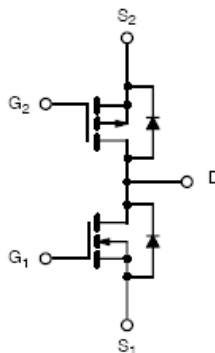
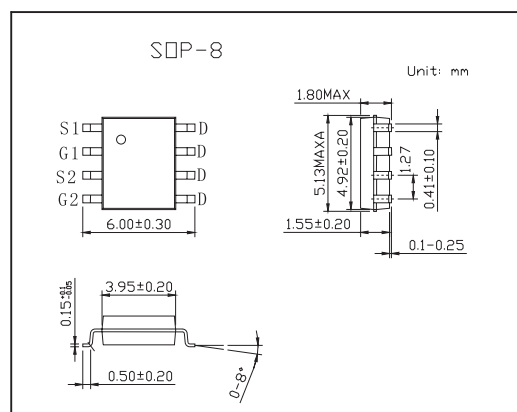


Complementary MOSFET Half-Bridge (N- and P-Channel)

KI4500BDY

■ 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}	20		-20		V
Gate-Source Voltage	V_{GS}	± 12		± 12		V
Continuous Drain Current $T_A = 25^\circ\text{C}$ ($T_J = 150^\circ\text{C}$)*	I_D	9.1	6.6	75.3	-3.8	A
		7.3	5.3	-4.9	-3.1	A
Pulsed Drain Current	I_{DM}	30		-20		A
Continuous Source Current (Diode Conduction)*	I_S	2.1	1.1	-2.1	-1.1	A
Maximum Power Dissipation* $T_A = 25^\circ\text{C}$ $T_A = 70^\circ\text{C}$	P_D	2.5	1.3	2.5	1.3	W
		1.6	0.8	1.6	0.8	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}	40	50	41	50	$^\circ\text{C/W}$
	Steady State		75	95	75	95	
Maximum Junction-to-Foot	Steady State	R_{thJc}	20	22	23	26	

*Surface Mounted on FR4 Board.

KI4500BDY

■ Electrical Characteristics Ta = 25°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	0.6		1.5	V
		V _{DS} = V _{GS} , I _D = -250 μ A	P-Ch	-0.6		-1.5	
Gate Body Leakage	I _{GSS}	V _{DS} = 0 V V _{GS} = ±12 V	N-Ch P-Ch			±100 ±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 20V, V _{GS} = 0 V	N-Ch			1	
		V _{DS} = -16V, V _{GS} = 0 V	P-Ch			-1	
		V _{DS} = 20 V, V _{GS} = 0 V, T _J = 55℃	N-Ch			5	μ A
		V _{DS} = -16V, V _{GS} = 0 V, T _J = 55℃	P-Ch			-5	
On State Drain Currenta	I _{D(on)}	V _{DS} =5 V, V _{GS} = 4.5 V	N-Ch	30			A
		V _{DS} =-5 V, V _{GS} = -4.5 V	P-Ch	-20			
Drain Source On State Resistance*	r _{DS(on)}	V _{GS} = 4.5 V, I _D = 9.1A	N-Ch		0.016	0.020	Ω
		V _{GS} = -4.5 V, I _D = -5.3A	P-Ch		0.048	0.060	
		V _{GS} = 2.5 V, I _D = 3.3A	N-Ch		0.024	0.030	
		V _{GS} = -2.5 V, I _D = -1A	P-Ch		0.082	0.100	
Forward Transconductance*	g _{fs}	V _{DS} = 15 V, I _D = 9.1A	N-Ch		29		mS
		V _{DS} = -15 V, I _D = -5.3A	P-Ch		11		
Diode Forward Voltage*	V _{SD}	I _S = 2.1A, V _{GS} = 0 V	N-Ch		0.8	1.2	V
		I _S = -2.1A, V _{GS} = 0 V	P-Ch		0.8	-1.2	
Total Gate Charge	Q _g	N-Channel V _{DS} = 10 V, V _{GS} = 4.5V, I _D = 9.1A P-Channel V _{DS} = -10 V, V _{GS} = -4.5 V, I _D = -5.3A	N-Ch		11	17	nC
Gate Source Charge	Q _{gs}		P-Ch		6.0	9	
			N-Ch		2.5		
Gate Drain Charge	Q _{gd}		P-Ch		1.3		
Turn On Time	t _{d(on)}	N Channel V _{DD} = 10 V, R _L = 10 Ω I _D = 1A, V _{GEN} = 10V, R _g = 6 Ω P-Channel V _{DD} = -10 V, R _L = 10 Ω I _D = -1 A, V _{GEN} = -4.5 V, R _g = 6 Ω	N-Ch		35	50	ns
			P-Ch		20	30	
Rise Time	t _r		N-Ch		50	80	
			P-Ch		35	60	
Turn Off Delay Time	t _{d(off)}		N-Ch		31	50	
			P-Ch		55	85	
Fall Time	t _f		N-Ch		15	30	
			P-Ch		35	60	
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 2.1A, di/dt = 100 A/ μ s	N-Ch		30	60	
		I _F =- 2.1 A, di/dt = 100 A/ μ s	P-Ch		25	50	

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