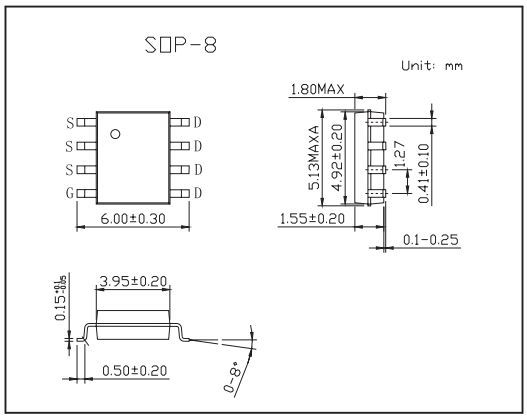
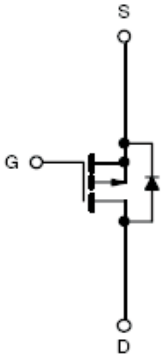
P-Channel 12-V (D-S) MOSFET

KI4453DY



■ Features

- TrenchFET Power MOSFETS



P-Channel MOSFET

■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	10 secs	Steady State	Unit
Drain-Source Voltage		V_{DS}	-12		V
Gate-Source Voltage		V_{GS}	±8		
Continuous Drain Current (T_J = 150 ℃) *	T_A = 25℃	I_D	-14	-10	A
	T_A = 70℃		-11.5	-8	
Pulsed Drain Current		I_{DM}	-50		
Continuous Source Current *		I_S	-2.7	-1.36	A
Maximum Power Dissipation *	T_A = 25℃	P_D	3.0	1.5	W
	T_A = 70℃		1.9	0.95	
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}	33	42	℃/W
	Steady State		70	84	
Maximum Junction-to-Foot(Drain)	Steady State	R_{thJF}	16	21	

* 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 = -600μA	-0.4		-0.9	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} = -12 V, V_{GS} = 0 V			-1	μA
		V_{DS} =-20 V, V_{GS} = 0 V, T_J =70℃			-10	μA
On-State Drain Current*	$I_{D(on)}$	V_{DS} =- 5 V, V_{GS} =- 4.5 V	-30			A
Drain-Source On-State Resistance	$r_{DS(on)}$	V_{GS} = -4.5 V, I_D = -14A		0.0051	0.0065	Ω
		V_{GS} = -2.5 V, I_D = -13A		0.0062	0.00775	
		V_{GS} = -1.8V, I_D = -12A		0.0082	0.01025	
Forward Transconductance *	g_{fs}	V_{DS} = -6 V, I_D = -14 A		80		S
Schottky Diode Forward Voltage *	V_{SD}	I_S = -2.7A, V_{GS} = 0 V		-0.6	-1.1	V
Total Gate Charge	Q_g	V_{DS} = -6 V, V_{GS} = -5 V, I_D = -14A		110	165	nC
Gate-Source Charge	Q_{gs}			15		nC
Gate-Drain Charge	Q_{gd}			27.5		nC
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = -6 V, R_L = 6Ω I_D = -1 A, V_{GEN} = -4.5 V, R_G = 6 Ω		110	170	ns
Rise Time	t_r			235	350	ns
Turn-Off Delay Time	$t_{d(off)}$			410	620	ns
Fall Time	t_f			285	430	ns
Source-Drain Reverse Recovery Time	t_{rr}	I_F = -2.1A, di/dt = 100 A/μs		180	270	ns
Gate Resistance	R_g			3.6		Ω

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