

P-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

- ☒ Surface-mounted package
- ☒ Low gate charge

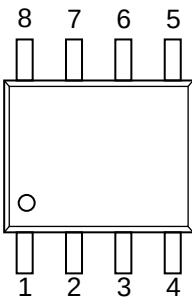
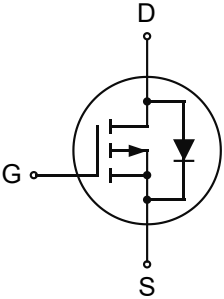
1.2 Applications

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

1.3 Quick reference

- ☒ $BV \geq -60\text{ V}$
- ☒ $R_{DS(ON)} \leq 60\text{m}\Omega @ V_{GS} = -10\text{ V}$
- ☒ $P_{tot} \leq 2\text{ W}$
- ☒ $R_{DS(ON)} \leq 85\text{m}\Omega @ V_{GS} = -4.5\text{ V}$
- ☒ $I_D \leq -5\text{ A}$

2. Pin Description

Pin	Description	Simplified Outline	Symbol
1,2,3	Source	 Top View SOP8	
4	Gate		
5,6,7,8	Drain		

**快捷****KJ6005S**

3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	$T_A = 25\text{ }^{\circ}\text{C}$	-60	-	V
V_{GS}	Gate-Source Voltage	$T_C = 25\text{ }^{\circ}\text{C}$	-	± 20	V
I_D^*	Drain Current	$T_A = 25\text{ }^{\circ}\text{C}, V_{GS} = -10\text{ V}$	-	-5	A
I_D^*	Drain Current	$T_A = 100\text{ }^{\circ}\text{C}, V_{GS} = -10\text{ V}$	-	-2.9	A
$I_{DM}^{*,**}$	Drain Current (Pulsed)	$T_A = 25\text{ }^{\circ}\text{C}, V_{GS} = -10\text{ V}$	-	-18	A
P_{tot}^*	Total Power Dissipation	$T_A = 25\text{ }^{\circ}\text{C}$	-	2	W
T_{stg}	Storage Temperature		- 55	150	$^{\circ}\text{C}$
T_J	Junction Temperature		-	150	$^{\circ}\text{C}$
$R_{\theta JA}^*$	Thermal Resistance-Junction to Ambient		-	62.5	$^{\circ}\text{C/W}$
$R_{\theta JC}^*$	Thermal Resistance-Junction to Case		-	3.5	$^{\circ}\text{C/W}$

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
KJ6005S	6005 YWWXXX YWWXXX: Date Code

5. Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
KJ6005S	SOP8	-	-	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)

**快捷通****KJ6005S****6. Electrical Characteristics** ($T_A=25^{\circ}\text{C}$ 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	-	- 2.5	V
I _{DSS}	Drain Leakage Current	V _{DS} = - 48 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	Channel On-State Resistance	V _{GS} = - 10 V, I _D = - 3 A	-	53	60	mΩ
	Channel On-State Resistance	V _{GS} = - 4.5 V, I _D = - 2 A	-	69	85	
Diode Characteristics						
V _{SD} ^a	Diode Forward Voltage	I _{SD} = - 3 A, V _{GS} = 0 V	-	-	- 1.3	V
t _{rr}	Reverse Recovery Time	I _{SD} = - 3 A, dI _{SD} / dt = 100 A / μs	-	15	-	nS
Q _{rr}	Reverse Recovery Charge		-	12	-	nC
Dynamic Characteristics ^b						
C _{iss}	Input Capacitance	V _{GS} = 0 V, V _{DS} = - 30 V Frequency = 1 MHz	-	1480	-	pF
C _{oss}	Output Capacitance		-	63	-	
C _{rss}	Reverse Transfer Capacitance		-	54	-	
t _{d(on)}	Turn-on Delay Time	V _{DS} = - 30 V, V _{GEN} = - 10 V, R _G = 3.9 Ω, R _L = 10 Ω, I _{DS} = - 3 A	-	5.5	-	nS
t _r	Turn-on Rise Time		-	3.7	-	
t _{d(off)}	Turn-off Delay Time		-	102	-	
t _f	Turn-off Fall Time		-	38	-	
Gate Charge Characteristics ^b						
Q _g	Total Gate Charge	V _{GS} = - 10 V, V _{DS} = - 30 V, I _{DS} = - 3 A	-	25	-	nC
Q _{gs}	Gate-Source Charge		-	6.5	-	
Q _{gd}	Gate-Drain Charge		-	3.4	-	

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

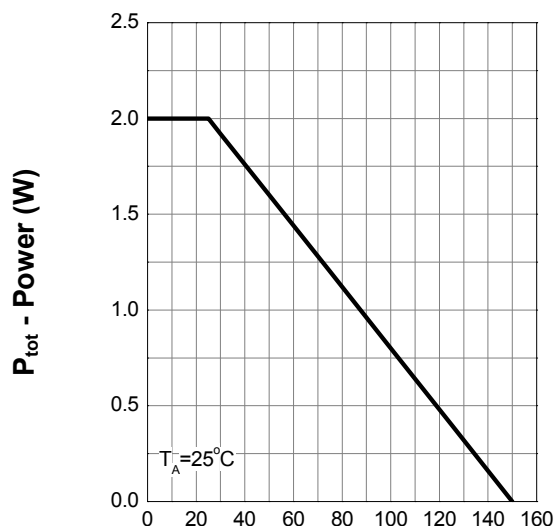


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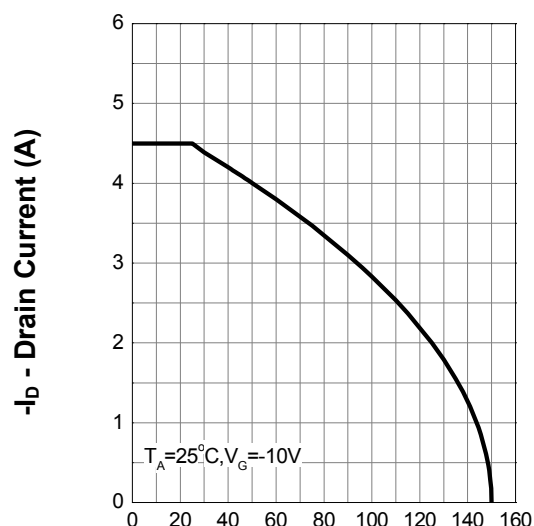
7. Typical Characteristics

Power Dissipation



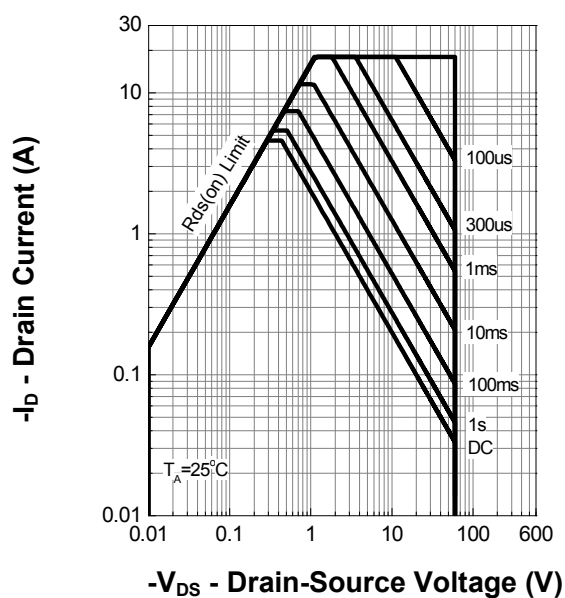
T_j - Junction Temperature ($^{\circ}\text{C}$)

Drain Current

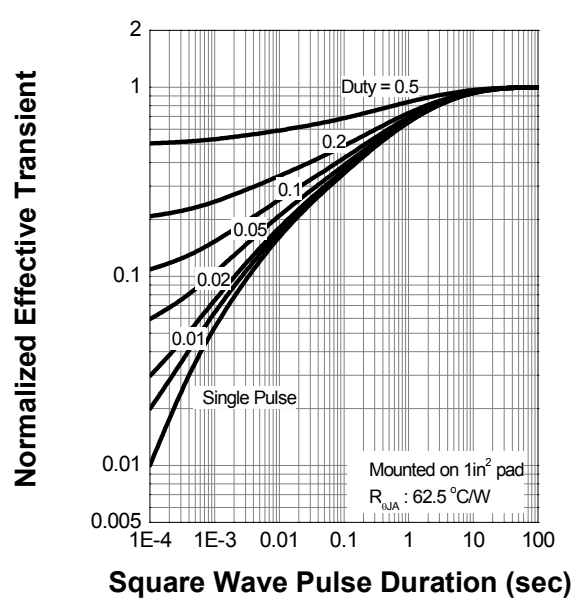


T_j - Junction Temperature ($^{\circ}\text{C}$)

Safe Operation Area



Thermal Transient Impedance



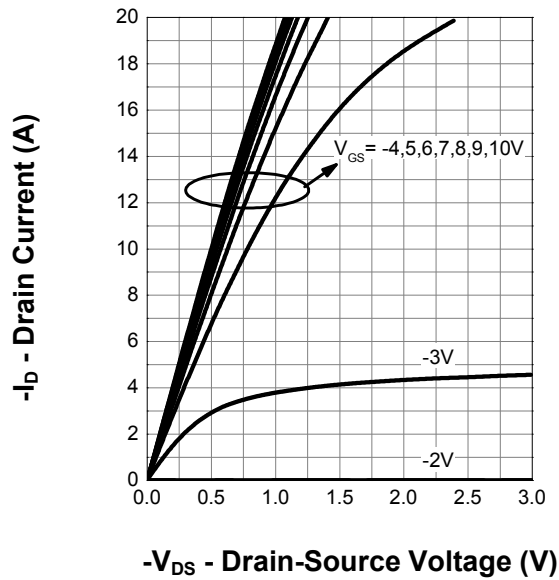


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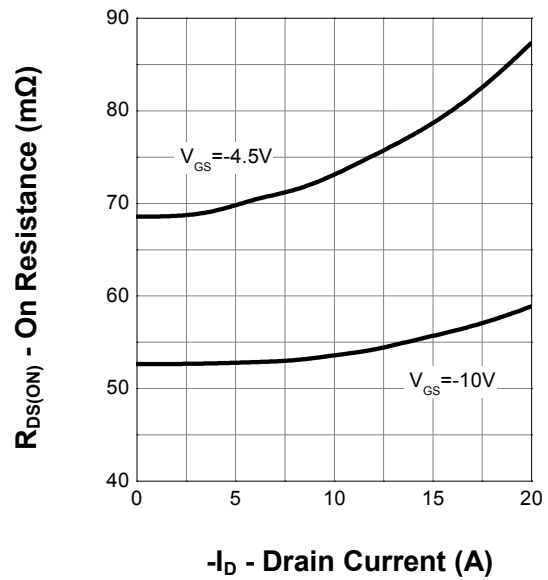
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7. Typical Characteristics (Cont.)

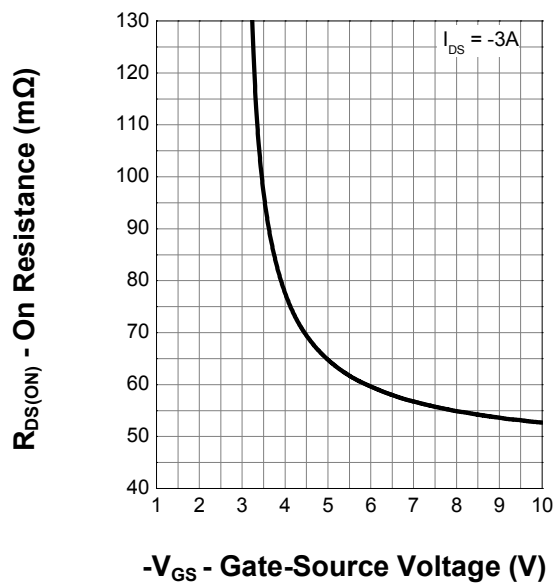
Output Characteristics



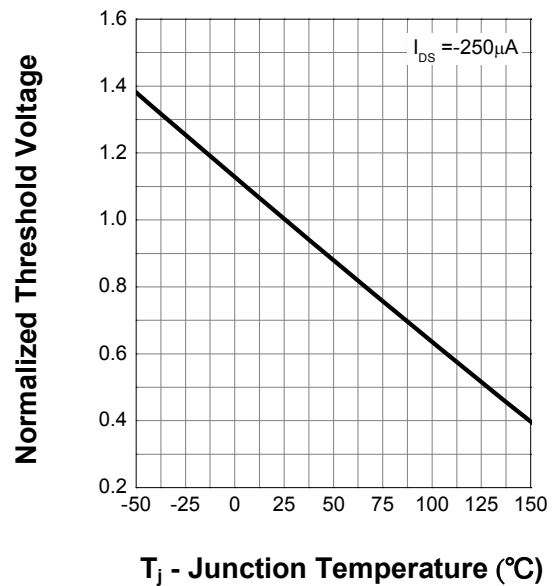
Drain-Source On Resistance



Transfer Characteristics

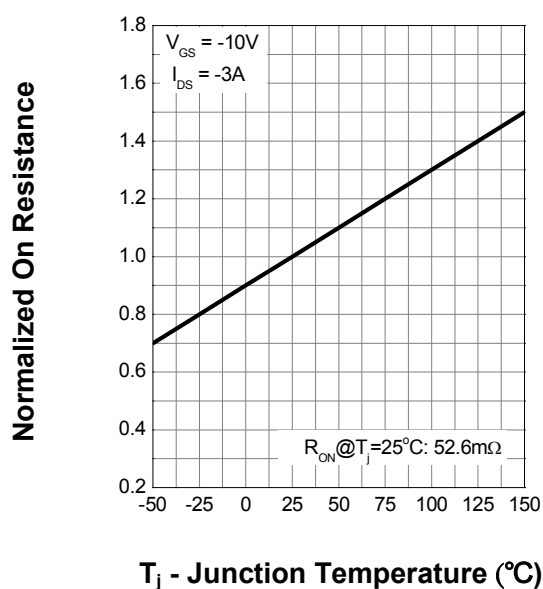


Gate Threshold Voltage

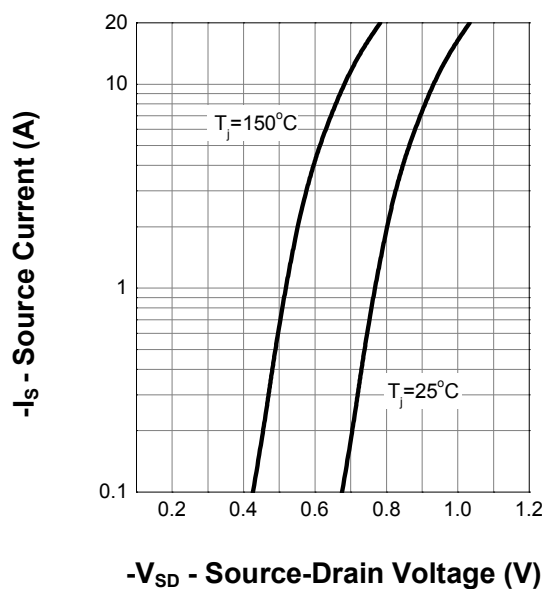


7. Typical Characteristics (Cont.)

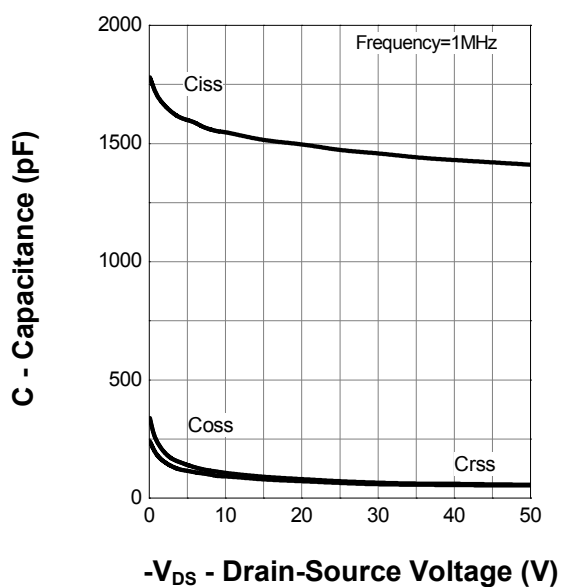
Drain-Source On Resistance



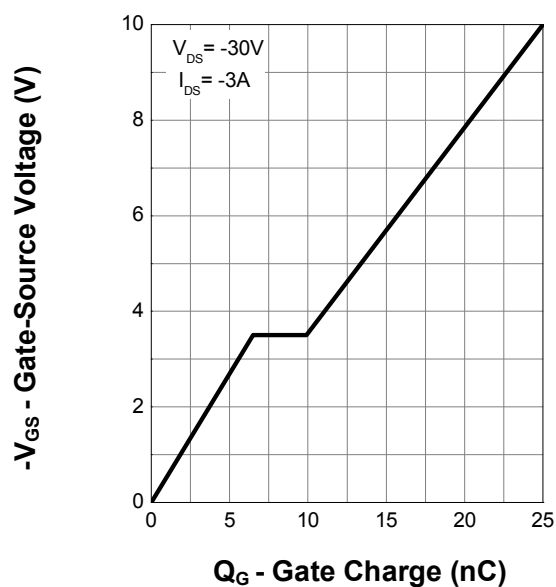
Source-Drain Diode Forward



Capacitance

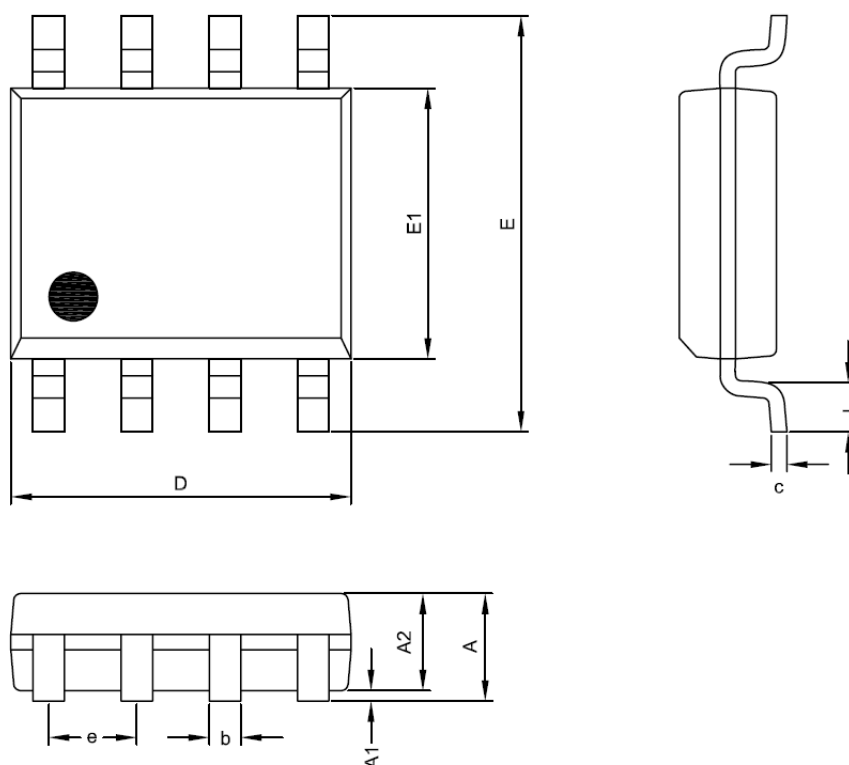


Gate Charge



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