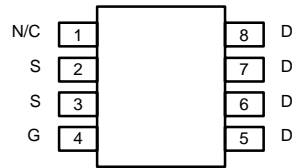
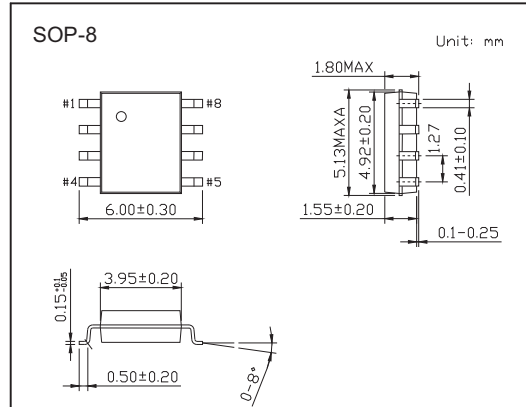
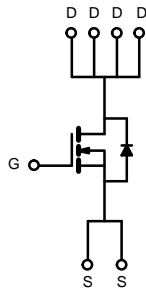


# SI9410DY

## Features

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



## Absolute Maximum Ratings $T_a = 25^\circ C$

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

\* Surface Mounted on 1" x 1" FR4 Board.

# SI9410DY

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μA	1.0			V
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 24 V, V <sub>GS</sub> = 0 V			2	μA
		V <sub>DS</sub> = 24 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 55°C			25	
On-State Drain Current <sup>b</sup> *	I <sub>D(on)</sub>	V <sub>DS</sub> ≥ 5 V, V <sub>GS</sub> = 10 V	30			A
Drain-Source On-State Resistance *	r <sub>DS(on)</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 7 A		0.024	0.030	Ω
		V <sub>GS</sub> = 5 V, I <sub>D</sub> = 4 A		0.030	0.040	Ω
		V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 3.5 A		0.032	0.050	Ω
Forward Transconductance <sup>b</sup> *	g <sub>fs</sub>	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 7 A		15		S
Diode Forward Voltage <sup>b</sup> *	V <sub>SD</sub>	I <sub>S</sub> = 2 A, V <sub>GS</sub> = 0 V		0.72	1.1	V
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 10 V, I <sub>D</sub> = 7 A		24	50	nC
Gate-Source Charge	Q <sub>gs</sub>			2.8		
Gate-Drain Charge	Q <sub>gd</sub>			4.6		
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = 25 V, R <sub>L</sub> = 25 Ω I <sub>D</sub> = 1 A, V <sub>GEN</sub> = 10 V, R <sub>G</sub> = 6 Ω		14	30	ns
Rise Time	t <sub>r</sub>			10	60	
Turn-Off Delay Time	t <sub>d(off)</sub>			46	150	
Fall Time	t <sub>f</sub>			17	140	
Source-Drain Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 2 A, di/dt = 100 A/μs		60		

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

■ Marking

Marking	9410
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