P-Channel 1.8-V (G-S) MOSFET
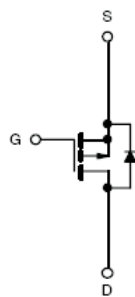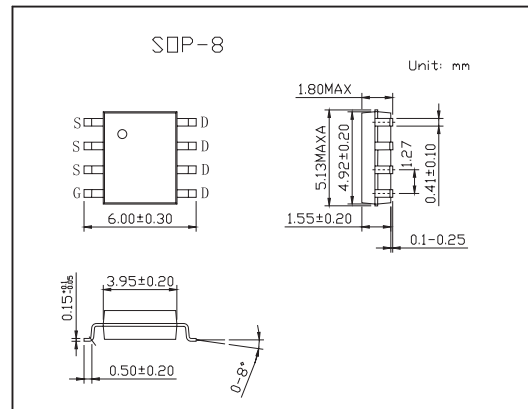
KI4403BDY

■ Features

● TrenchFET Power MOSFET

P-Channel MOSFET

■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	10 sec	Steady State	Unit
Drain-Source Voltage	V$_{DS}$	-20		V
Gate-Source Voltage	V$_{GS}$	±8		V
Continuous Drain Current (T$_J$=150℃) * T$_A$=25℃ T$_A$=70℃	I$_D$	-9.9 -7.9	-7.3 -5.8	A
Pulsed Drain Current	I$_{DM}$	-30		A
Continuous Source Current (diode conduction) *	I$_S$	-2.3	-1.3	A
Power Dissipation * T$_A$=25℃ T$_A$=70℃	P$_D$	2.5 1.6	1.35 0.87	W
Jumction Temperature	T$_j$	150		℃
Storage Temperature	T$_{stg}$	-55 to +150		℃

* 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	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = -350$ μA	-0.45		-1.0	V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0$ V, $V_{GS} = \pm 8$ V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -16$ V, $V_{GS} = 0$ V			-1	μA
		$V_{DS} = -16$ V, $V_{GS} = 0$ V, $T_J = 70$ ℃			-10	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \leqslant -5$ V, $V_{GS} = -4.5$ V	20			A
Drain-Source On-State Resistance *	$r_{DS(on)}$	$V_{GS} = -4.5$ V, $I_D = -9.9$ A		0.014	0.017	Ω
		$V_{GS} = -2.5$ V, $I_D = -8.5$A		0.018	0.023	
		$V_{GS} = -1.8$ V, $I_D = -3.1$ A		0.024	0.032	
Forward Transconductance *	g_{fs}	$V_{DS} = -15$ V, $I_D = -9.9$ A		36		S
Diode Forward Voltage *	V_{SD}	$I_S = -2.3$A, $V_{GS} = 0$ V		-0.8	-1.1	V
Total Gate Charge	Q_g	$V_{DS} = -10$V , $V_{GS} = -5$ V , $I_D = -9.9$ A		33	50	nC
Gate-Source Charge	Q_{gs}			4.2		
Gate-Drain Charge	Q_{gd}			7.6		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -10$V , $R_L = 15$ Ω , $I_D = -1$A , $V_{GEN} = -4.5$V , $R_G = 6$ Ω		25	40	ns
Rise Time	t_r			45	70	
Turn-Off Delay Time	$t_{d(off)}$			150	225	
Fall Time	t_f			70	110	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = -2.3$ A, $di/dt = 100$ A/μs		40	60	

* Pulse test: PW ≤ 300 μs duty cycle ≤ 2%.