TY Semicondutor®

Product specification

KRF8910

■ Features

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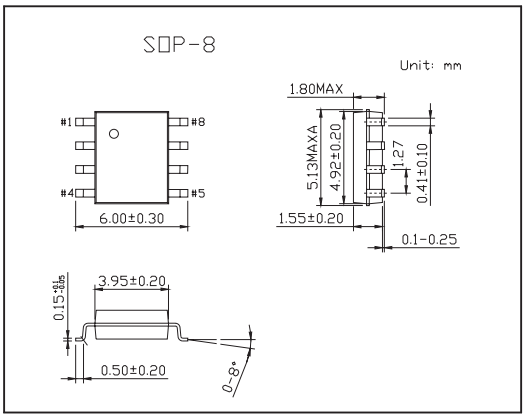

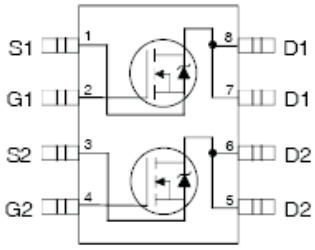

Top View

■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain- Source Voltage	V_{DS}	20	V
Gate-to-Source Voltage	V_{GS}	±20	
Continuous Drain Current, V_{GS} @ 10V Ta = 25℃	I_D	10	A
Continuous Drain Current,V_{GS} @ 10V T_C = 70℃	I_D	8.3	
Pulsed Drain Current *1	I_{DM}	82	
Maximum Power Dissipation Ta = 25℃	P_D	2	W
Maximum Power Dissipation Ta = 70℃		1.3	
Linear Derating Factor		0.016	
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 to + 150	℃
Junction-to-Drain Lead	$R_{\theta JL}$	20	℃/W
Maximum Junction-to-Ambient *2,3	$R_{\theta JA}$	62.5	℃/W
Single Pulse Avalanche Energy *4	E_{AS}	19	mJ
Avalanche Current *1	I_{AR}	8.2	A

*1 Repetitive rating; pulse width limited by max. junction temperature.

*2 when mounted on 1 inch square copper board.

*3 R_{θ} is measured at T_J of approxmately 90℃

*4Starting T_J = 25℃, L = 0.57mH, R_G = 25Ω, I_{AS} = 8.2A.

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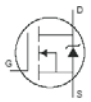
■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V, I_D = 250A	20			V
Breakdown Voltage Temp. Coefficient	$\triangle V_{(BR)DSS}/\triangle T_J$	I_D = 1mA,Reference to 25℃		0.015		V/℃
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 10A*1		10.7	13.4	Ω
		V_{GS} = 4.5V, I_D = 8.0A*1		14.6	18.3	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1.65		2.55	V
Gate Threshold Voltage Coefficient	$\triangle V_{GS(th)}/\triangle T_J$			-4.8		mV/℃
Drain-to-Source Leakage Current	I_{DSS}	V_{DS} = 16V, V_{GS} = 0V			1.0	μA
		V_{DS} = 16V, V_{GS} = 0V, T_J = 125℃			150	
Gate-to-Source Forward Leakage	I_{GSS}	V_{GS} = 20V			100	nA
Gate-to-Source Reverse Leakage		V_{GS} = -20V			-100	
Forward Transconductance	g_{fs}	V_{DS} = 10V, I_D = 8.2A	24			S
Total Gate Charge	Q_g	I_D = 8.2A,V_{GS} = 4.5V,V_{DS} = 10V		7.4	11	nC
Pre-Vth Gate-to-Source Charge	Q_{gs1}			2.4		
Post-Vth Gate-to-Source Charge	Q_{gs2}			0.80		
Gate-to-Drain Charge	Q_{gd}			2.5		
Gate Charge Overdrive	Q_{godr}			1.7		
Switch Charge (Q_{gs2} + Q_{gd})	Q_{sw}			3.3		
Output Charge	Q_{oss}	V_{DS} = 10V, V_{GS} = 0V		4.4		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 10V, V_{GS} = 4.5V,I_D = 8.2A		6.2		ns
Rise Time	t_r			10		
Turn-Off Delay Time	$t_{d(off)}$			9.7		
Fall Time	t_f			4.1		
Input Capacitance	C_{iss}	V_{GS} = 0V		960		pF
Output Capacitance	C_{oss}	V_{DS} = 10V		300		
Reverse Transfer Capacitance	C_{rss}	f = 1.0MHz		160		
Continuous Source Current（Body Diode)	I_S	MOSFET symbol showing the integral reverse p-n junction diode. 			2.5	A
Pulsed Source Current （Body Diode) *2	I_{SM}				82	
Diode Forward Voltage	V_{SD}	T_J = 25℃, I_S = 8.2A, V_{GS} = 0V*1			1.0	V
Reverse Recovery Time	t_{rr}	T_J = 25℃, I_F =8.2A,V_{DD}=10V		17	26	ns
Reverse RecoveryCharge	Q_{rr}	di/dt = 100A/μs*1		6.5	9.7	μC

*1 Pulse width ≤ 400μs; duty cycle ≤ 2%.

*2 Repetitive rating; pulse width limited bymax