

## Dual P-Channel Enhancement Mode MOSFET

### 1. Product Information

#### 1.1 Features

- Surface-mounted package
- Low gate charge

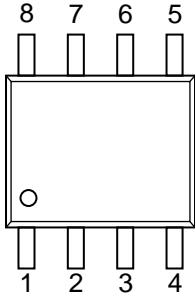
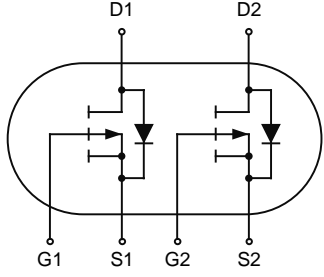
#### 1.2 Applications

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

#### 1.3 Quick reference

- $BV \geq -100\text{ V}$
- $R_{DS(ON)} \leq 185\text{ m}\Omega @ V_{GS} = -10\text{ V}$
- $P_{tot} \leq 1.38\text{ W}$
- $R_{DS(ON)} \leq 198\text{ m}\Omega @ V_{GS} = -4.5\text{ V}$
- $I_D \leq -3.7\text{ A}$

### 2. Pin Description

Pin	Description	Simplified Outline	Symbol	
1	Source(S1)			
2	Gate(G1)			
3	Source(S2)			
4	Gate(G2)			
5,6	Drain(D2)			
7,8	Drain(D1)			
				<p>Top View SOP8</p>

## 3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V <sub>DS</sub>	Drain-Source Voltage	T <sub>A</sub> =25°C	-	-100	V
V <sub>GS</sub>	Gate-Source Voltage	T <sub>A</sub> =25°C	-	±20	V
I <sub>D</sub> *	Drain Current	T <sub>A</sub> =25°C, V <sub>GS</sub> =-10V	-	-3.7	A
		T <sub>A</sub> =100°C, V <sub>GS</sub> =-10 V	-	-2.1	A
I <sub>DM</sub> **	Pulsed Drain Current	T <sub>A</sub> =25°C, V <sub>GS</sub> =-10 V	-	-6.8	A
P <sub>tot</sub>	Total Power Dissipation	T <sub>A</sub> =25°C	-	1.38	W
T <sub>stg</sub>	Storage Temperature		- 55	150	°C
T <sub>J</sub>	Junction Temperature		-	150	°C
R <sub>θJA</sub> *	Thermal Resistance-Junction to Ambient		-	90	°C/W

Notes:

- \* Surface Mounted on 1 in<sup>2</sup> pad area, t ≤ 10 sec
- \*\* Pulse width ≤ 300 μs, duty cycle ≤ 2%
- \*\*\* Limited by bonding wire

## 4. Marking Information

Product Name	Marking
KJ20P10DS	<div style="display: inline-block; background-color: black; color: white; padding: 2px;">20P10D</div> <div style="display: inline-block; background-color: black; color: white; padding: 2px;">YWWXXX</div> <div style="display: inline-block; vertical-align: middle;">YWW: Date Code</div>

## 5. Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
KJ20P10DS	SOP8	-	-	4000	

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<sub>A</sub>=25°C Unless Otherwise Noted)

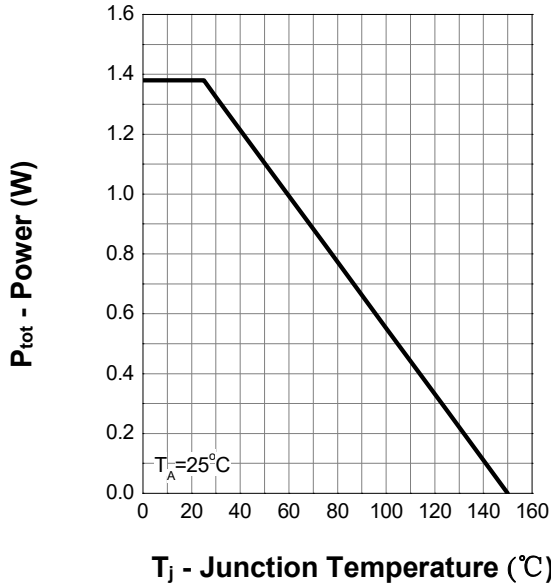
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0 V, I <sub>DS</sub> =-250 μA	-100	-	-	V
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>DS</sub> =-250 μA	-1.0	-	-2.0	V
I <sub>DSS</sub>	Drain Leakage Current	V <sub>DS</sub> =-80 V, V <sub>GS</sub> =0 V	-	-	1	μA
I <sub>GSS</sub>	Gate Leakage Current	V <sub>GS</sub> =±20 V, V <sub>DS</sub> =0 V	-	-	±100	nA
R <sub>DS(ON)</sub> <sup>a</sup>	On-State Resistance	V <sub>GS</sub> =-10 V, I <sub>D</sub> =-1 A	-	165	185	mΩ
		V <sub>GS</sub> =-4.5 V, I <sub>D</sub> =-0.5 A	-	177	198	
<b>Diode Characteristics</b>						
V <sub>SD</sub> <sup>a</sup>	Diode Forward Voltage	I <sub>SD</sub> =-1 A, V <sub>GS</sub> =0 V	-	-	1.3	V
t <sub>rr</sub>	Reverse Recovery Time	I <sub>SD</sub> =-1 A, dI <sub>SD</sub> /dt=100 A/μs	-	23	-	ns
Q <sub>rr</sub>	Reverse Recovery Charge		-	28	-	nC
<b>Dynamic Characteristics<sup>b</sup></b>						
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =-50 V, V <sub>GS</sub> =0 V, Frequency=1 MHz	-	1540	-	pF
C <sub>oss</sub>	Output Capacitance		-	37	-	
C <sub>rss</sub>	Reverse Transfer Capacitance		-	36	-	
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>DS</sub> =-50 V, V <sub>GEN</sub> =-10 V, R <sub>G</sub> =3.9 Ω, R <sub>L</sub> =50 Ω, I <sub>DS</sub> =-1 A	-	9.9	-	ns
t <sub>r</sub>	Turn-on Rise Time		-	27	-	
t <sub>d(off)</sub>	Turn-off Delay Time		-	289	-	
t <sub>f</sub>	Turn-off Fall Time		-	85	-	
<b>Gate Charge Characteristics<sup>b</sup></b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =-50 V, V <sub>GS</sub> =-10 V, I <sub>DS</sub> =-1 A	-	29	-	nC
Q <sub>gs</sub>	Gate-Source Charge		-	6.2	-	
Q <sub>gd</sub>	Gate-Drain Charge		-	3	-	

Notes:

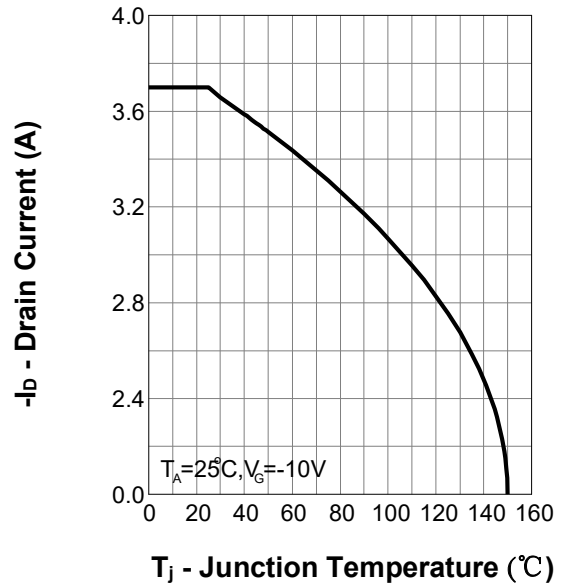
- Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%
- Guaranteed by design, not subject to production testing

## 7. Typical Characteristics

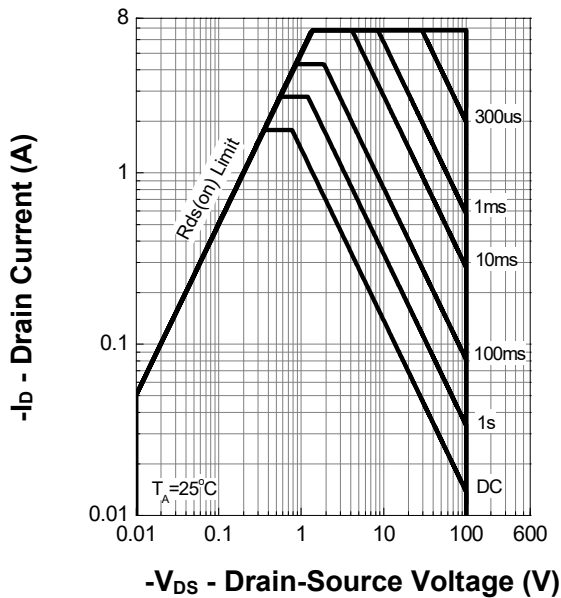
**Power Dissipation**



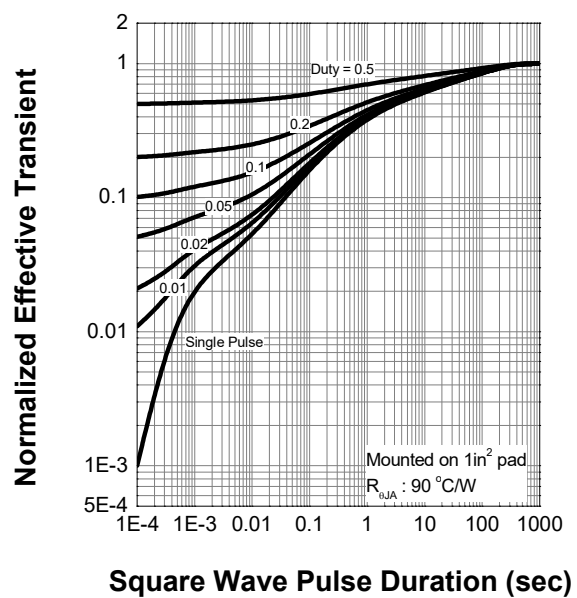
**Drain Current**



**Safe Operation Area**

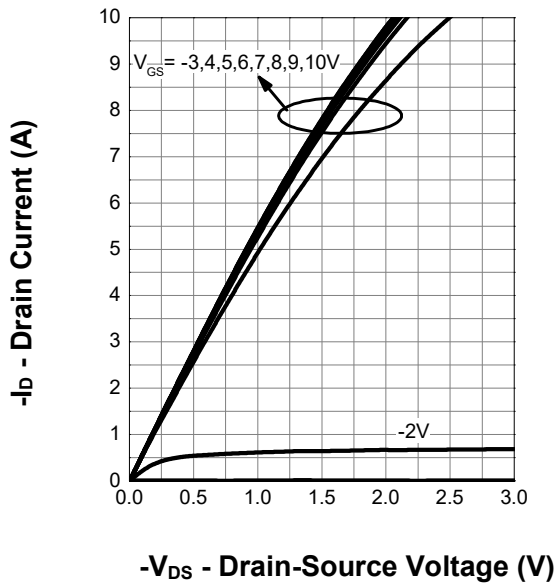


**Thermal Transient Impedance**

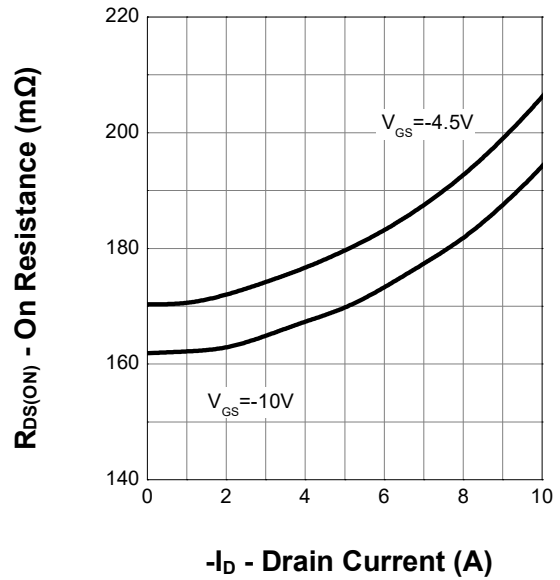


## 7. Typical Characteristics (Cont.)

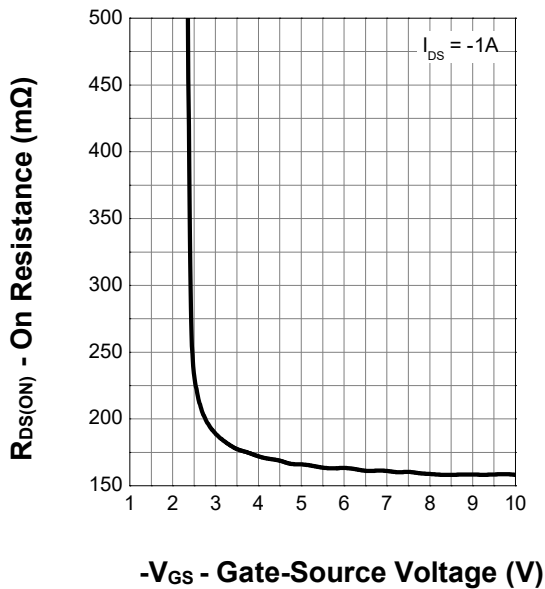
**Output Characteristics**



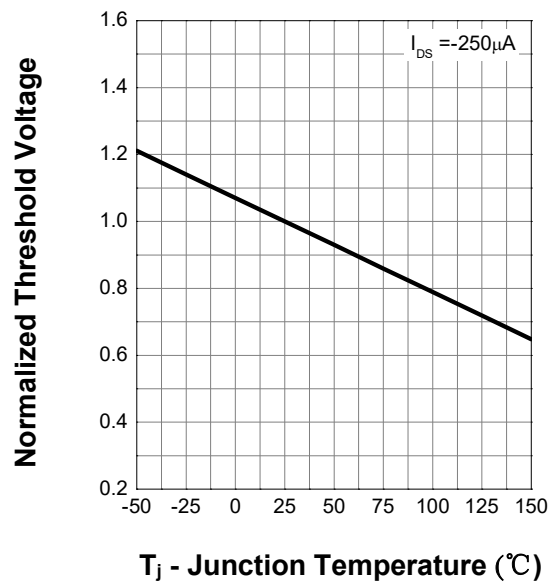
**Drain-Source On Resistance**



**Transfer Characteristics**

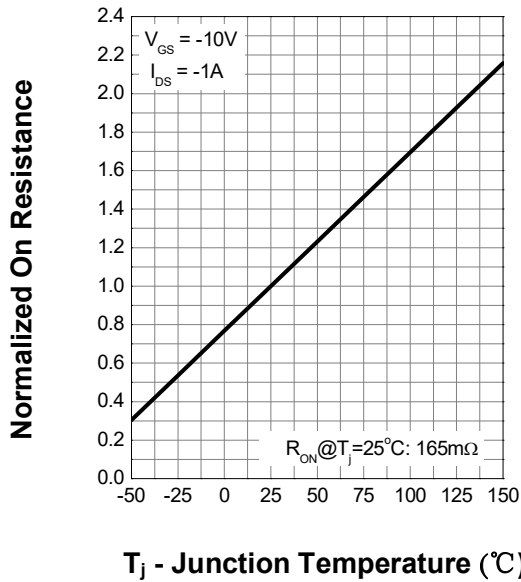


**Gate Threshold Voltage**

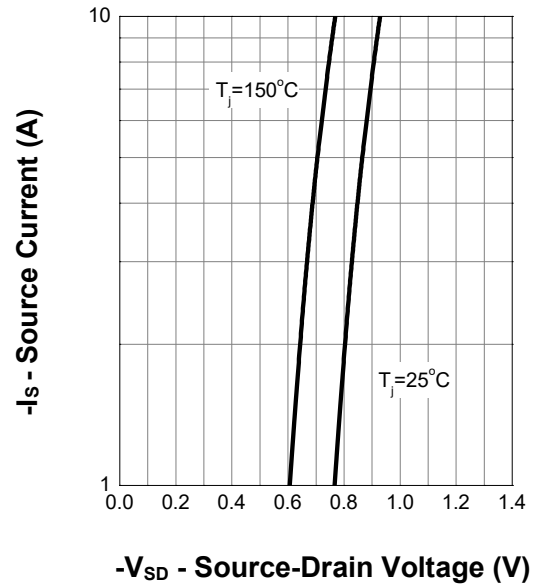


## 7. Typical Characteristics (Cont.)

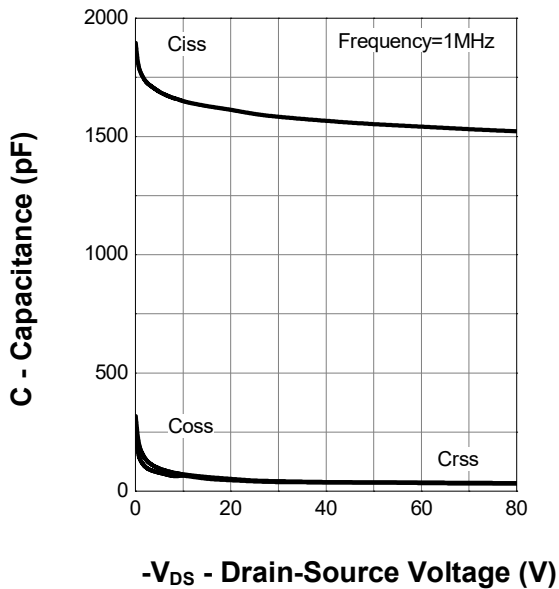
Drain-Source On Resistance



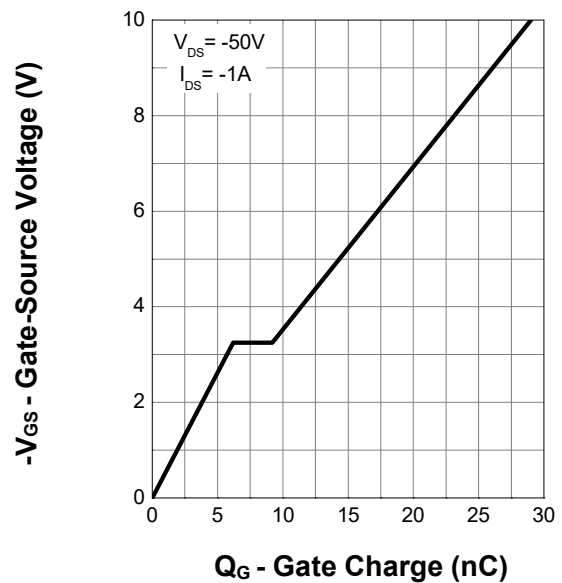
Source-Drain Diode Forward



Capacitance

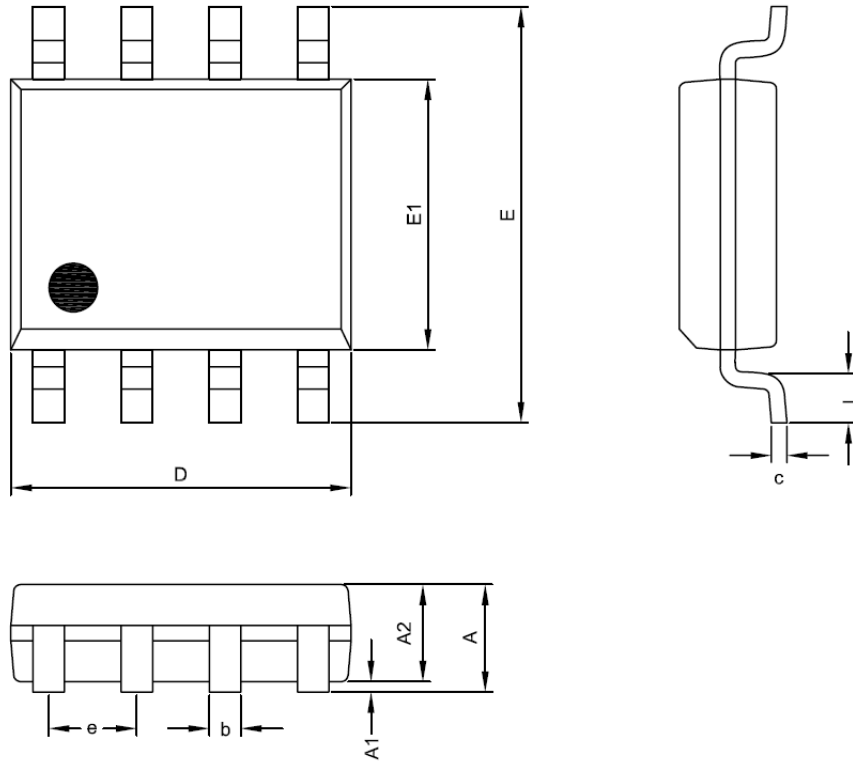


Gate Charge



## 8. Package Dimensions

### SOP8 Package



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	1.35	1.75
A1	0.00	0.25
A2	1.15	1.50
D	4.80	5.00
E	5.80	6.20
E1	3.80	4.00
c	0.19	0.27
b	0.33	0.53
e	1.27 BSC	
L	0.40	1.27