

P-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

- ✓ Surface-mounted package
- ✓ Advanced trench cell design
- ✓ Excellent $R_{DS(ON)}$

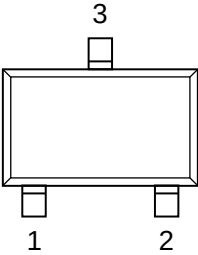
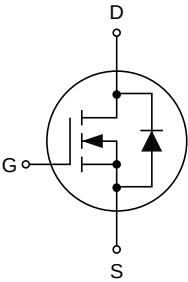
1.2 Applications

- ✓ Uninterruptible power supply
- ✓ Inverter system

1.3 Quick reference

- ✓ $BV \leq -100\text{ V}$
- ✓ $P_{tot} \leq 1.4\text{ W}$
- ✓ $I_D \leq -3\text{ A}$
- ✓ $R_{DS(ON)} \leq 330\text{ m}\Omega @ V_{GS} = -10\text{ V}$
- ✓ $R_{DS(ON)} \leq 360\text{ m}\Omega @ V_{GS} = -4.5\text{ V}$

2. Pin Description

Pin	Description	Simplified Outline	Symbol
1	Gate	 Top View SOT23-3L	
2	Source		
3	Drain		

3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	-	-	-100	V
V_{GS}	Gate-Source Voltage	$T_C=25^{\circ}\text{C}$	-	± 20	V
I_D^*	Drain Current	$T_C=25^{\circ}\text{C}, V_{GS}=10\text{ V}$	-	-3	A
		$T_C=70^{\circ}\text{C}, V_{GS}=10\text{ V}$	-	-2.4	A
I_{DM}^{***}	Pulsed Source Current	$T_C=25^{\circ}\text{C}, V_{GS}=10\text{ V}$	-	-12	A
P_D	Power Dissipation	$T_C=25^{\circ}\text{C}$	-	1.4	W
T_J, T_{stg}	Operating Junction and Storage Temperature Range		-55	150	$^{\circ}\text{C}$
$R_{\theta JA}^*$	Thermal Resistance-Junction to Ambient		70	90	$^{\circ}\text{C/W}$
$R_{\theta JC}^*$	Thermal Resistance-Junction to Case		63	80	$^{\circ}\text{C/W}$

Notes:

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

** Pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.

*** Limited by bonding wire.

4. Marking Information

Product Name	Marking
KJ3P10A	3P10 YWWXXX

5. Ordering Code

Product Name	Package	Reel size	Tape width	Quantity (pcs)
KJ3P10A	SOT23-3L	7"	8 mm	3000

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	-100	-	-	V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =-250 μA	-1	-2	-3	V
I _{DSS}	Zero Gate Voltage Source Current	V _{DS} =-100 V, V _{GS} =0 V	-	-	-1	μA
I _{GSS}	Gate Leakage Current	V _{GS} =±20 V, V _{DS} =0 V	-	-	±100	nA
R _{DS(ON)} ^a	Drain-Source On-State Resistance	V _{GS} =-10 V, I _{DS} =-3 A	-	280	330	mΩ
		V _{GS} =-4.5 V, I _{DS} =-2 A	-	300	360	mΩ
Diode Characteristics ^b						
V _{SD} ^a	Diode Forward Voltage	I _{SD} =-1.5 A, V _{GS} =0 V	-	-	-1.2	V
Dynamic Characteristics ^b						
C _{iSS}	Input Capacitance	V _{GS} =0 V, V _{DS} =-50 V, Frequency=1 MHz	-	916	-	pF
C _{oSS}	Output Capacitance		-	56	-	
C _{rSS}	Reverse Transfer Capacitance		-	32	-	
t _{d(on)}	Turn-on Delay Time	V _{DS} =-50 V, V _{GEN} =-10 V, R _G =3.3 Ω, I _{DS} =-3 A	-	10.1	-	ns
t _r	Turn-on Rise Time		-	8.2	-	
t _{d(off)}	Turn-off Delay Time		-	30.8	-	
t _f	Turn-off Fall Time		-	9.1	-	
Gate Charge Characteristics ^b						
Q _g	Total Gate Charge	V _{DS} =-50 V, V _{GS} =-10 V, I _{DS} =-3 A	-	20	-	nC
Q _{gs}	Gate-Source Charge		-	4.8	-	
Q _{gd}	Gate-Drain Charge		-	6.5	-	

Notes:

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

7. Typical Characteristics

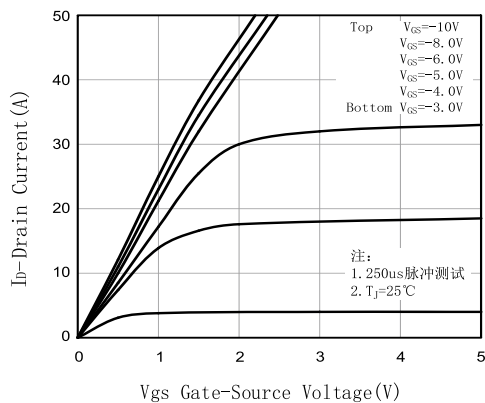


Fig.1 Output Characteristic

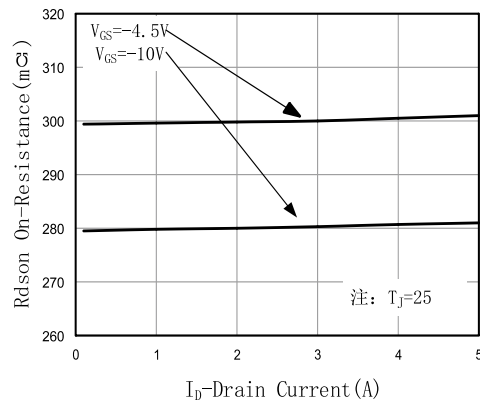


Fig.2 On-Resistance vs. Drain Current

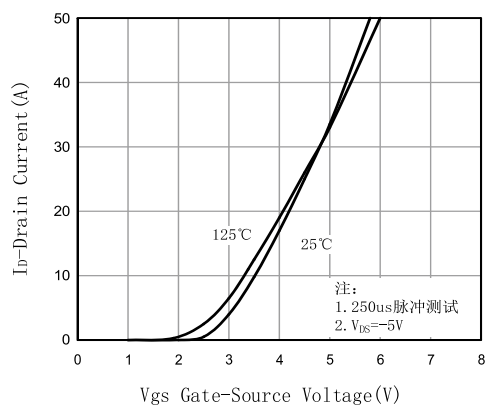


Fig.3 Transfer Characteristic

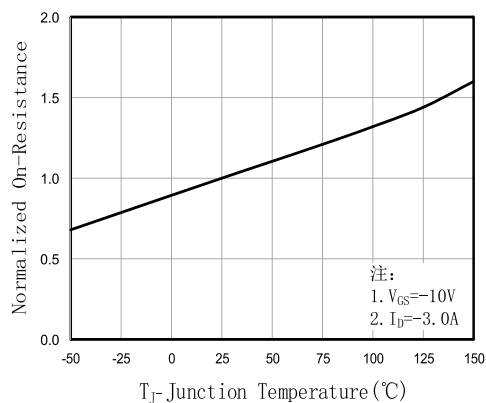


Fig.4 On-Resistance vs. Junction Temperature

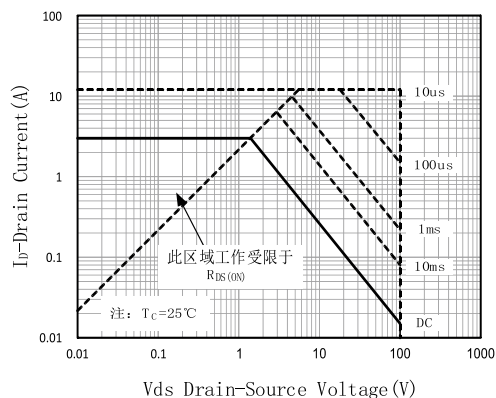


Fig.5 Safe Operation Area

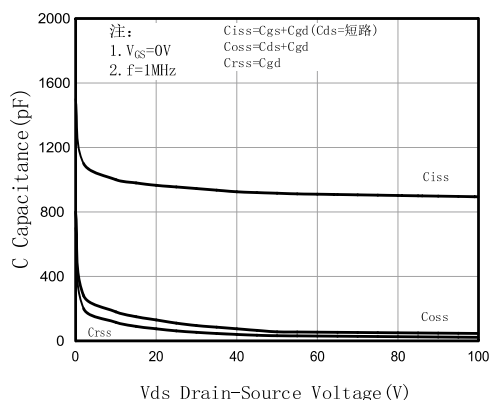


Fig.6 Capacitance Characteristic

7. Typical Characteristics (cont.)

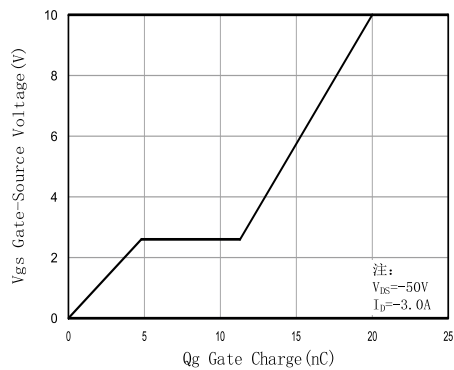


Fig.7 Gate-Charge Characteristic

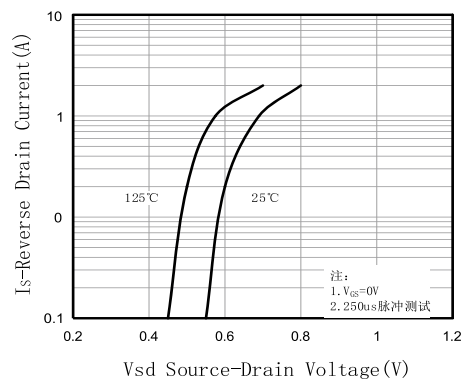
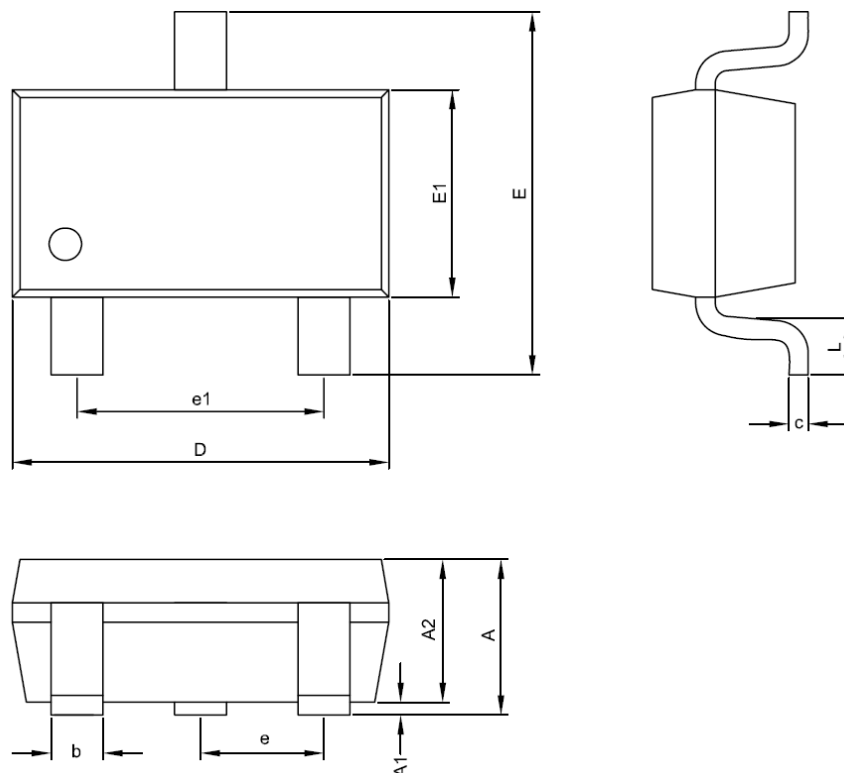


Fig.8 Body Diode Characteristic

8. Package Dimensions

SOT23-3L Package



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