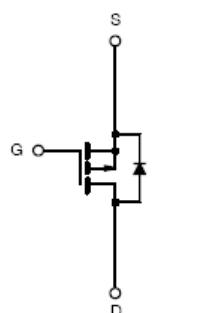# P-Channel 1.8-V (G-S) MOSFET
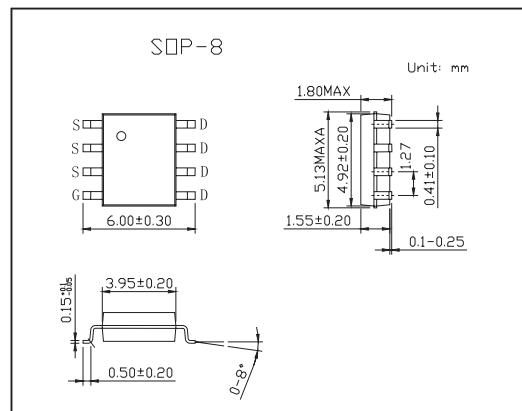
KI4433DY

■ Features

● TrenchFET Power MOSFETS

● Fast Switching

● 100% R_g Tested

P-Channel MOSFET

■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	10 secs	Steady State	Unit
Drain-Source Voltage		V_{DS}	-20		V
Gate-Source Voltage		V_{GS}	± 8		
Continuous Drain Current (T_J = 150 ℃) *	T_A = 25℃	I_D	-3.9	-2.9	A
	T_A = 85℃		-2.8	-2.1	
Pulsed Drain Current		I_{DM}	-10		
Continuous Source Current *		I_S	-2.1	-1.2	A
Maximum Power Dissipation *	T_A = 25℃	P_D	2.5	1.4	W
	T_A = 85℃		1.3	0.7	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150		℃

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

■ Thermal Resistance Ratings Ta = 25℃

Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient *	t≤10 sec	R_{thJA}	40	50	℃/W
	Steady State		75	90	
Maximum Junction-to-Foot(Drain)	Steady State	R_{thJF}	19	25	

* 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	-0.45		-1.0	V
Gate-Body Leakage	I$_{GSS}$	V$_{DS}$ = 0 V, V$_{GS}$ = ±8 V			±100	nA
Zero Gate Voltage Drain Current	I$_{DSS}$	V$_{DS}$ = -20 V, V$_{GS}$ = 0 V			-1	μA
		V$_{DS}$ =-20 V, V$_{GS}$ = 0 V, T$_J$ =85℃			-5	μA
On-State Drain Current*	I$_{D(on)}$	V$_{DS}$ ≤- 5 V, V$_{GS}$ =- 4.5 V	-10			A
Drain-Source On-State Resistance	rDS(on)	V$_{GS}$ = -4.5 V, I$_D$ = -2.7 A		0.095	0.110	Ω
		V$_{GS}$ = -2.5 V, I$_D$ = -2.2A		0.137	0.160	
		V$_{GS}$ = -1.8V, I$_D$ = -1 A		0.205	0.24	
Forward Transconductance *	gfs	V$_{DS}$ = -10 V, I$_D$ = -2.7 A		7		S
Schottky Diode Forward Voltage *	V$_{SD}$	I$_S$ = -0.9A, V$_{GS}$ = 0 V		-0.8	-1.2	V
Total Gate Charge	Q$_g$	V$_{DS}$ = -10 V, V$_{GS}$ = -4.5 V, I$_D$ = -2.7A		5.1	7.7	nC
Gate-Source Charge	Q$_{gs}$			1.2		nC
Gate-Drain Charge	Q$_{gd}$			1.0		nC
Gate Resistance	R$_g$		3	6	9.7	Ω
Turn-On Delay Time	t$_{d(on)}$	V$_{DD}$ = -10 V, R$_L$ = 10 Ω		16	25	ns
Rise Time	t$_r$			30	45	ns
Turn-Off Delay Time	t$_{d(off)}$	I$_D$ = -1 A, V$_{GEN}$ = -4.5 V, R$_G$ = 6 Ω		30	45	ns
Fall Time	t$_f$			27	40	ns
Source-Drain Reverse Recovery Time	t$_{rr}$	I$_F$ = -0.9 A, di/d$_t$ = 100 A/μs		20	40	ns

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