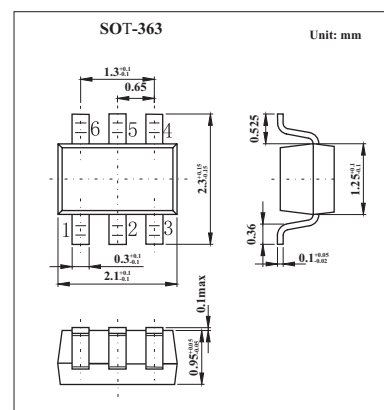
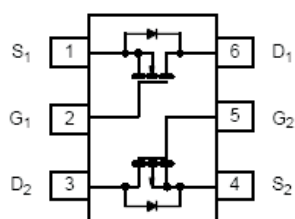


Complementary 20-V (D-S) MOSFET

KI1551DL

■ PIN Configuration

■ 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}	±12				V
Continuous Drain Current (T _J = 150°C)* T _A = 25°C	I _D	0.3	0.29	-0.44	-0.41	A
T _A = 85°C		0.22	0.21	-0.31	-0.3	A
Pulsed Drain Current	I _{DM}	0.6		-1		A
Continuous Source Current (Diode Conduction)*	I _S	0.25	0.23	-0.25	-0.23	A
Maximum Power Dissipation* T _A = 25°C	P _D	0.3	0.27	0.3	0.27	W
T _A = 85°C		0.16	0.14	0.16	0.14	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}	360	415	$^\circ\text{C}/\text{W}$
	Steady State		400	460	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	300	350	

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

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

Parameter	Symbol	Testconditions		Min	Typ	Max	Unit
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$	N-Ch	0.6			V
		$V_{DS} = V_{GS}, I_D = -250 \mu\text{A}$	P-Ch	-0.6			
Gate Body Leakage	I_{GSS}	$V_{DS} = 0\text{V}, V_{GS} = \pm 12\text{V}$	N-Ch			± 100	nA
			P-Ch			± 100	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 16\text{V}, V_{GS} = 0\text{V}$	N-Ch			1	nA
		$V_{DS} = -16\text{V}, V_{GS} = 0\text{V}$	P-Ch			-1	
		$V_{DS} = 16\text{V}, V_{GS} = 0\text{V}, T_J = 85^\circ\text{C}$	N-Ch			5	μA
		$V_{DS} = -16\text{V}, V_{GS} = 0\text{V}, T_J = 85^\circ\text{C}$	P-Ch			-5	
On State Drain Currenta	$I_{D(on)}$	$V_{DS} \geq 5\text{V}, V_{GS} = 4.5\text{V}$	N-Ch	0.6			A
		$V_{DS} \leq -5\text{V}, V_{GS} = -4.5\text{V}$	P-Ch	-1.0			
Drain Source On State Resistance*	$r_{DS(on)}$	$V_{GS} = 4.5\text{V}, I_D = 0.29\text{A}$	N-Ch		1.55	1.9	Ω
		$V_{GS} = -4.5\text{V}, I_D = -0.41\text{A}$	P-Ch		0.850	0.995	
		$V_{GS} = 2.7\text{V}, I_D = 0.1\text{A}$	N-Ch		2.8	3.7	
		$V_{GS} = -2.7\text{V}, I_D = -0.25\text{A}$	P-Ch		1.23	1.600	
		$V_{GS} = 2.5\text{V}, I_D = 0.1\text{A}$	N-Ch		3.0	4.2	
		$V_{GS} = -2.5\text{V}, I_D = -0.25\text{A}$	P-Ch		1.4	1.800	
Forward Transconductance*	g_{fs}	$V_{DS} = 10\text{V}, I_D = 0.29\text{A}$	N-Ch		0.3		mS
		$V_{DS} = -10\text{V}, I_D = -0.41\text{A}$	P-Ch		0.8		
Diode Forward Voltage*	V_{SD}	$I_S = 0.23\text{A}, V_{GS} = 0\text{V}$	N-Ch		0.8	1.2	V
		$I_S = -0.23\text{A}, V_{GS} = 0\text{V}$	P-Ch		-0.8	-1.2	
Total Gate Charge	Q_g	N-Channel $V_{DS} = 10\text{V}, V_{GS} = 4.5\text{V}, I_D = 0.29\text{A}$	N-Ch		0.72	1.5	pC
Gate Source Charge	Q_{gs}		P-Ch		0.52	1.8	
Gate Drain Charge	Q_{gd}	P-Channel $V_{DS} = -10\text{V}, V_{GS} = -4.5\text{V}, I_D = 0.41\text{A}$	N-Ch		0.22		
			P-Ch		0.11		
Turn On Time	$t_{d(on)}$	N Channel $V_{DD} = 10\text{V}, R_L = 20\Omega$	N-Ch		23	40	ns
Rise Time	t_r		P-Ch		7.5	15	
Turn Off Delay Time	$t_{d(off)}$	P-Channel $V_{DD} = -10\text{V}, R_L = 20\Omega$	N-Ch		10	20	
			P-Ch		8.5	17	
Fall Time	t_f	$I_D = -0.5\text{A}, V_{GEN} = -4.5\text{V}, R_g = 6\Omega$	N-Ch		15	30	
			P-Ch		12	24	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = 0.23\text{A}, di/dt = 100\text{A}/\mu\text{s}$	N-Ch		20	40	
		$I_F = -0.23\text{A}, di/dt = 100\text{A}/\mu\text{s}$	P-Ch		25	40	

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