

P-Channel Enhancement Mode MOSFET

1. Product Information

Features

- Advanced Trench Technology
- Excellent $R_{DS(ON)}$ and Low gate charge

Applications

- Power Management Switches
- DC/DC Converters

Quick reference

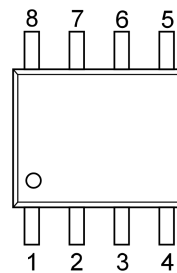
- $V_{DS} = -60\text{ V}$
- $I_D = -10\text{ A}$
- $R_{DS(ON)} \leq 35\text{ m}\Omega$ @ $V_{GS} = -10\text{ V}$ (Type: 28 m Ω)
- $R_{DS(ON)} \leq 43\text{ m}\Omega$ @ $V_{GS} = -4.5\text{ V}$ (Type: 33 m Ω)

Pin Description

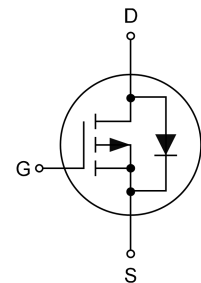
Pin	Description
1,2,3	Source (S)
4	Gate (G)
5,6,7,8	Drain (D)

Simplified Outline

Symbol



Top View
SOP8



Package Marking and Ordering Information

Product Name	Package	Marking	Reel size	Tape Width	Quantity
KJ35P06S	SOP8	35P06	13"	12 mm	4000

2. Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Values	Unit
V_{DS}	Drain-Source Voltage	-60	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current, $V_{GS} = 10\text{ V}$, $T_A = 25^\circ\text{C}$ ¹	-10	A
	Continuous Drain Current, $V_{GS} = 10\text{ V}$, $T_A = 100^\circ\text{C}$ ¹	-10	A
I_{DM}	Pulsed Drain Current ²	-40	A
E_{AS}	Single Pulse Avalanche Energy ³	14	mJ
P_D	Power Dissipation, $T_A = 25^\circ\text{C}$ ¹	28	W
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55~150	$^\circ\text{C}$
$R_{\theta JA}$	Maximum Junction- Ambient, $\leq 10\text{ s}$ ¹	75	$^\circ\text{C/W}$
$R_{\theta JC}$	Maximum Junction-Foot, Steady-State	4.5	$^\circ\text{C/W}$

3. Electrical Characteristics (T_A=25°C, unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0 V, I _D =-250 μA	-60	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-60 V, V _{GS} =0 V	-	-	1	μA
I _{GSS}	Gate-body Leakage current	V _{DS} =0 V, V _{GS} =±20 V	-	-	±100	nA
V _{GS(th)}	Gate-Threshold Voltage	V _{DS} =V _{GS} , I _D =250 μA	-1.0	-1.8	-2.5	V
R _{DS(on)}	Static Drain-Source On-Resistance	V _{GS} =-10 V, I _D =-5 A	-	28	35	mΩ
		V _{GS} =-4.5 V, I _D =-3 A	-	33	43	
C _{iss}	Input Capacitance	V _{GS} =0 V, V _{DS} =-25 V, f=1.0 MHz	-	4030	-	pF
C _{oss}	Output Capacitance		-	140	-	
C _{rss}	Reverse Transfer Capacitance		-	100	-	
t _{d(on)}	Turn-on Delay Time	V _{DS} =-30 V, I _D =-5 A, V _{GS} =-10 V, R _{GEN} =3 Ω	-	13	-	ns
t _r	Turn-on Rise Time		-	10	-	
t _{d(off)}	Turn-off Delay Time		-	65	-	
t _f	Turn-off Fall Time		-	15	-	
Q _g	Total Gate Charge	V _{GS} =-10 V, V _{DD} =-30 V, I _D =-5 A	-	65	-	nC
Q _{gs}	Gate-Source Charge		-	11	-	
Q _{gd}	Gate-Drain Charge		-	12	-	
I _S	Maximum Continuous Drain-Source Diode Forward Current		-	-	-10	A
V _{SD}	Diode Forward Voltage	I _{SD} =-5 A, V _{GS} =0 V	-	-	-1.2	V
t _{rr}	Body Diode Reverse Recovery Time	I _F =-5A, di/dt=100A/μs	-	26	-	ns
Q _{rr}	Body Diode Reverse Recovery Charge		-	29	-	nC

Notes:

1. Limited by bonding wire, surface mounted on a 1 inch² FR-4 board.
2. Pulse width limited by maximum junction temperature.
3. The E_{AS} data shows Max. rating. T_J=25°C, V_{DD}=-30 V, V_{GS}=-10 V, L=0.5 mH, R_G=25 Ω.

4. Typical Characteristics

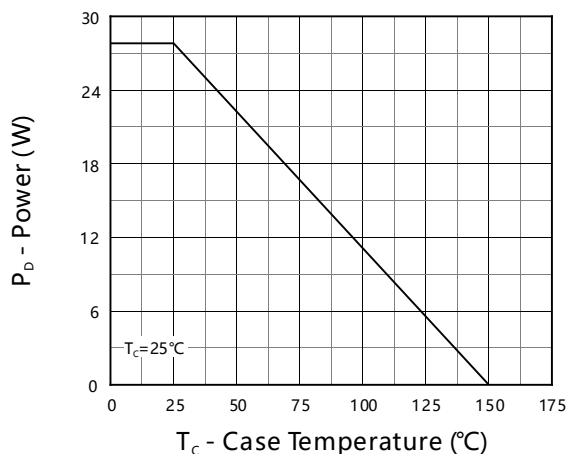


Fig 1. Power Dissipation

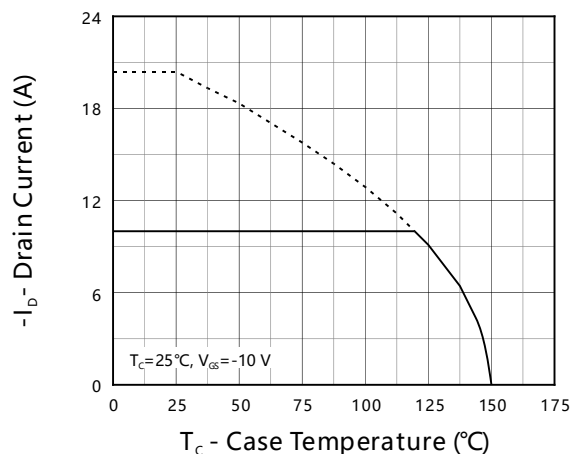


Fig 2. Current Capability

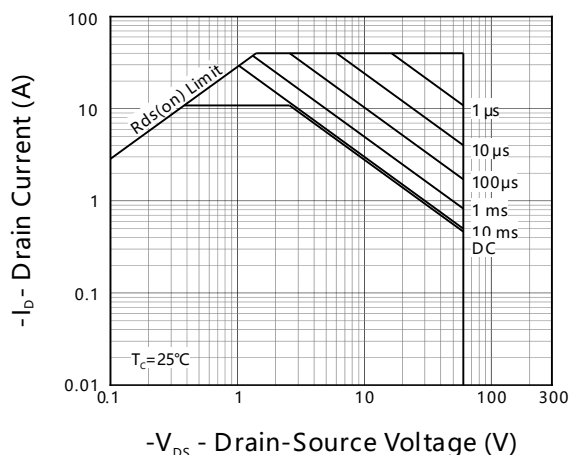


Fig 3. Safe Operation Area

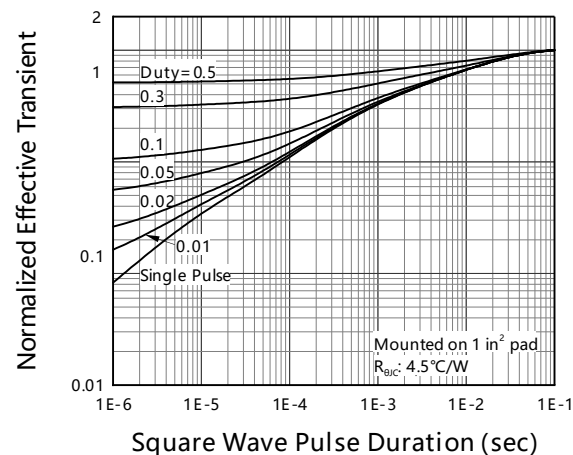


Fig 4. Transient Thermal Impedance

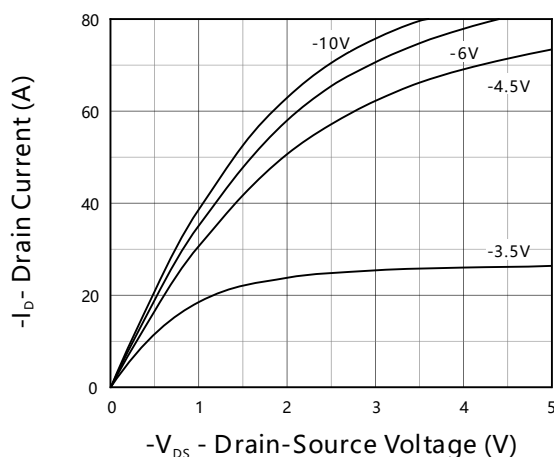


Fig 5. Output Characteristics

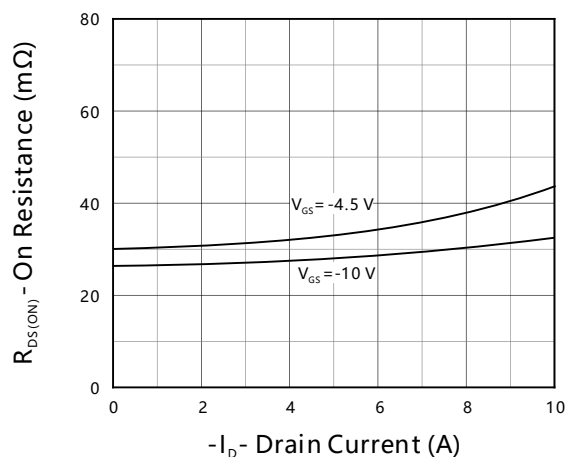


Fig 6. On Resistance

4. Typical Characteristics (cont.)

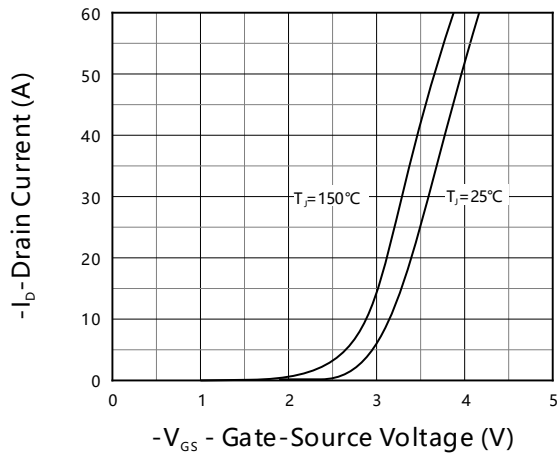


Fig 7. Transfer Characteristics

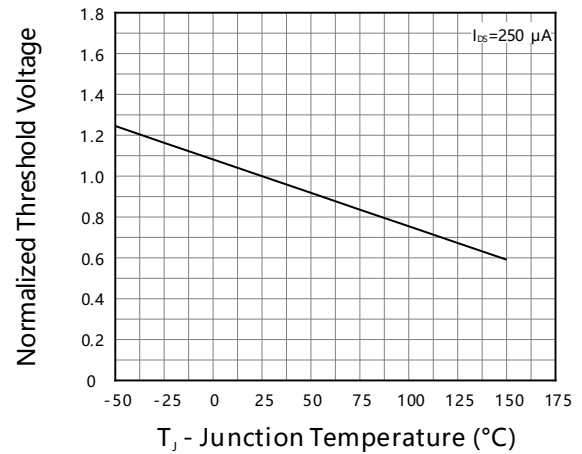


Fig 8. Normalized Threshold Voltage

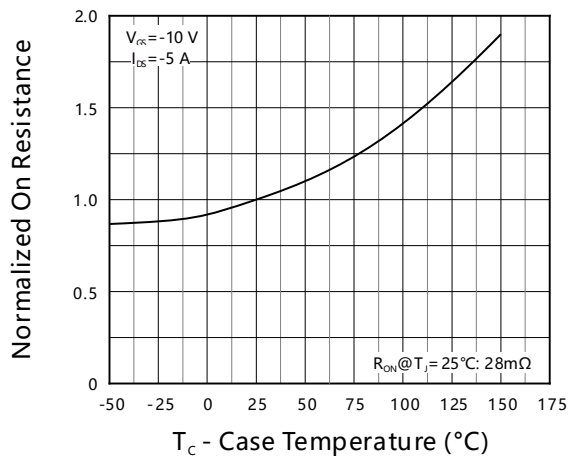


Fig 9. Normalized On Resistance

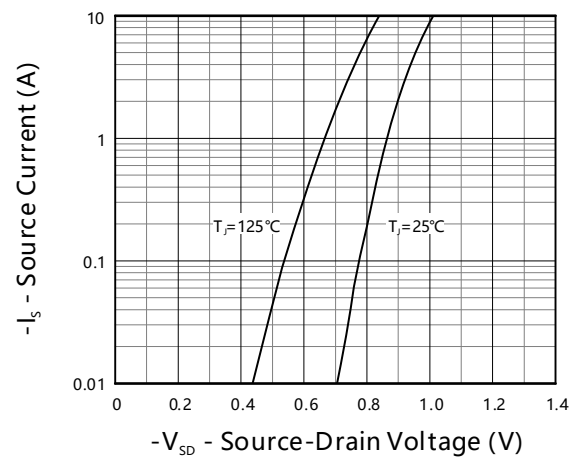


Fig 10. Diode Forward Current

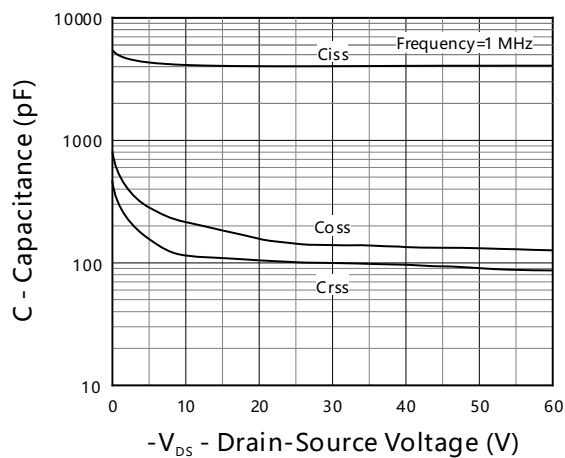


Fig 11. Capacitance

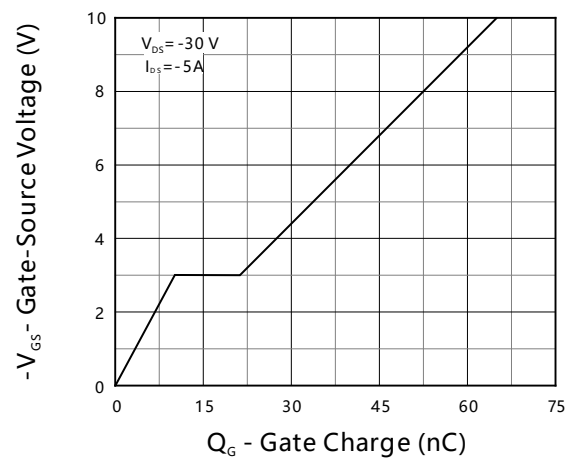
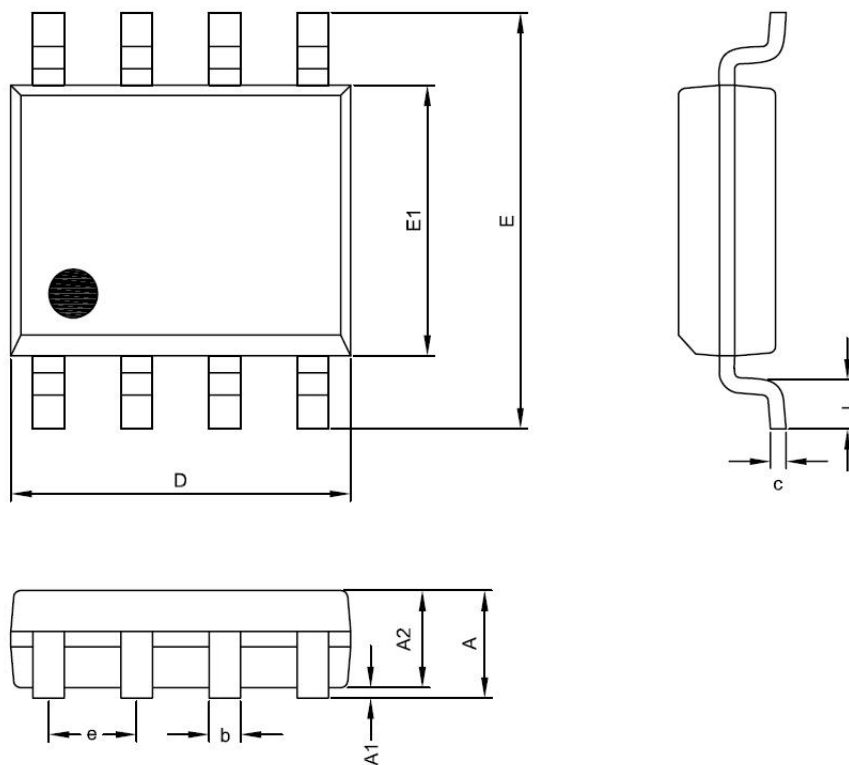


Fig 12. Gate Charge

5. Package Mechanical Data

SOP8 Package



Symbol	Dimensions in Millimeters	
	MIN	MAX
A	1.35	1.75
A1	0.00	0.25
A2	1.15	1.55
D	4.80	5.10
E	5.80	6.30
E1	3.80	4.00
c	0.19	0.27
b	0.33	0.53
e	1.27 BSC	
L	0.40	1.27