Surface-mount 4-circuit Low-side Switch Array   SPF5002
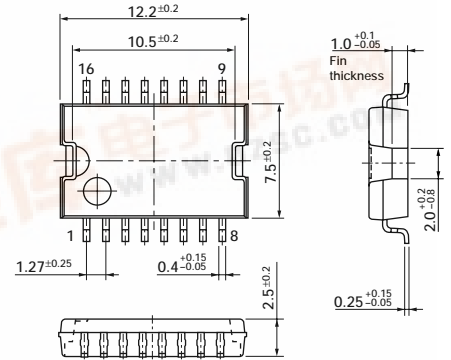
Features
- DMOS 4ch output
- Allows ON/OFF using C-MOS logic level
- Built-in overcurrent, overvoltage and thermal protection circuits

Absolute Maximum Ratings

(Ta=25ºC)

Parameter	Symbol	Ratings	Unit	Conditions
Power supply voltage	V_B	40	V	
Output terminal voltage	V_{OUT}	40	V	
Input terminal voltage	V_{IN}	−0.5 to +7.5	V	
Output current	I_O	1	A	
Power Dissipation	P_D	2	W	
Storage temperature	Tstg	−40 to +150	ºC	
Channel temperature	Tch	150	ºC	
Output avalanche capability	E_{AV}	100	mJ	Single pulse

Electrical Characteristics

(V_B=14V, Tc=−40 to +125ºC unless otherwise specified)

Parameter		Symbol	Ratings min	Ratings typ	Ratings max	Unit	Conditions
Power supply voltage		V_{Bopr}	5.5		32	V	
Quiescent circuit current		Iq		4	6	mA	All outputs are OFF
Input voltage	Hi output	V_{IN}	3.5		5.5	V	I_O=1.5A
	Lo output	V_{IN}	−0.5		1.5	V	
Input current	Hi output	I_{IN}			50	µA	V_{IN}=7V
	Lo output	I_{IN}			30	µA	V_{IN}=0V
Output ON voltage		$V_{DS(on)}$			0.4	V	I_O=0.5A
					0.7	V	I_O=1A
Output ON resistance		$R_{DS(on)}$		0.4		Ω	Ta=25ºC
				0.5		Ω	Ta=25ºC, V_B=5.5V
Output clamp voltage		$V_{OUT(clamp)}$	41	45	55	V	V_B=14V, I_D=1A
Output leak current		I_{OH}			100	µA	V_O=30V
Forward voltage of output stage diode		V_F			1.6	V	I_F=0.5A
Overvoltage protection starting voltage		$V_{B(ovp)}$	32		40	V	
Thermal protection starting temperature		T_{TSD}	151	165		ºC	
Overcurrent protection starting current		I_S	1.9			A	
Output transfer time		T_{ON}			15	µS	R_L=14Ω, I_O=1A
		T_{OFF}			15	µS	R_L=14Ω, I_O=1A
Output rise time		T_r			15	µS	R_L=14Ω, I_O=1A
Output fall time		T_f			15	µS	R_L=14Ω, I_O=1A

External Dimensions (unit: mm)

Equivalent Circuit Diagram
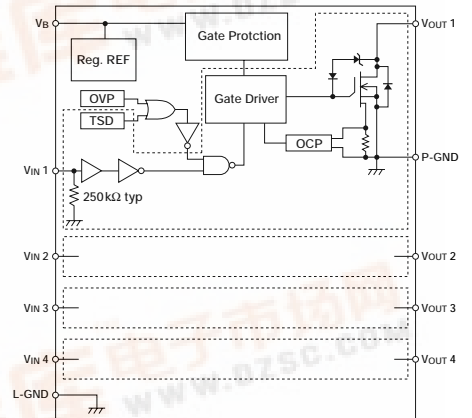
Circuit Example
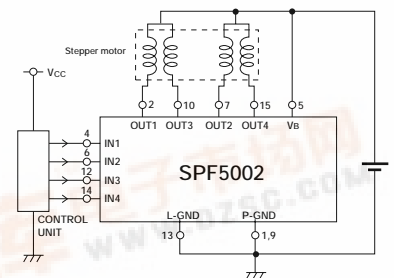
Use L-GND and P-GND being connected.

Truth table

V_{IN}	V_O
H	L
L	H

Timing Chart