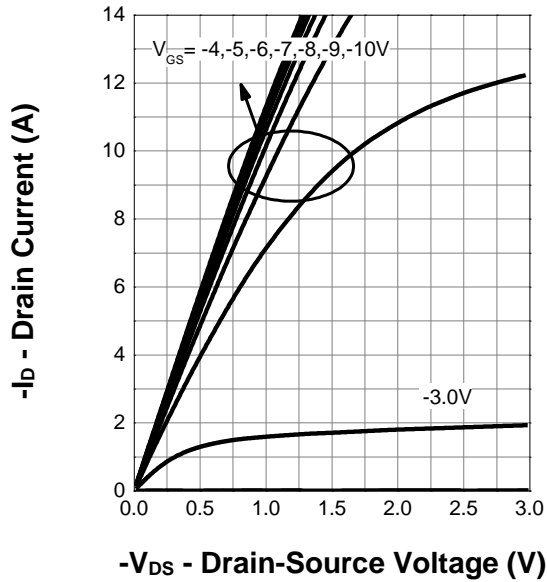


Transient Thermal Impedance

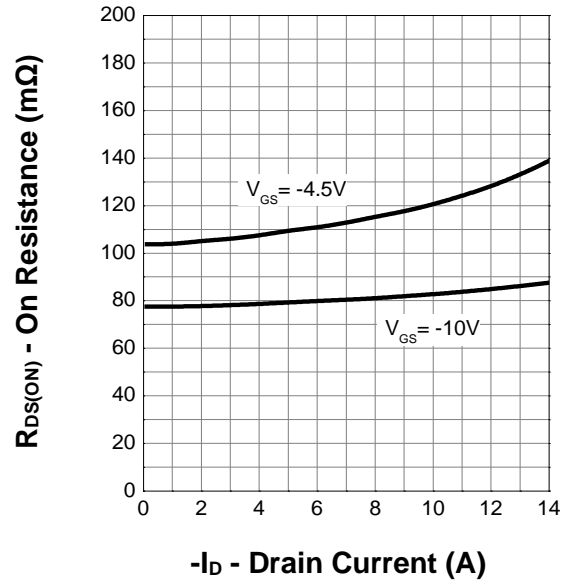


7. Typical Characteristics (Cont.)

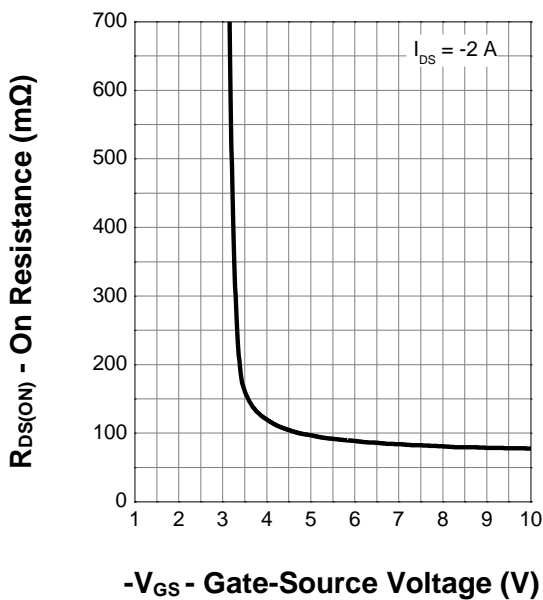
Output Characteristics



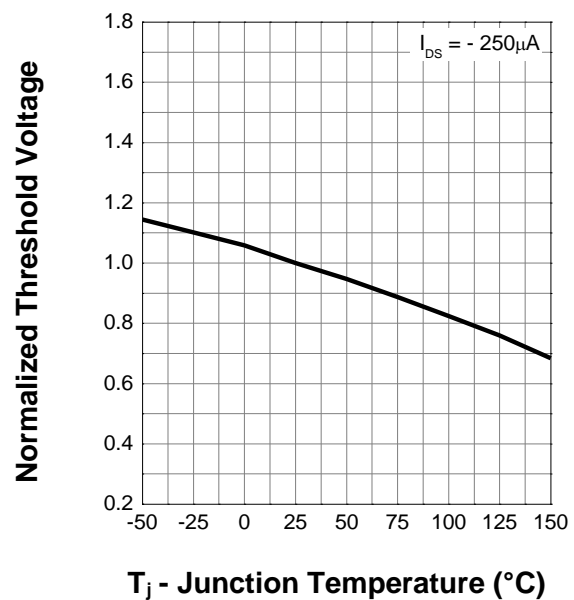
Drain-Source On Resistance



Transfer Characteristics

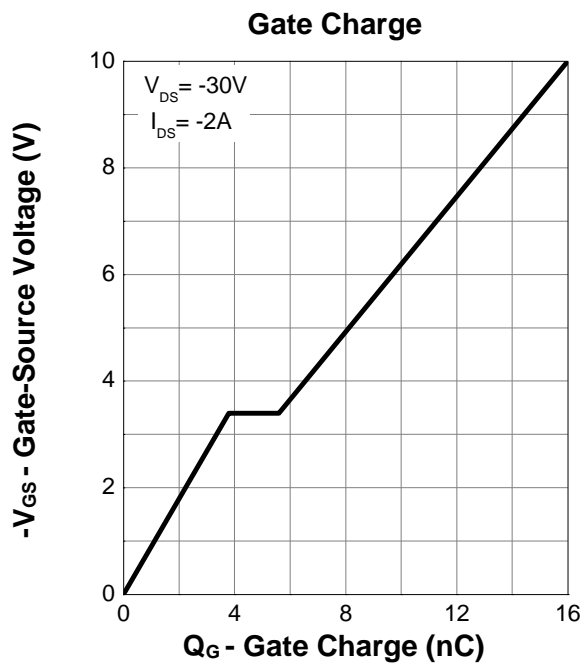
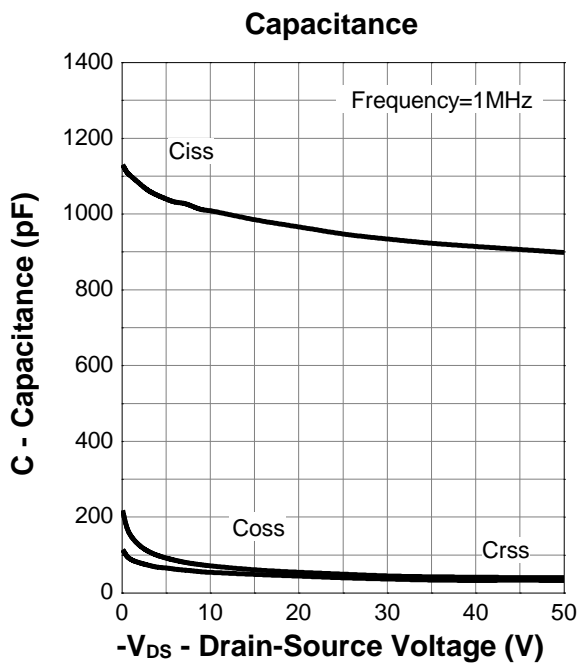
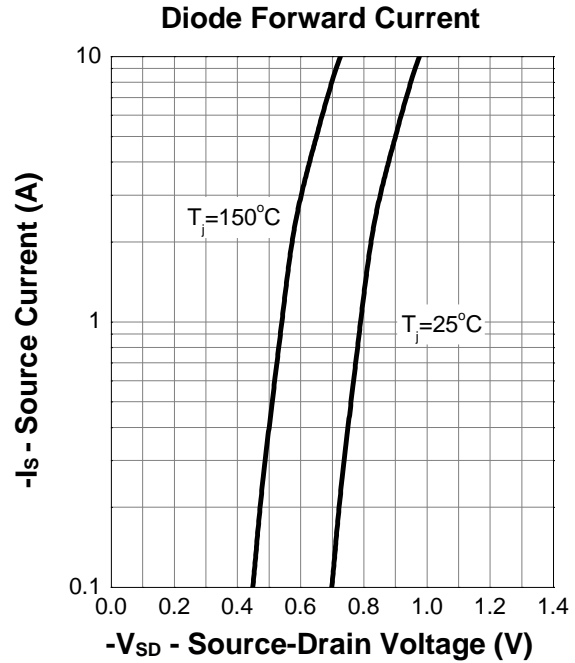
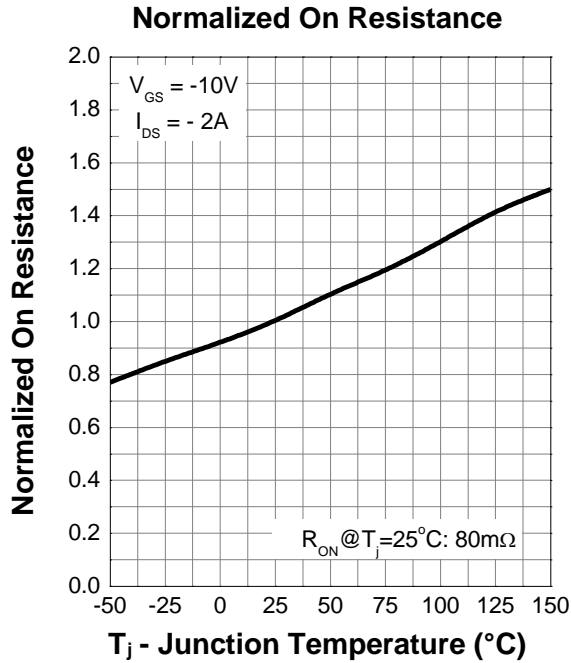


Normalized Threshold Voltage





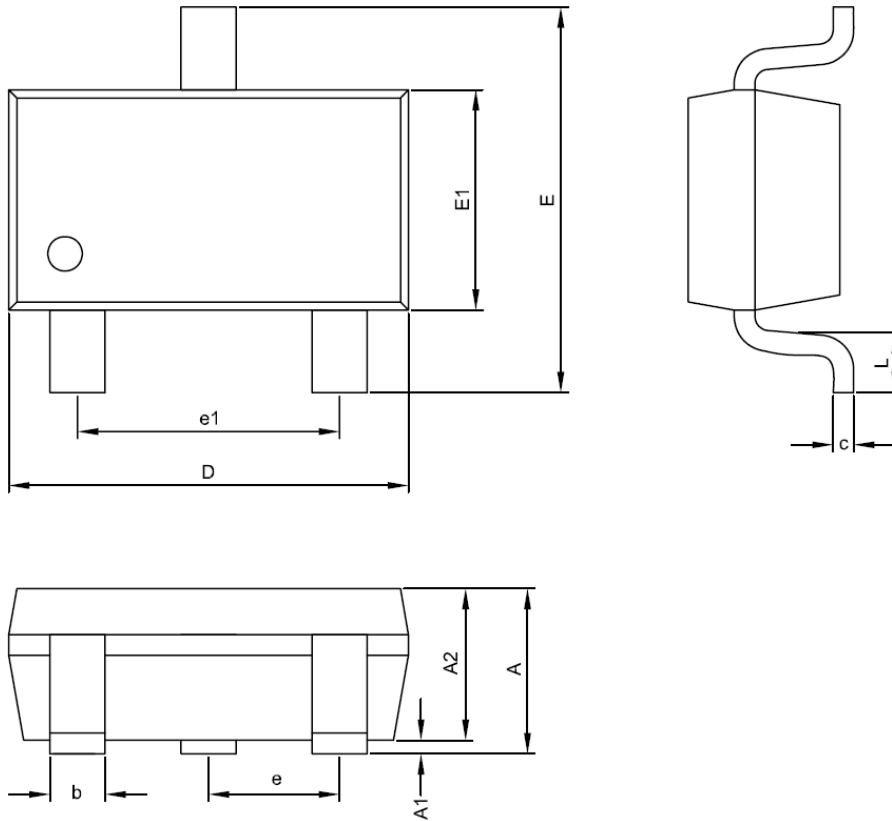
7. Typical Characteristics (Cont.)





8. Package Dimensions

SOT23-3L



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	1.00	1.45
A1	0.00	0.15
A2	1.00	1.30
D	2.70	3.10
E	2.60	3.00
E1	1.50	1.70
c	0.08	0.25
b	0.30	0.50
e	0.95 BSC	
e1	1.90 BSC	
L	0.30	0.60