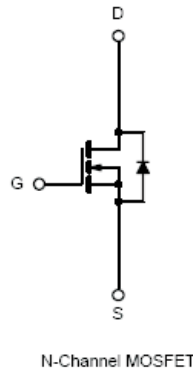
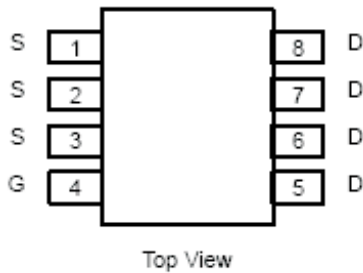
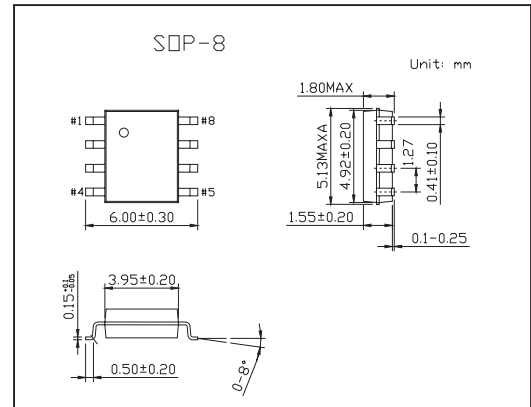


N-Channel Qg, Fast Switching WFET™ KI4390DY

■ Features

- Extremely Low Q_{gd} WFET Technology for Switching Losses
- TrenchFET™ Power MOSFET



■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	10 secs	Steady State	Unit
Drain-Source Voltage	V _{DS}	30		V
Gate-Source Voltage	V _{GS}	±20		
Continuous Drain Current (T _J = 150 °C) T _A = 25°C	I _D	12.5	8.5	A
T _A = 70°C		10	6.8	
Pulsed Drain Current	I _{DM}	20		
Continuous Source Current (Diode Conduction)*	I _S	2.7	1.3	W
Maximum Power Dissipation *	P _D	T _A = 25°C	3	
		T _A = 70°C	1.9	0.9
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55 to 150		°C

*Surface Mounted on 1" X 1" FR4 Board.

KI4390DY

■ Thermal Resistance Ratings

Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient *	t ≤ 10 sec	32	42	°C/W
	Steady-State	68	90	
Maximum Junction-to-Foot (Drain)	Steady-State	15	20	

* Surface Mounted on 1" X 1" FR4 Board.

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	0.8		2.8	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			1	μA
		V _{DS} = 24 V, V _{GS} = 0 V, T _J = 55°C			5	
On-State Drain Current*	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 = 12.5 A		0.0075	0.0095	Ω
		V _{GS} = 4.5 V, I _D = 10.5 A		0.0105	0.0135	
Forward Transconductance	g _{fs}	V _{DS} = 15 V, I _D = 12.5 A		38		S
Schottky Diode Forward Voltage*	V _{SD}	I _S = 2.7 A, V _{GS} = 0 V		0.7		V
Total Gate Charge	Q _g	V _{DS} = 15 V, V _{GS} = 4.5 V, I _D = 12.5 A		10	15	nC
Gate-Source Charge	Q _{gs}			3.5		
Gate-Drain Charge	Q _{gd}			2.1		
Gate Resistance	R _g			0.8		Ω
Turn-On Delay Time	t _{d(on)}	V _{DD} =15V, R _L =15 Ω, I _D =1A, V _{GEN} =10V, R _G =6 Ω		16	30	ns
Rise Time	t _r			6	12	
Turn-Off Delay Time	t _{d(off)}			43	70	
Fall Time	t _f			14	25	
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 2.7 A, di/dt = 100 A/μs		35	60	ns

* Pulse test :Pulse width ≤ 300 μs, duty cycle ≤ 2%