TY Semicondutor®

Product specification

KI1903DL

■ Features

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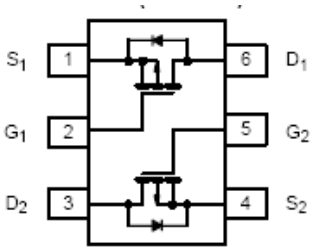

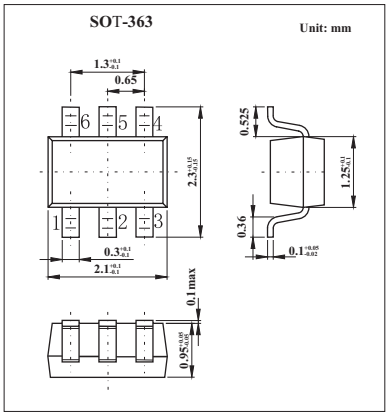

■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	5 secs	Steady State	Unit
Drain-source voltage	V_{DS}	-20		V
Gate-source voltage	V_{GS}	±12		V
Continuous drain current (T_J = 150℃)* T_A=25℃ T_A=85℃	I_D	± 0.44 ± 0.31	±0.41 ± 0.30	A
Pulsed drain current	I_{DM}	±1.0		A
Continuous source current (diode conduction) *	I_S	-0.25	-0.23	A
Power dissipation * T_A=25℃ T_A=85℃	P_D	0.30 0.16	0.27 0.14	W
Operating junction and storage temperature range	T_J,T_{stg}	-55 to +150		℃

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

■ Thermal Resistance Ratings Ta = 25℃

Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient*	t≤5 sec	R_{thJA}	360	415	℃/W
	Steady State		400	460	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	300	350	

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

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Gate threshold voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-0.6			V
Gate-body leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±12 V			±100	nA
Zero gate voltage drain current	I_{DSS}	V_{DS} = -16 V, V_{GS} = 0 V			-1	μA
		V_{DS} =-16 V, V_{GS} = 0 V, T_J = 85 ℃			-5	
On-state drain current	$I_{D(on)}$	V_{DS} =-5 V, V_{GS} = -4.5 V	-1.0			A
Drain-source on-state resistance	$r_{DS(on)}$	V_{GS} = -4.5 V, I_D = -0.41 A		0.850	0.995	Ω
		V_{GS} = -3.6 V, I_D = -0.38 A		1.0	1.190	
		V_{GS} = -2.5V, I_D =-0.25A		1.4	1.80	
Forward transconductance	g_{fs}	V_{DS} = -10 V, I_D = -0.41 A		0.8		S
Diode forward voltage	V_{SD}	I_S = -0.23 A, V_{GS} = 0 V		-0.8	-1.2	V
Total gate charge *	Q_g	V_{DS} =-10V ,V_{GS} = -4.5 V , I_D= -0.41A		1.2	1.8	nC
Gate-source charge *	Q_{gs}			0.45		
Gate-drain charge *	Q_{gd}			0.25		
Turn-on time	$t_{d(on)}$	V_{DD} = -10V , R_L = 20Ω , I_D =-0.5A , V_{GEN} =-4.5V , R_G = 6Ω		7.5	15	ns
	t_r			20	40	
Turn-off time	$t_{d(off)}$			8.5	17	
	t_f			12	24	
Source-Drain Reverse Recovery Time	trr	I_F = -0.23 A, d_i/d_t = 100 A/μs		25	40	

* Pulse test: PW ≤ 300 μs duty cycle ≤ 2%.

■ Marking

Marking	QA