

Dual P-Channel Enhancement Mode MOSFET

1. Product Information

Features

Advanced trench technology
Excellent $R_{DS(ON)}$ Low gate charge

Applications

Power switching application
Hard switched and high frequency
circuits Uninterruptible power supply

Quick reference

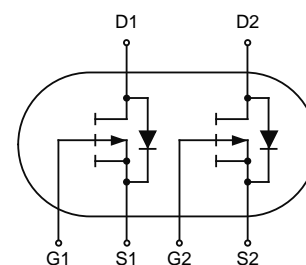
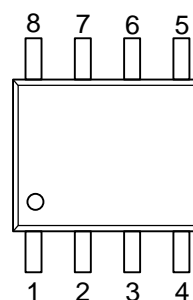
$V_{DS} = -20V$
 $I_D = -6A$
 $R_{DS(ON)} \cong 55m\Omega @ V_{GS} = -4.5V$ (Type: 40m Ω)
 $R_{DS(ON)} \cong 65m\Omega @ V_{GS} = -2.5V$ (Type: 50m Ω)

Pin Description

Pin	Description
1	Source 2
2	Gate 2
3	Source 1
4	Gate 1
5,6	Drain 1
7,8	Drain 2

Simplified Outline

Symbol



Top View
SOP8

Package Marking and Ordering Information

Product Name	Package	Marking	Reel Size	Tape width	Quantity
KJ4963S	SOP8	4963	-	-	4000

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

Parameter	Symbol	Limit	Unit
Drain-source voltage	V_{DS}	-20	V
Gate-source voltage	V_{GS}	± 12	V
Drain Current-Continuous (Silicon Limited)	I_D	$T_A = 25^\circ C$	-6
		$T_A = 70^\circ C$	-5
Pulsed Drain Current (Package Limited)	I_{DM}	-24	A
Maximum power dissipation	P_D	$T_A = 25^\circ C$	2
		$T_A = 70^\circ C$	1.3
Operating junction and storage temperature range	T_J, T_{stg}	-55~150	$^\circ C$

3. Thermal Characteristics

Parameter		Symbol	Typ	Max	Unit
Maximum Junction-to-Ambient ^a	$t \leq 10s$	$R_{\theta JA}$	48	62.5	°C/W
Maximum Junction-to-Ambient ^a	Steady-State		74	110	
Maximum Junction-to-Foot ^b	Steady-State	$R_{\theta JC}$	35	50	

Notes

a: The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ\text{C}$. The value in any given application depends on the user's specific board design. The current rating is based on the $t \leq 10s$ thermal resistance rating.

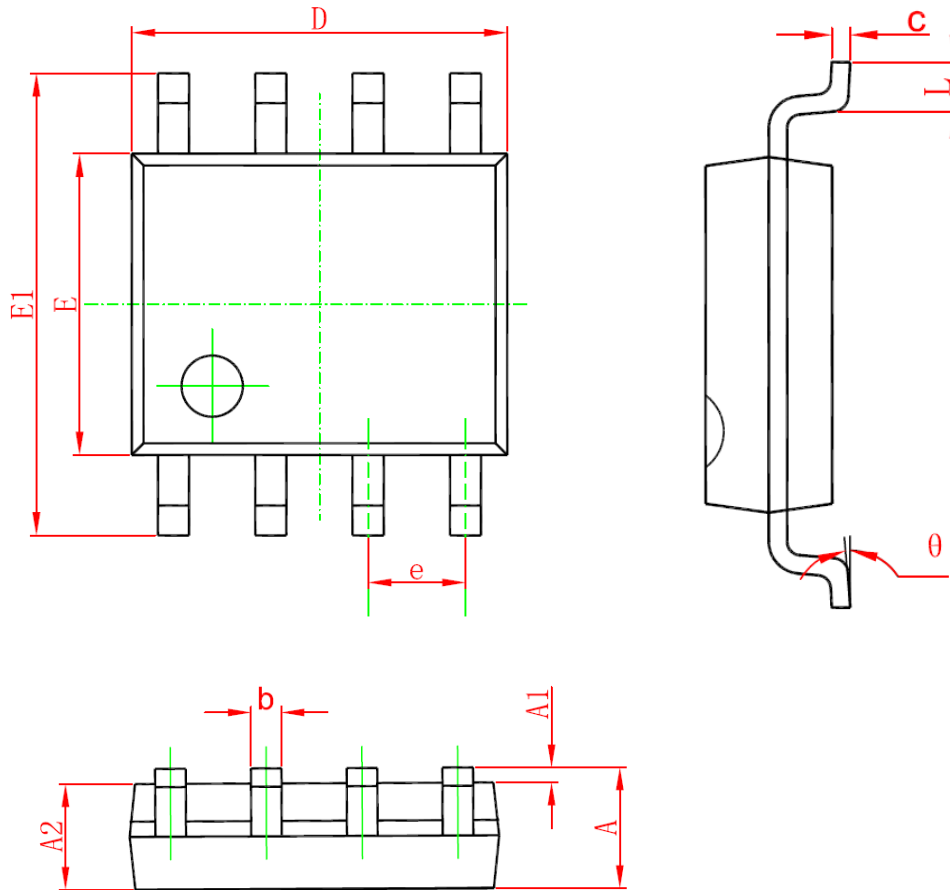
b: The $R_{\theta JA}$ is the sum of the thermal impedance from junction to lead $R_{\theta JC}$ and lead to ambient.

4. Electrical Characteristics ($T_A=25^\circ\text{C}$, unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF Characteristics						
Drain-source breakdown voltage	BV_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	-20	-	-	V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=-20V, V_{GS}=0V$	-	-	-1	μA
Gate-body leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 12V$	-	-	± 100	nA
ON Characteristics						
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.5	-0.85	-1.2	V
Drain-source on-state resistance ^a	$R_{DS(ON)}$	$V_{GS}=-4.5V, I_D=-6A$	-	40	55	m Ω
		$V_{GS}=-2.5V, I_D=-5A$	-	50	65	
Forward transconductance ^a	g_{fs}	$V_{DS}=-5V, I_D=-7A$	-	5	-	S
Dynamic Characteristics ^b						
Input capacitance	C_{iss}	$V_{DS}=-10V, V_{GS}=0V$ $F=1.0MHz$	-	740	-	pF
Output capacitance	C_{oss}		-	290	-	
Reverse transfer capacitance	C_{rss}		-	190	-	
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=-10V$ $I_D=-6A$ $V_{GS}=-4.5V$ $R_L=9.1\Omega$ $R_{GEN}=1\Omega$	-	12.5	-	nS
Turn-on Rise Time	t_r		-	35	-	
Turn-off Delay Time	$t_{d(off)}$		-	30	-	
Turn-off Fall Time	t_f		-	10	-	
Total Gate Charge	Q_g	$V_{DS}=-10V, I_D=-4A$ $V_{GS}=-4.5V$	-	8	-	nC
Gate-Source Charge	Q_{gs}		-	2	-	
Gate-Drain Charge	Q_{gd}		-	3	-	
Drain-source Diode Characteristics						
Diode forward voltage	V_{SD}	$V_{GS}=0V, I_S=-1A$	-	-0.7	-1.2	V

5. Package Mechanical Data

SOP8 package



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270 (BSC)		0.050 (BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°