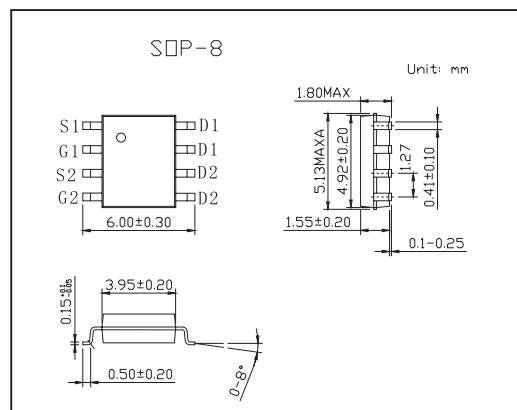
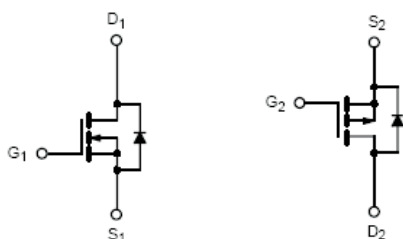


N- and P-Channel MOSFET

KI4505DY

■ Features

- TrenchFET Power MOSFET

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

Parameter	Symbol	N-Channel		P-Channel		Unit
		10 sec	Steady State	10 sec	Steady State	
Drain-Source Voltage	V_{DS}	30		-8		V
Gate-Source Voltage	V_{GS}	± 20		± 8		V
Continuous Drain Current ($T_J = 150^\circ\text{C}$)* $T_A = 25^\circ\text{C}$	I_D	7.8	6	-5	-3.8	A
$T_A = 70^\circ\text{C}$		6	5.2	-3.6	-3	A
Pulsed Drain Current	I_{DM}	30		-30		A
Continuous Source Current (Diode Conduction)*	I_S	1.8	1	-1.8	1	A
Maximum Power Dissipation* $T_A = 25^\circ\text{C}$	P_D	2	1.2	2	1.2	W
$T_A = 70^\circ\text{C}$		1.3	0.75	1.3	0.75	W
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150				$^\circ\text{C}$

*Surface Mounted on FR4 Board; $t \leq 10$ sec.

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

Parameter		Symbol	N-Channel		P-Channel		Unit
			Typ	Max	Typ	Max	
Maximum Junction-to-Ambient*	$t \leq 10$ sec	R_{thJA}	50	62.5	50	62.5	$^\circ\text{C/W}$
	Steady State		85	105	85	105	
Maximum Junction-to-Foot	Steady State	R_{thJc}	30	40	30	40	

*Surface Mounted on FR4 Board.

KI4505DY

■ Electrical Characteristics $T_J = 25^\circ\text{C}$

Parameter	Symbol	Testconditons		Min	Typ	Max	Unit	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μ A	N-Ch	0.8		1.8	V	
		V _{DS} = V _{GS} , I _D = -250 μ A	P-Ch	-0.45		1.0		
Gate Body Leakage	I _{GSS}	V _{DS} = 0 V V _{GS} = ±20 V	N-Ch			± 100	nA	
		V _{DS} = 0 V V _{GS} = ±8 V	P-Ch			± 100		
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24V, V _{GS} = 0 V	N-Ch			1		
		V _{DS} = -6.4V, V _{GS} = 0 V	P-Ch			-1		
		V _{DS} = 24 V, V _{GS} = 0 V, T _J = 55℃	N-Ch			5	μ A	
		V _{DS} = -6.4V, V _{GS} = 0 V, T _J = 55℃	P-Ch			-5		
On State Drain Currenta	I _{D(on)}	V _{DS} =5 V, V _{GS} = 10 V	N-Ch	20			A	
		V _{DS} =-5 V, V _{GS} = -4.5 V	P-Ch	-20				
Drain Source On State Resistance*	r _{DS(on)}	V _{GS} = 10 V, I _D = 7.8A	N-Ch		0.015	0.018	Ω	
		V _{GS} = -4.5 V, I _D = -5.0A	P-Ch		0.030	0.042		
		V _{GS} = 4.5 V, I _D = 6.4A	N-Ch		0.022	0.027		
		V _{GS} = -2.5 V, I _D = -4.0A	P-Ch		0.048	0.060		
Forward Transconductance*	g _{fs}	V _{DS} = 15 V, I _D = 7.8A	N-Ch		18		S	
		V _{DS} = -15 V, I _D = -5.0A	P-Ch		12			
Diode Forward Voltage*	V _{SD}	I _S = 1.8A, V _{GS} = 0 V	N-Ch		0.73	1.1	V	
		I _S = -1.8A, V _{GS} = 0 V	P-Ch		-0.75	- 1.1		
Total Gate Charge	Q _g	N-Channel V _{DS} = 15 V, V _{GS} = 5V, I _D = 7.8A	N-Ch		11.5	20	nC	
Gate Source Charge	Q _{gs}		P-Ch		13.5	20		
Gate Drain Charge	Q _{gd}	P-Channel V _{DS} = -4 V, V _{GS} = -5 V, I _D = -5.0A	N-Ch		3			
			P-Ch		2.2			
Turn On Time	t _{d(on)}	N Channel V _{DD} = 15 V, R _L = 15 Ω I _D = 1A, V _{GEN} = 10V, R _g = 6 Ω	N-Ch		15	25	ns	
Rise Time	t _r		P-Ch		21	40		
Turn Off Delay Time	t _{d(off)}	P-Channel V _{DD} = -4 V, R _L = 4 Ω I _D = -1 A, V _{GEN} = -4.5 V, R _g = 6 Ω	N-Ch		35	55		
			P-Ch		60	100		
Fall Time	t _f		N-Ch		10	20		
			P-Ch		55	85		
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 1.8 A, di/dt = 100 A/ μ s	N-Ch		30	60		
			P-Ch		50	100		

* Pulse test; pulse width $\leq 300 \mu\text{s}$, duty cycle $\leq 2\%$.