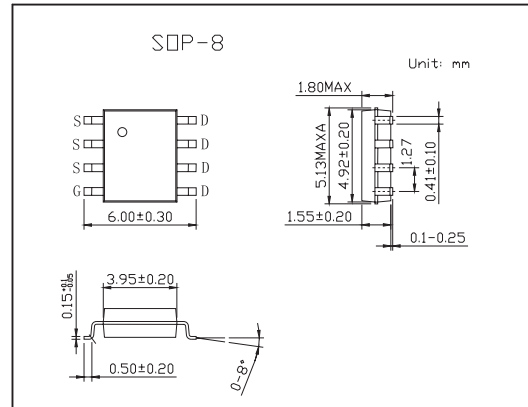
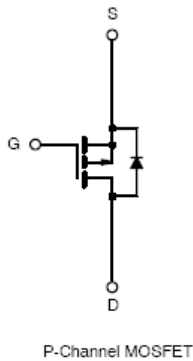


## P-Channel 1.8-V (G-S) MOSFET

## KI4433DY

## ■ Features

- TrenchFET Power MOSFETS
- Fast Switching
- 100% R<sub>g</sub> Tested



## ■ Absolute Maximum Ratings Ta = 25°C

Parameter		Symbol	10 secs	Steady State	Unit
Drain-Source Voltage		V <sub>DS</sub>	-20		V
Gate-Source Voltage		V <sub>GS</sub>	±8		
Continuous Drain Current (T <sub>J</sub> = 150 °C) *	T <sub>A</sub> = 25°C	I <sub>D</sub>	-3.9	-2.9	A
	T <sub>A</sub> = 85°C		-2.8	-2.1	
Pulsed Drain Current		I <sub>DM</sub>	-10		
Continuous Source Current *		I <sub>S</sub>	-2.1	-1.2	A
Maximum Power Dissipation *	T <sub>A</sub> = 25°C	P <sub>D</sub>	2.5	1.4	W
	T <sub>A</sub> = 85°C		1.3	0.7	
Operating Junction and Storage Temperature Range		T <sub>J</sub> , T <sub>stg</sub>	-55 to 150		°C

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

## ■ Thermal Resistance Ratings Ta = 25°C

Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient *	t ≤ 10 sec	R <sub>thJA</sub>	40	50	°C/W
	Steady State		75	90	
Maximum Junction-to-Foot(Drain)	Steady State	R <sub>thJF</sub>	19	25	

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

## KI4433DY

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	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	-0.45		-1.0	V
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±8 V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -20 V, V <sub>GS</sub> = 0 V			-1	μA
		V <sub>DS</sub> = -20 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 85°C			-5	μA
On-State Drain Current*	I <sub>D(on)</sub>	V <sub>DS</sub> ≤ -5 V, V <sub>GS</sub> = -4.5 V	-10			A
Drain-Source On-State Resistance	r <sub>Ds(on)</sub>	V <sub>GS</sub> = -4.5 V, I <sub>D</sub> = -2.7 A		0.095	0.110	Ω
		V <sub>GS</sub> = -2.5 V, I <sub>D</sub> = -2.2A		0.137	0.160	
		V <sub>GS</sub> = -1.8V, I <sub>D</sub> = -1 A		0.205	0.24	
Forward Transconductance *	g <sub>fs</sub>	V <sub>DS</sub> = -10 V, I <sub>D</sub> = -2.7 A		7		S
Schottky Diode Forward Voltage *	V <sub>SD</sub>	I <sub>S</sub> = -0.9A, V <sub>GS</sub> = 0 V		-0.8	-1.2	V
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = -10 V, V <sub>GS</sub> = -4.5 V, I <sub>D</sub> = -2.7A		5.1	7.7	nC
Gate-Source Charge	Q <sub>gs</sub>			1.2		nC
Gate-Drain Charge	Q <sub>gd</sub>			1.0		nC
Gate Resistance	R <sub>g</sub>		3	6	9.7	Ω
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = -10 V, R <sub>L</sub> = 10 Ω I <sub>D</sub> = -1 A, V <sub>GEN</sub> = -4.5 V, R <sub>G</sub> = 6 Ω		16	25	ns
Rise Time	t <sub>r</sub>			30	45	ns
Turn-Off Delay Time	t <sub>d(off)</sub>			30	45	ns
Fall Time	t <sub>f</sub>			27	40	ns
Source-Drain Reverse Recovery Time	t <sub>rr</sub>		I <sub>F</sub> = -0.9 A, di/dt = 100 A/μs		20	40

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