

Two output isolated SSR flyback converter for smart meter and PLC systems using VIPER267KDTR



Features

- Double output voltage: 12 V at 0.7 A_{rms} (1 A peak) and 6 V at 200 mA
- Secondary side regulation (SSR)
- Extended AC mains input voltage range: 85 to 500 V_{AC}
- EMC with EN55022, EN61000, EN61000-4-4, EN61000-4-5, EN61000-4-6
- WEEE compliant
- RoHS compliant

Description

The [STEVAL-VP26K02F](#) evaluation board implements a double output isolated SSR flyback specifically designed to supply smart meter and PLC systems.

The evaluation board has been developed using the [VIPER267KDTR](#) offline high-voltage converter which features a 1050 V avalanche-rugged power section, PWM operation at 60 kHz with frequency jittering for lower EMI, current limiting with 700 mA fixed set point, on-board soft-start, safe auto-restart after fault and low standby power.

The power supply provides 12 V at 700 mA_{rms} (1 A peak) to the power line modem (PLM) and the analog circuitry, and 6 V at 200 mA to supply digital circuitry and other low voltage parts.

The power supply is designed to operate across a three-phase input mains from 50 to 290 V_{AC} but can also be connected to a single phase mains from 85 to 500 V_{AC}.

Product summary	
Double output isolated SSR flyback converter for smart meter and PLC systems using VIPER267KDTR	STEVAL-VP26K02F
1050 V high voltage converter	VIPER267KDTR

1 Electrical specifications

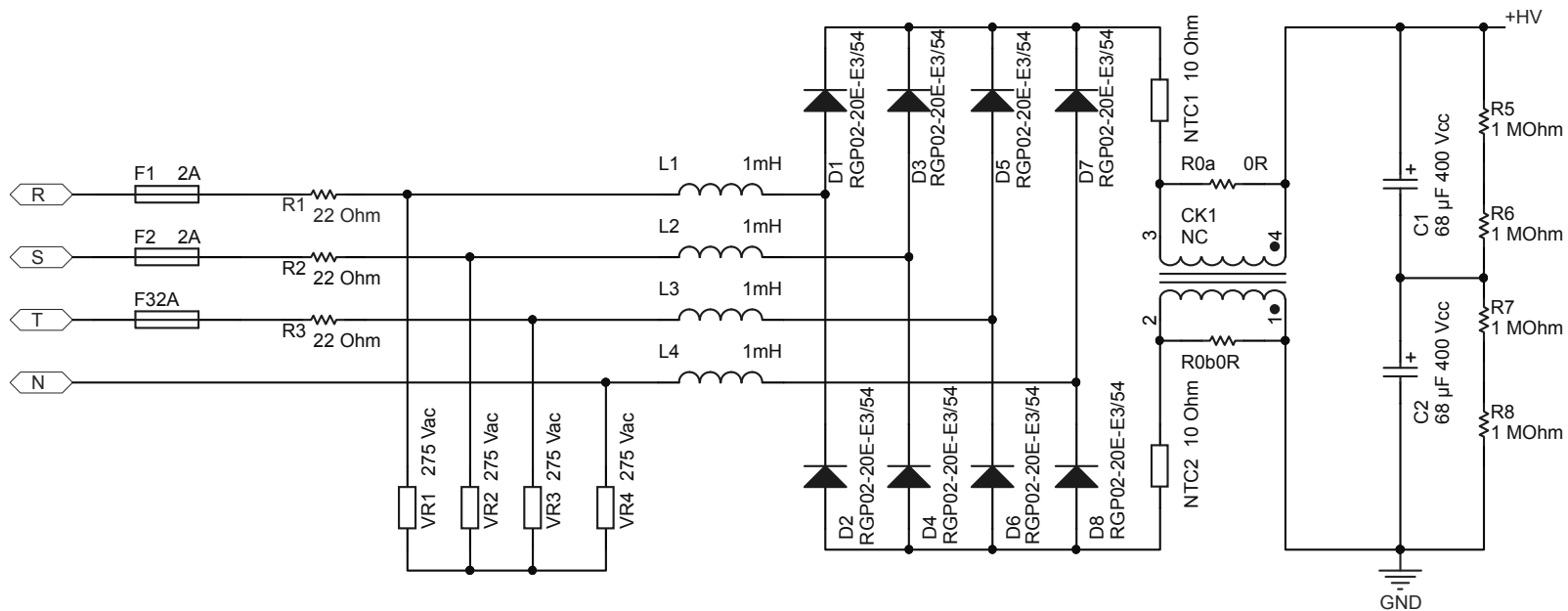
Table 1. STEVAL-VP26K02F electrical specifications

Parameter	Min.	Typ.	Max.
Operative AC main input voltage (3-phase connection)	50 V _{AC}	-	290 V _{AC}
Operative AC main input voltage (2-phase connection)	85 V _{AC}	-	500 V _{AC}
Mains frequency	47 Hz	-	63 Hz
Output voltage 1 – V _{OUT1}	11 V	12 V	13 V
Output current 1 – I _{OUT1}	10 mA	-	700 mA (rms)
	-	-	1000 mA (peak)
Output voltage 2 – V _{OUT2}	5.5 V	6 V	6.5 V
Output current 2 – I _{OUT2}	10 mA	-	200 mA
Maximum peak power	-	-	13.2 W
Maximum rms power	-	-	9.6 W
Efficiency at full load	-	78%	-
Ambient operating temperature	-40 °C	-	85 °C

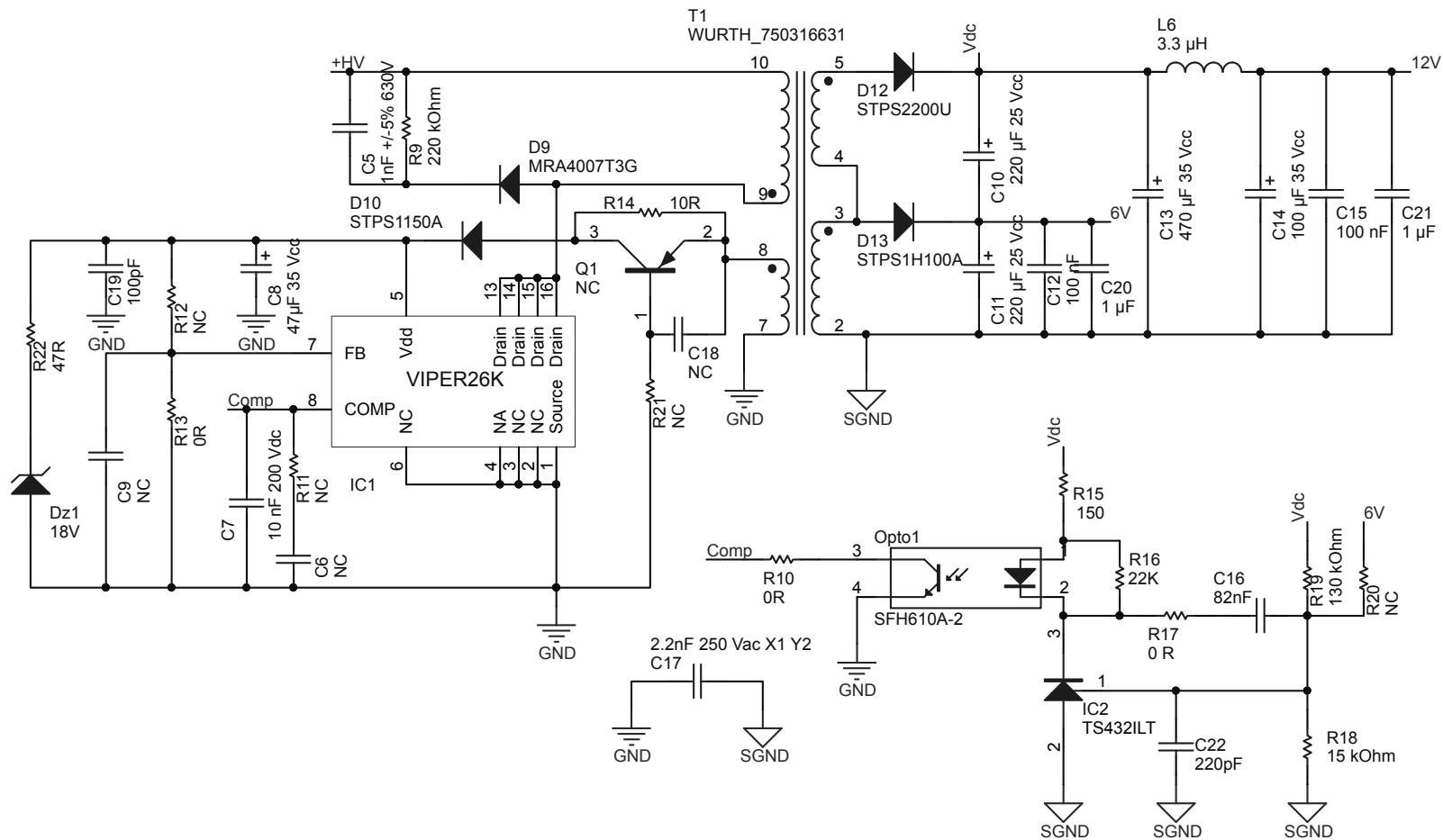
2

Schematic diagrams

Figure 1. STEVAL-VP26K02F schematic - input section



T1
WURTH_750316631



Revision history

Table 2. Document revision history

Date	Version	Changes
28-May-2019	1	Initial release.

IMPORTANT NOTICE – PLEASE READ CAREFULLY

STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST's terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers' products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. For additional information about ST trademarks, please refer to www.st.com/trademarks. All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

© 2019 STMicroelectronics – All rights reserved

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[STMicroelectronics:](#)

[STEVAL-VP26K02F](#)