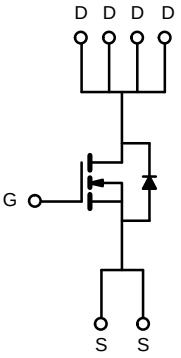
N-Channel 30-V (D-S) MOSFET

KI9410DY

■ Features

- V_{DS} (V) = 30V
- I_D = 7 A (VGS = 10V)
- $R_{DS(ON)}$ ＜0.03 Ω (VGS = 10V)
- $R_{DS(ON)}$ ＜0.04 Ω (VGS = 5V)
- $R_{DS(ON)}$ ＜0.05 Ω (VGS = 4.5V)



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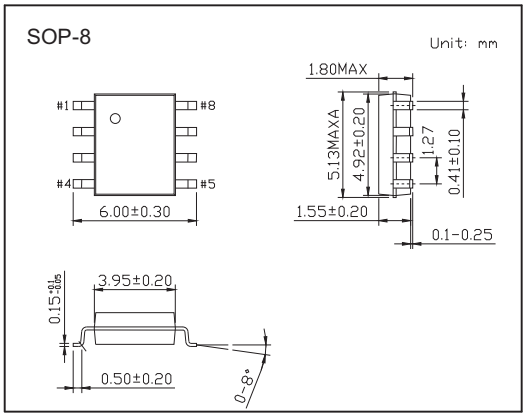

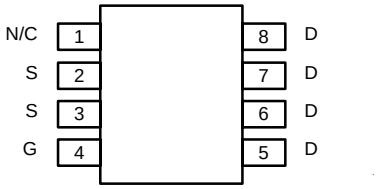

Top View

■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current (T_J = 150 ℃)*	T_A = 25℃	I_D	7.0	A
	T_A = 70℃		5.8	
Pulsed Drain Current		I_{DM}	30	A
Continuous Source Current(Diode Conduction) *		I_S	2.8	A
Maximum Power Dissipation *	T_A = 25℃	P_D	2.5	W
	T_A = 70℃		1.6	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	℃
Maximum Junction-to-Ambient*	t ≤ 10 sec	R_{thJA}	50	℃/W

* Surface Mounted on 1” x 1” FR4 Board.

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 μA	1.0			V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 24 V, V_{GS} = 0 V			2	μA
		V_{DS} = 24 V, V_{GS} = 0 V, T_J = 55℃			25	
On-State Drain Currentb *	$I_{D(on)}$	V_{DS} ⩾ 5 V, V_{GS} = 10 V	30			A
Drain-Source On-State Resistance *	$r_{DS(on)}$	V_{GS} = 10 V, I_D = 7 A		0.024	0.030	Ω
		V_{GS} = 5 V, I_D = 4 A		0.030	0.040	Ω
		V_{GS} = 4.5 V, I_D = 3.5 A		0.032	0.050	Ω
Forward Transconductanceb *	g_{fs}	V_{DS} = 15 V, I_D = 7 A		15		S
Diode Forward Voltageb *	V_{SD}	I_S = 2 A, V_{GS} = 0 V		0.72	1.1	V
Total Gate Charge	Q_g	V_{DS} = 15 V, V_{GS} = 10 V, I_D = 7 A		24	50	nC
Gate-Source Charge	Q_{gs}			2.8		
Gate-Drain Charge	Q_{gd}			4.6		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 25 V, R_L = 25 Ω I_D = 1 A, V_{GEN} = 10 V, R_G = 6 Ω		14	30	ns
Rise Time	t_r			10	60	
Turn-Off Delay Time	$t_{d(off)}$			46	150	
Fall Time	t_f			17	140	
Source-Drain Reverse Recovery Time	t_{rr}	I_F = 2 A, di/dt = 100 A/μs		60		

* Pulse test; pulse width ⩽ 300 μs, duty cycle ⩽ 2%.