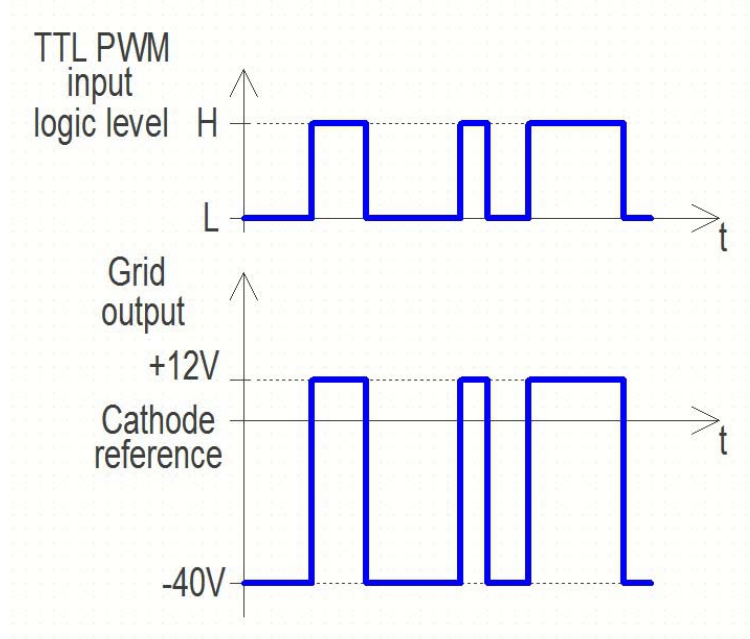




THE SWITCHINGLOW PROJECT REVISITED FLOATING GRID DRIVE SINGLE VOLTAGE SUPPLY

The **SWITCHINGLOW PROJECT REVISITED FLOATING GRID DRIVER SINGLE VOLTAGE SUPPLY** -SPR FDG SVS- is a voltage translator circuit that provides the suitable pulses to the grids of the triode tubes used on the Switchinglow Power Bridge circuit.

The input of the FGD is the PWM stream provided by the Switchinglow USB Modulator: when the PWM pulse is high the FDG grid output is at +12V respect to the cathode output, when the PWM pulse is low the FDG grid output is at -40V respect to the cathode output. These two voltage levels put the triodes in strong conduction or in interdiction, allowing the tube to work as an electronic switch.

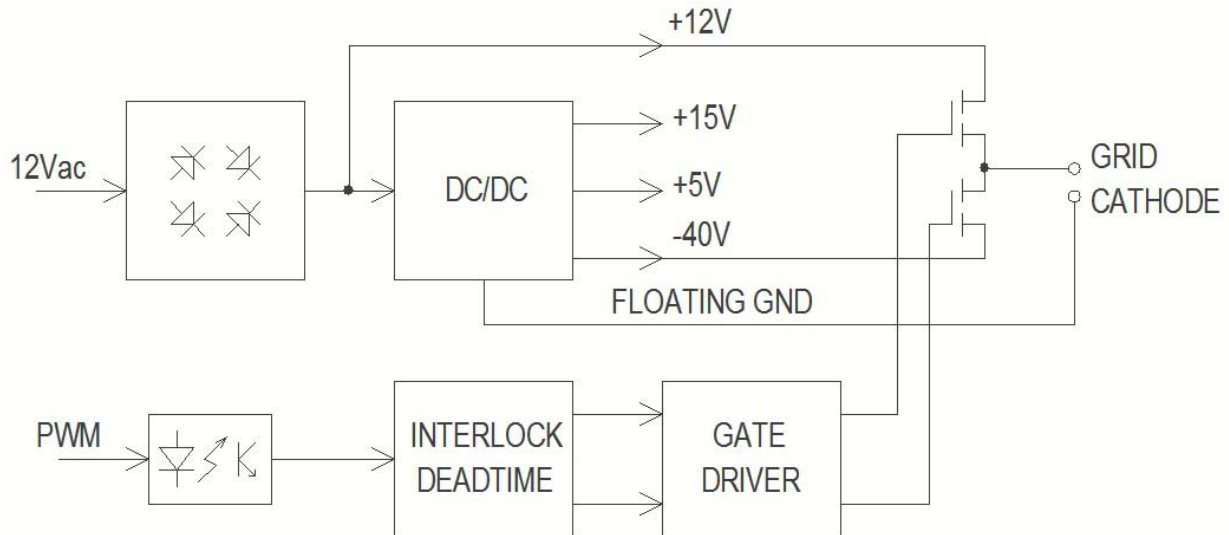


The Switchinglow Project Revisited FDG requires only a 12Vac power supply, that can be the same used to power the heaters of the triodes that can be now connected in parallel.

The first version of the FDG was powered by a dual 12Vac and 40Vac power supply provided by a custom transformer. The two voltages were also used to power the series connection of the heaters of four triodes for each arm of the Power Bridge.

This series connection of the heaters made impossible the use of a Power Bridge with less than four tubes for each arm.

With this new single supply FGD the parallel connection of the heaters is now possible, so the Power Bridge has been made modular, that means it can use one, two, three or four tubes per arm, allowing a cheaper expense for the DIY experimenter.

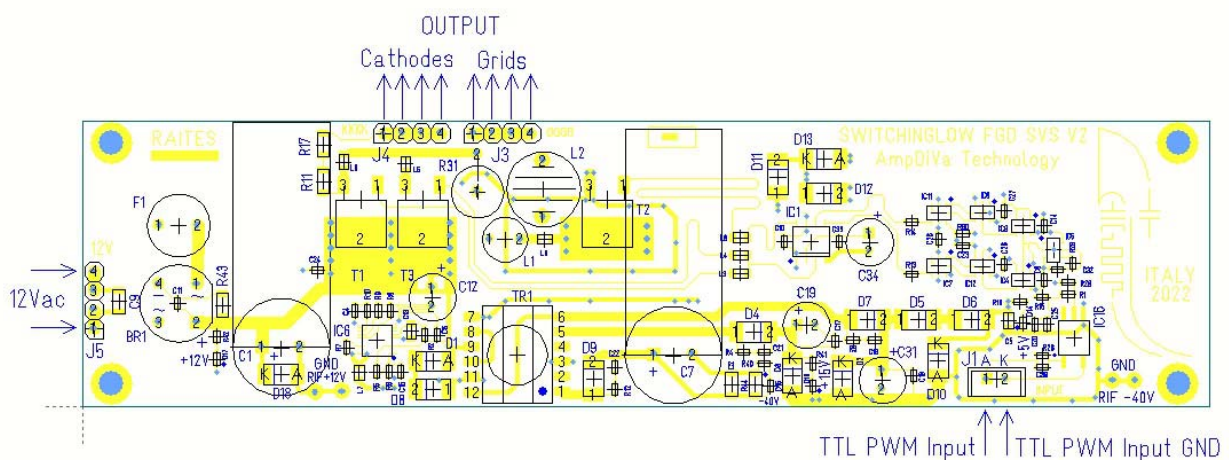


FLOATING GRID DRIVER SINGLE VOLTAGE SUPPLY - Block diagram

The FGD block diagram depicts a DC/DC converter after the 12Vac input rectifier; this converter provides the -40V for the output MOS pair and also the +5V and +15V to power the pulse former and gate driver circuits.

The PWM input is opto insulated TTL level compatible and is followed by the Interlock circuit that inserting a deadtime prevents cross conduction of the output MOS pair.

The Gate Driver circuit provides suitable voltage levels to turn on/off the output MOS pair.



FDG SVS SPECIFICATION

| | |
|------------------------|---|
| PWM input level | TTL, 22 ohm series resistor, optocoupled |
| Grids output level | -40V / +12V at open circuit (*) |
| Grids output current | -100mA / +1A ***NOT SHORT CIRCUIT PROTECTED ! |
| Grids output rise time | 60ns @ 10-90%, 4x ECC99 load, PWM DT=50% |
| Grids output fall time | 180ns @ 10-90%, 4x ECC99 load, PWM DT=50% |
| Power supply voltage | 10..12Vac rms |
| Power supply current | 1Aac rms max, fuse protected, 600mAac typ @ 10Vac (*) |

(*)Values can be changed without notice following circuit improvements.

For further info please contact raites@studio-rts-ing-rampin.it
or visit www.switchinglow.com

%% %% %

FCC / EMC Statement

The SPR FGD SVS electronic board is intended for evaluation only and does not require FCC Equipment Authorization (FCC Rule 2.803).

The SPR FGD SVS electronic board is designed to allow product developers to evaluate electronic components, circuitry or software associated with this board to determine whether to incorporate such items in their finished products.

The SPR FGD SVS board is not a finished product and may not be resold, used as they are in or otherwise marketed as a final product unless all required FCC equipment authorizations or other countries EMC compliance certifications are first obtained.

“Operation is subject to the condition that this board not cause harmful interference to licensed radio stations and that this board accept harmful interference. Unless the board is designed to operate under part 15, 18 or 95 of this chapter, the operator of the board must operate under the authority of an FCC license holder or must secure an experimental authorization under part 5 of this chapter.” (Chapter I of Title 47, CFR)

IMPORTANT NOTICE – READ CAREFULLY

Evaluation kits are intended solely for use by qualified technicians and professional electronics experts who are familiar with the dangers and application risks associated with handling and use of electronic components, circuits and systems.

Purchasers and users are solely responsible for the choice and use of Raites Engineering s.r.l.s. products and Raites Engineering s.r.l.s. assumes no liability for application assistance or the design of purchasers' and users' products; in no case the Raites Engineering products can be used in life support equipments or transportation systems.

No licence, express or implied, to any intellectual property right is granted by Raites Engineering s.r.l.s.

The names Switchinglow Project, Switchinglow Project Revisited, SPR FGD SVS and the Raites Engineering s.r.l.s. logo are trademarks of Raites Engineering s.r.l.s. All other icons, logos, layouts, trademarks, names of products or services are the property of their respective owners.

Raites Engineering s.r.l.s. reserve the right to make modifications to its products and /or to this document at any time without notice.

© 2022-2023 Raites Engineering s.r.l.s. - All rights reserved

