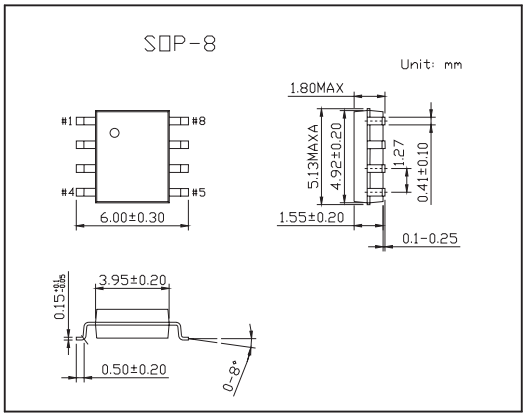
TY Semicondutor®

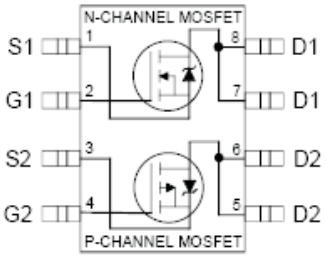
Product specification

KRF7338



■ Features

- Ultra Low On-Resistance
- Dual N and P Channel MOSFET
- Surface Mount
- Available in Tape & Reel



■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage	V_{DS}	12	-12	V
Continuous Drain Current,V_{GS}@10V , T_a = 25℃	I_D	6.3	-3.0	A
Continuous Drain Current ,V_{GS}@10V , T_a = 70℃	I_D	5.2	-2.5	
Pulsed Drain Current *1	I_{DM}	26	-13	
Power Dissipation @T_a= 25℃ *3	P_D	2.0		W
Power Dissipation @T_a= 70℃ *3		1.3		
Linear Derating Factor		16		mV/℃
Gate-to-Source Voltage	V_{GS}	±12 *4	±8.0	V
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to + 150		℃
Maximum Junction-to-Ambient *3	$R_{\theta JA}$	62.5		℃/W
Junction-to-Drain Lead	$R_{\theta JL}$	20		

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

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

*3 Surface mounted on 1 in square Cu board.

*4 The N-channel MOSFET can withstand 15V V_{GS} max
for up to 24 hours over the life of the device.

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons		Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	N-Ch	12			V
		V_{GS} = 0V, I_D = -250μA	P-Ch	-12			
Breakdown Voltage Temp. Coefficient	$\triangle V_{(BR)DSS}/\triangle T_J$	I_D = 1mA,Reference to 25℃	N-Ch		0.01		V/℃
		I_D = -1mA,Reference to 25℃	P-Ch		-0.01		
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 4.5V, I_D = 6.0A*1	N-Ch			0.034	Ω
		V_{GS} = 3.0V, I_D = 2.0A*1				0.060	
		V_{GS} = -4.5V, I_D = -2.9A*1	P-Ch			0.150	
		V_{GS} = -2.7V, I_D = -1.5A*1				0.200	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	N-Ch	0.6		1.5	V
		V_{DS} = V_{GS}, I_D = -250μA	P-Ch	-0.40		-1.0	
Forward Transconductance	g_{fs}	V_{DS} =6V, I_D = 6.0A*1	N-Ch	9.2			S
		V_{DS} = -6.0V, I_D = -1.5A*1	P-Ch	3.5			
Drain-to-Source Leakage Current	I_{DSS}	V_{DS} = 9.6V, V_{GS} = 0V	N-Ch			20	μA
		V_{DS} = -9.6V, V_{GS} = 0V	P-Ch			-1.0	
		V_{DS} = 9.6V, V_{GS} = 0V, T_J = 55℃	N-Ch			50	
		V_{DS} = -9.6V, V_{GS} = 0V, T_J = 55℃	P-Ch			-25	
Gate-to-Source Forward Leakage	I_{GSS}	V_{GS} = ±12V	N-Ch			±100	nA
		V_{GS} = ±8V	P-Ch			±100	
Total Gate Charge	Q_g	N-Channel	N-Ch			8.6	nC
		I_D =6.0A,V_{DS} = 6.0V,V_{GS} =4.5V	P-Ch			6.6	
Gate-to-Source Charge	Q_{gs}		N-Ch			1.9	
		P-Channel	P-Ch			1.3	
Gate-to-Drain ("Miller") Charge	Q_{gd}	I_D = -2.9A,V_{DS} = -9.6V,V_{GS} = -4.5V	N-Ch			3.9	
			P-Ch			1.6	
Turn-On Delay Time	$t_{d(on)}$	N-Channel	N-Ch		6.0		ns
		V_{DD} = 6V,I_D = 1.0A,R_G = 6.0Ω	P-Ch		9.6		
Rise Time	t_r	V_{GS} = 4.5V	N-Ch		7.6		
		P-Channel	P-Ch		13		
Turn-Off Delay Time	$t_{d(off)}$	V_{DD} = -28V,I_D = -1.0A,R_G = 6.0Ω	N-Ch		26		
		V_{GS} = -4.5V	P-Ch		27		
Fall Time	t_f		N-Ch		34		
			P-Ch		25		
Input Capacitance	C_{iss}	N-Channel	N-Ch		640		pF
		V_{GS} = 0V,V_{DS} = 9.0V,f = 1.0MHz	P-Ch		490		
Output Capacitance	C_{oss}		N-Ch		340		
		P-Channel	P-Ch		80		
Reverse Transfer Capacitance	C_{rss}	V_{GS} = 0V,V_{DS} = -9.0V,f = 1.0MHz	N-Ch		110		
			P-Ch		58		

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons		Min	Typ	Max	Unit
Continuous Source Current（Body Diode)	I_S		N-Ch			6.3	A
			P-Ch			-3.0	
Pulsed Source Current （Body Diode) *2	I_{SM}		N-Ch			26	
			P-Ch			-13	
Diode Forward Voltage	V_{SD}	T_J = 25℃, I_S = 1.7A, V_{GS} = 0V*1	N-Ch			1.3	V
		T_J = 25℃, I_S = -2.9A, V_{GS} = 0V*1	P-Ch			-1.2	
Reverse Recovery Time	t_{rr}	N-Channel	N-Ch		51	76	ns
		T_J = 25℃, I_F =1.7A,di/dt = 100A/μs*1	P-Ch		37	56	
Reverse RecoveryCharge	Q_{rr}	P-Channel	N-Ch		43	64	nC
		T_J=25℃, I_F=-2.9A,di/dt=-100A/μs*1	P-Ch		20	30	

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

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