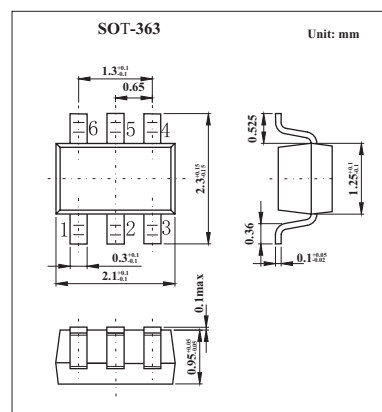
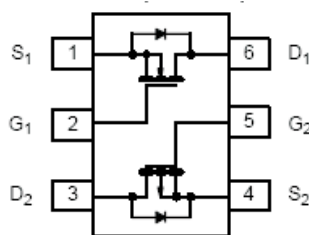
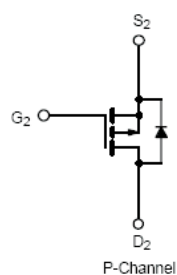
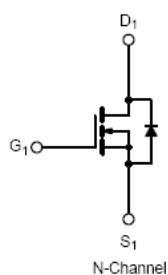


Complementary 20-V (D-S) Low-Threshold MOSFET

KI1563DH

■ Features

- TrenchFET Power MOSFETs
- Fast Switching

■ 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}	± 8				V
Continuous Drain Current (T _J = 150°C)* T _A = 25°C	I _D	1.28	1.13	-1	-0.88	A
T _A = 85°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* T _A = 25°C	P _D	0.74	0.57	0.3	0.57	W
T _A = 85°C		0.38	0.3	0.16	0.3	W
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*	$t \leq 5 \text{ sec}$	R_{thJA}	130	170	$^\circ\text{C/W}$
	Steady State		170	220	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	80	100	

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

KI1563DH

■ 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		1	V
		$V_{DS} = V_{GS}, I_D = -100\ \mu\text{A}$	P-Ch	-0.45		1	
Gate Body Leakage	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 8\text{ V}$	N-Ch P-Ch			± 100 ± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 16\text{ V}, V_{GS} = 0\text{ V}$	N-Ch			1	
		$V_{DS} = -16\text{ V}, V_{GS} = 0\text{ V}$	P-Ch			-1	μA
		$V_{DS} = 16\text{ V}, V_{GS} = 0\text{ V}, T_J = 85^\circ\text{C}$	N-Ch			5	
		$V_{DS} = -16\text{ V}, V_{GS} = 0\text{ V}, T_J = 85^\circ\text{C}$	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	Ω
		$V_{GS} = -4.5\text{ V}, I_D = -0.88\text{ A}$	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 P-Ch		1.25 1.2	2 1.8	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 P-Ch		0.21 0.3		
Gate Drain Charge	Q_{gd}		N-Ch P-Ch		0.3 0.21		
Turn On Time	$t_{d(on)}$	N Channel $V_{DD} = 10\text{ V}, R_L = 20\ \Omega$	N-Ch P-Ch		15 18	25 30	ns
Rise Time	t_r	$I_D = 0.5\text{ A}, V_{GEN} = 4.5\text{ V}, R_g = 6\ \Omega$	N-Ch P-Ch		22 25	35 40	
Turn Off Delay Time	$t_{d(off)}$	P-Channel $V_{DD} = -10\text{ V}, R_L = 20\ \Omega$	N-Ch P-Ch		25 15	40 25	
Fall Time	t_f	$I_D = -0.5\text{ A}, V_{GEN} = -4.5\text{ V}, R_g = 6\ \Omega$	N-Ch P-Ch		12 12	20 20	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = 0.48\text{ A}, di/dt = 100\text{ A}/\mu\text{s}$	N-Ch		30	60	
			P-Ch		30	60	

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