

Surface-mount 4-circuit Low-side Switch Array SPF5002

Features

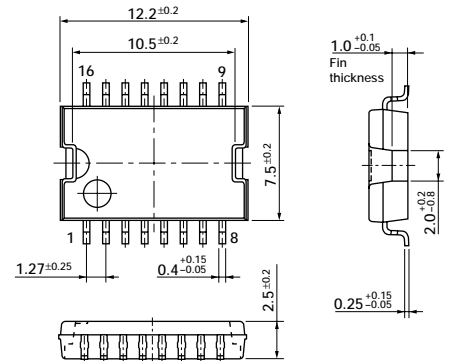
- DMOS 4ch output
- Allows ON/OFF using C-MOS logic level
- Built-in overcurrent, overvoltage and thermal protection circuits

Absolute Maximum Ratings

(Ta=25°C)

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	T _{stg}	-40 to +150	°C	
Channel temperature	T _{ch}	150	°C	
Output avalanche capability	E _{AV}	100	mJ	Single pulse

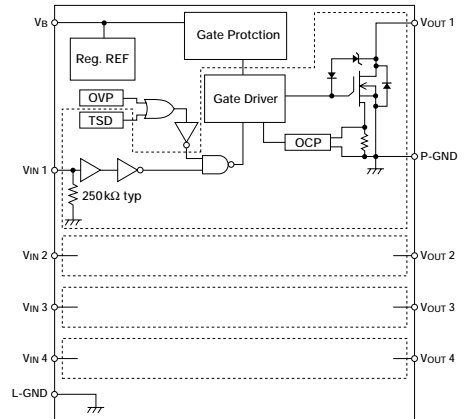
External Dimensions (unit: mm)



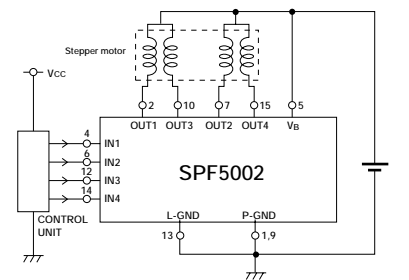
Electrical Characteristics (V_B=14V, T_C=-40 to +125°C unless otherwise specified)

Parameter	Symbol	Ratings			Unit	Conditions
		min	typ	max		
Power supply voltage	V _{Bopv}	5.5		32	V	
Quiescent circuit current	I _q		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=25°C
			0.5		Ω	Ta=25°C, V _B =5.5V
Output clamp voltage	V _{OUT(clamp)}	41	45	55	V	V _B =14V, I _O =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		°C	
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

Equivalent Circuit Diagram



Circuit Example

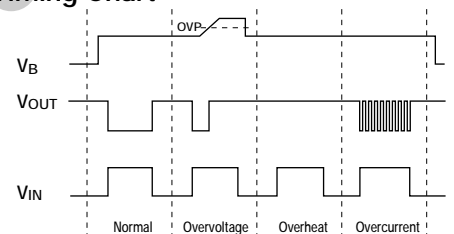


Truth table

V _{IN}	V _O
H	L
L	H

Use L-GND and P-GND being connected.

Timing Chart



* Self-excited frequency is used in the overcurrent protection.