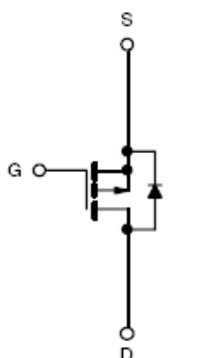


P-Channel 12-V (D-S) MOSFET

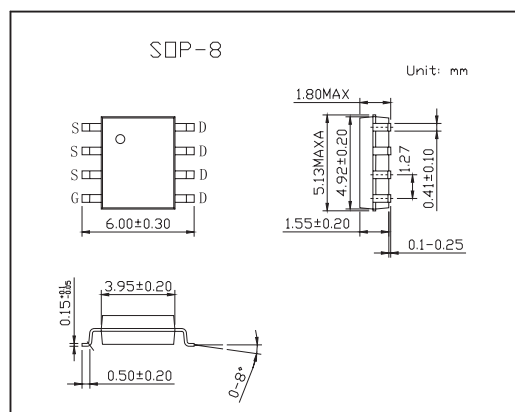
KI4453DY

■ Features

- TrenchFET Power MOSFETS



P-Channel MOSFET

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

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 °C) *	T _A = 25 °C	I _D	-14	-10	A
	T _A = 70 °C		-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 °C	P _D	3.0	1.5	W
	T _A = 70 °C		1.9	0.95	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	-55 to 150		°C

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

■ Thermal Resistance Ratings $T_a = 25^\circ\text{C}$

Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient *	$t \leq 10 \text{ sec}$	R_{thJA}	33	42	$^\circ\text{C}/\text{W}$
	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°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -600 μ A	-0.4		-0.9	V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = $\pm$ 8 V			$\pm$ 100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -12 V, V _{GS} = 0 V			-1	μ A
		V _{DS} = -20 V, V _{GS} = 0 V, T _J = 70°C			-10	μ A
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 = 6 Ω 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/ μ s		180	270	ns
Gate Resistance	R _g			3.6		Ω

* Pulse test; pulse width $\leq$ 300 μ s, duty cycle $\leq$ 2%.