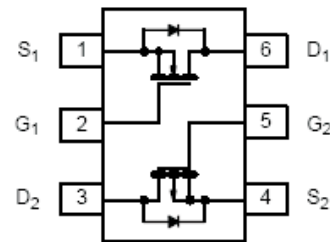
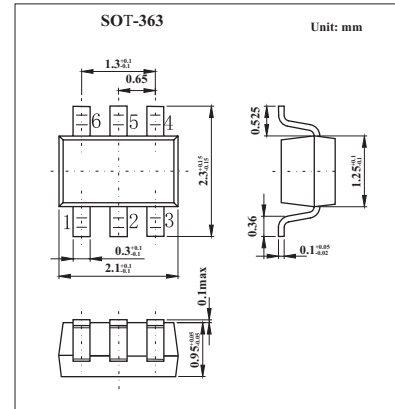
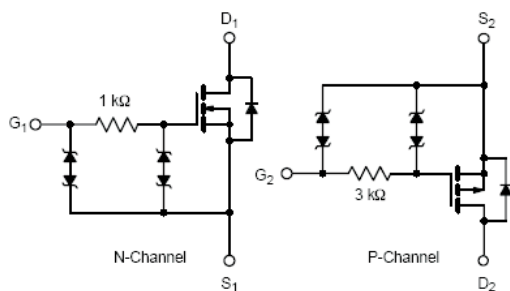


## Complementary 20-V (D-S) Low-Threshold MOSFET

## KI1563EDH

## ■ Features

- TrenchFET Power MOSFETs

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

Parameter	Symbol	N-Channel		P-Channel		Unit	
		5 secs	Steady State	5 secs	Steady State		
Drain-Source Voltage	$V_{DS}$	20		-20		V	
Gate-Source Voltage	$V_{GS}$	$\pm 12$				V	
Continuous Drain Current ( $T_J = 150^\circ\text{C}$ )* $T_A = 25^\circ\text{C}$	$I_D$	1.28	1.13	-1	-0.88	A	
		$T_A = 85^\circ\text{C}$	0.92	0.81	-0.72	-0.63	A
Pulsed Drain Current	$I_{DM}$	4		-3		A	
Continuous Source Current (Diode Conduction)*	$I_S$	0.61	0.48	-0.61	-0.48	A	
Maximum Power Dissipation*	$P_D$	$T_A = 25^\circ\text{C}$	0.74	0.57	0.3	0.57	W
		$T_A = 85^\circ\text{C}$	0.38	0.3	0.16	0.3	W
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to 150				$^\circ\text{C}$	

\*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*	$t \leq 5 \text{ sec}$	$R_{thJA}$	130	170	$^\circ\text{C}/\text{W}$
	Steady State		170	220	
Maximum Junction-to-Foot (Drain)	Steady State	$R_{thJF}$	80	100	

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

## KI1563EDH

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

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 100 \mu\text{A}$	N-Ch	0.45		V	
		$V_{DS} = V_{GS}, I_D = -100 \mu\text{A}$	P-Ch	-0.45			
Gate Body Leakage	$I_{GSS}$	$V_{DS} = 0\text{V}, V_{GS} = \pm 4.5\text{V}$	N-Ch		$\pm 1$	$\mu\text{A}$	
			P-Ch		$\pm 1$		
		$V_{DS} = 0\text{V}, V_{GS} = \pm 12\text{V}$	N-Ch		$\pm 10$	mA	
			P-Ch		$\pm 10$		
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 16\text{V}, V_{GS} = 0\text{V}$	N-Ch		1	$\mu\text{A}$	
		$V_{DS} = -16\text{V}, V_{GS} = 0\text{V}$	P-Ch		-1		
		$V_{DS} = 16\text{V}, V_{GS} = 0\text{V}, T_J = 85^\circ\text{C}$	N-Ch			5	$\mu\text{A}$
		$V_{DS} = -16\text{V}, V_{GS} = 0\text{V}, T_J = 85^\circ\text{C}$	P-Ch			-5	
On State Drain Current*	$I_{D(on)}$	$V_{DS} \geq 5\text{V}, V_{GS} = 4.5\text{V}$	N-Ch	2		A	
		$V_{DS} \leq -5\text{V}, V_{GS} = -4.5\text{V}$	P-Ch	-2			
Drain Source On State Resistance*	$r_{DS(on)}$	$V_{GS} = 4.5\text{V}, I_D = 1.13\text{A}$	N-Ch		0.220	0.280	$\Omega$
		$V_{GS} = -4.5\text{V}, I_D = -0.88\text{A}$	P-Ch		0.400	0.490	
		$V_{GS} = 2.5\text{V}, I_D = 0.99\text{A}$	N-Ch		0.281	0.360	
		$V_{GS} = -2.5\text{V}, I_D = -0.71\text{A}$	P-Ch		0.610	0.750	
		$V_{GS} = 1.8\text{V}, I_D = 0.2\text{A}$	N-Ch		0.344	0.450	
		$V_{GS} = -1.8\text{V}, I_D = -0.20\text{A}$	P-Ch		0.850	1.10	
Forward Transconductance*	$g_{fs}$	$V_{DS} = 10\text{V}, I_D = 1.13\text{A}$	N-Ch		2.6	mS	
		$V_{DS} = -10\text{V}, I_D = -0.88\text{A}$	P-Ch		1.5		
Diode Forward Voltage*	$V_{SD}$	$I_S = 0.48\text{A}, V_{GS} = 0\text{V}$	N-Ch		0.8	1.2	V
		$I_S = -0.48\text{A}, V_{GS} = 0\text{V}$	P-Ch		-0.8	-1.2	
Total Gate Charge	$Q_g$	N-Channel $V_{DS} = 10\text{V}, V_{GS} = 4.5\text{V}, I_D = 1.13\text{A}$	N-Ch		0.65	1.0	pC
Gate Source Charge	$Q_{gs}$	P-Channel $V_{DS} = -10\text{V}, V_{GS} = -4.5\text{V}, I_D = -0.88\text{A}$	N-Ch		0.2		
Gate Drain Charge	$Q_{gd}$		P-Ch		0.3		
Gate Drain Charge	$Q_{gd}$		N-Ch		0.23		
Turn On Time	$t_{d(on)}$	N Channel $V_{DD} = 10\text{V}, R_L = 20\Omega$	N-Ch		45	70	ns
Rise Time	$t_r$	$I_D = 0.5\text{A}, V_{GEN} = 4.5\text{V}, R_g = 6\Omega$	P-Ch		150	230	
			N-Ch		85	130	
Turn Off Delay Time	$t_{d(off)}$	P-Channel $V_{DD} = -10\text{V}, R_L = 20\Omega$	N-Ch		350	530	
			P-Ch		840	1200	
Fall Time	$t_f$	$I_D = -0.5\text{A}, V_{GEN} = -4.5\text{V}, R_g = 6\Omega$	N-Ch		210	320	
			P-Ch		850	1200	

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