

Three output isolated flyback converter for STCOMET smart meter and PLC system using VIPER267KDTR



Features

- Triple output voltage: 15 V at 0.55 A_{rms} (0.7 A peak), 3.3 V at 200 mA and 5 V at 100 mA
- Extended AC mains input voltage range: 90 to 440 V_{AC}
- EMC with EN55022, EN61000, EN61000-4-4, EN61000-4-5, EN61000-4-6
- WEEE compliant
- RoHS compliant

Description

The **STEVAL-VP26K01F** evaluation board implements a three output isolated flyback specifically designed to supply the **STCOMET** smart meter and powerline communication system.

The board has been developed using the **VIPER267KDTR** offline high-voltage converter.

The **VIPER267KDTR** 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 15 V at 550 mA_{rms} (700 mA peak) to the power line modem (PLM) and the analog circuitry, a post-regulated 5 V at 100 mA and a 3.3 V at 200 mA supply through a dedicated DC-DC converter connected to the 15 V rail for digital circuitry and other low voltage parts.

The power supply is designed to operate across an extended 90 to 440 V_{AC} mains input voltage range to be used also with a phase-to-phase connection in a three-phase network.

The **STEVAL-VP26K01F** evaluation board can be used in a standalone configuration or with the dedicated **STCOMET** development kit.

Product summary	
Three outputs isolated flyback converter for STCOMET smart meter and PLC system using VIPER267KDTR	STEVAL-VP26K01F
1050 V high voltage converter	VIPER267KDTR
200 V, 2 A, high voltage power Schottky diode	STPS2200U
100 V, 1 A SMA (flat), SMB power Schottky rectifier	STPS1H100A
150 V, 1 A power Schottky rectifier	STPS1150A
Smart meter and powerline communication system-on-chip	STCOMET
600 W TVS in SMA	SMA6J100A-TR

1 Features and specifications

Table 1. STEVAL-VP26K01F electrical specifications

Parameter	Min.	Typ.	Max
Operative AC Main Input voltage	90 V _{AC}	-	264 V _{AC}
Overvoltage AC main	-	-	440 V _{AC}
Mains frequency	50 Hz	-	60 Hz
Output Voltage 1 – VOUT1	14 V	15 V	16 V
Output Current 1 – IOUT1	10 mA	-	550 mA (rms)
	-	-	700 mA (peak)
Output Voltage 2 – VOUT2	4.75 V	5 V	5.25 V
Output Current 2 – IOUT2	10 mA	60 mA	100 mA
Output Voltage 3 – VOUT3	3.1 V	3.3 V	3.5 V
Output Current 3 – IOUT3	-	100 mA	200 mA
Maximum peak power	-	-	11.66 W
Maximum rms power	-	-	9.4 W
Efficiency at full load	-	78.7%	-
Ambient operating temperature	-40 °C	-	85 °C

2

Schematic diagrams

Figure 1. STEVAL-VP26K01F schematic - main PSU

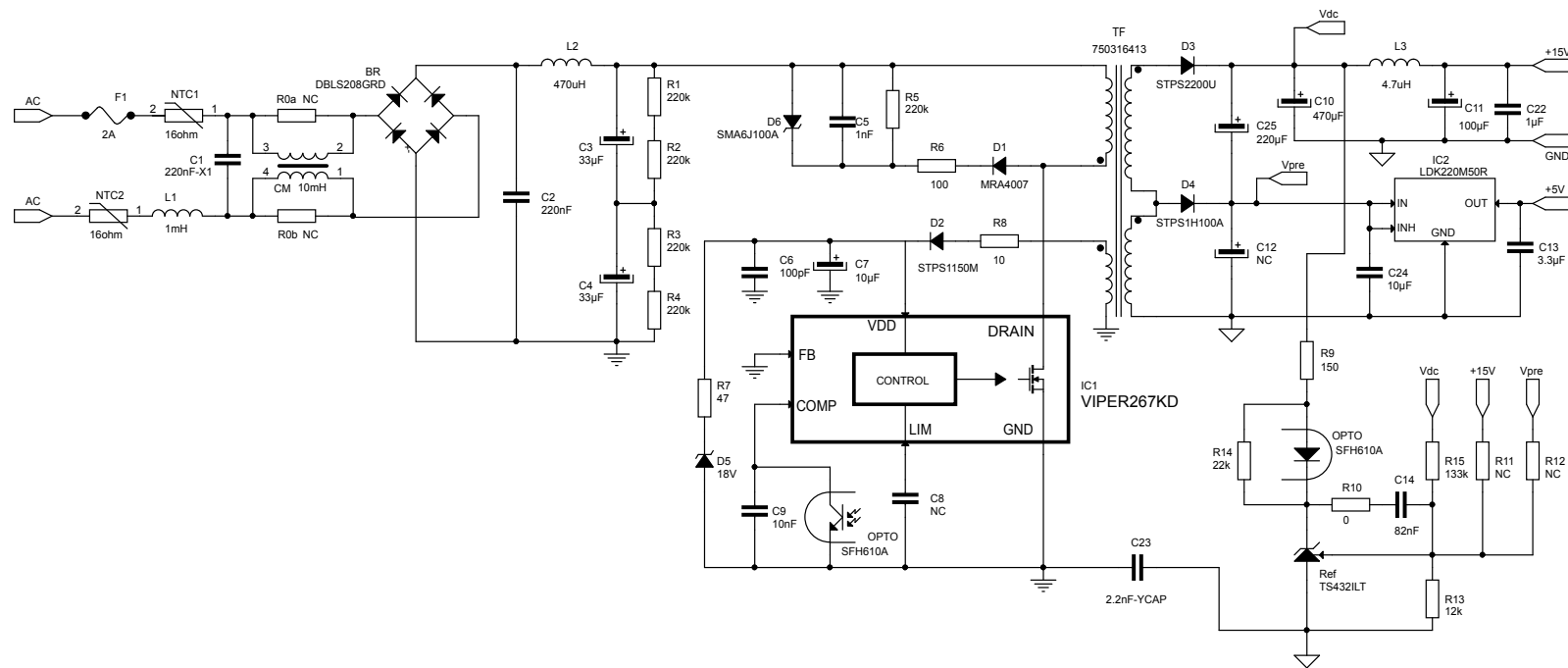
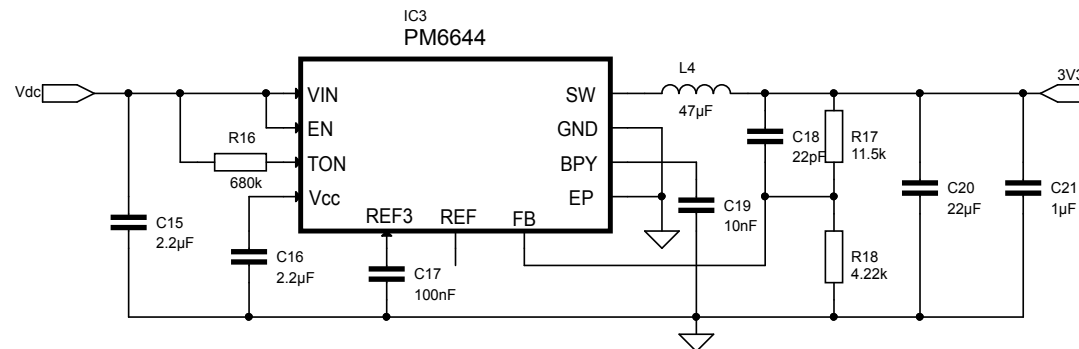


Figure 2. STEVAL-VP26K01F schematic - dedicated DC/DC for 3V3 rail



Revision history

Table 2. Document revision history

Date	Version	Changes
06-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

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:

moschip.ru

moschip.ru_4

moschip.ru_6

moschip.ru_9