TY Semicondutor®

Product specification

KI1400DL

■ Features

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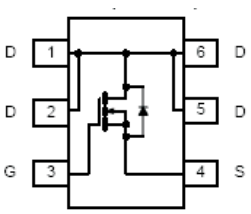

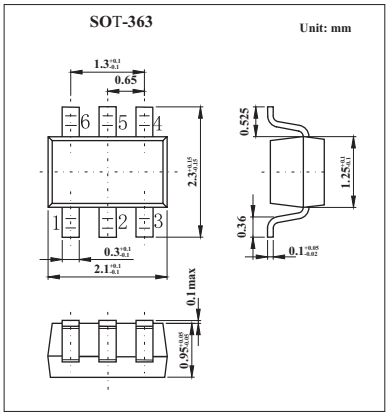

■ Absolute Maximum Ratings Ta = 25℃

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	1.7 1.2	1.6 1.0	A
Pulsed drain current	I_{DM}	5		A
Continuous source current (diode conduction) *	I_S	0.8	O.8	A
Power dissipation * T_A=25℃ T_A=85℃	P_D	0.625 0.400	0.568 0.295	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}	165	200	℃/W
	Steady State		180	220	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	105	130	

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

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■ 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	2			A
Drain-source on-state resistance	$r_{DS(on)}$	V_{GS} = 4.5 V, I_D = 1.7 A		0.123	0.150	Ω
		V_{GS} = 2.5V, I_D =1.3A		0.195	0.235	
Forward transconductance	g_{fs}	V_{DS} = 10 V, I_D = 1.7 A		5		S
Diode forward voltage	V_{SD}	I_S = 0.8 A, V_{GS} = 0 V		0.78	1.1	V
Total gate charge *	Q_g	V_{DS} =10V ,V_{GS} = 4.5 V , I_D= 1.7A		2.1	4.0	nC
Gate-source charge *	Q_{gs}			0.3		
Gate-drain charge *	Q_{gd}			0.4		
Turn-on time	$t_{d(on)}$	V_{DD} = 10V , R_L = 20Ω , I_D =1A , V_{GEN} =4.5V , R_G = 6Ω		10	17	ns
	t_r			30	50	
Turn-off time	$t_{d(off)}$			14	25	
	t_f			8	15	
Source-Drain Reverse Recovery Time	trr	I_F = 0.8 A, d_i/d_t = 100 A/μs		30	50	

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

■ Marking

Marking	ND