

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



### Features

- Triple output voltage: 15 V at 0.55 A<sub>rms</sub> (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<sub>AC</sub>
- 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<sub>rms</sub> (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<sub>AC</sub> 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	<a href="#">STEVAL-VP26K01F</a>
1050 V high voltage converter	<a href="#">VIPER267KDTR</a>
200 V, 2 A, high voltage power Schottky diode	<a href="#">STPS2200U</a>
100 V, 1 A SMA (flat), SMB power Schottky rectifier	<a href="#">STPS1H100A</a>
150 V, 1 A power Schottky rectifier	<a href="#">STPS1150A</a>
Smart meter and powerline communication system-on-chip	<a href="#">STCOMET</a>
600 W TVS in SMA	<a href="#">SMA6J100A-TR</a>

## 1 Features and specifications

**Table 1. STEVAL-VP26K01F electrical specifications**

Parameter	Min.	Typ.	Max
Operative AC Main Input voltage	90 V <sub>AC</sub>	-	264 V <sub>AC</sub>
Overvoltage AC main	-	-	440 V <sub>AC</sub>
Mains frequency	50 Hz	-	60 Hz
Output Voltage 1 – VOUT1	14 V	15 V	16 V
Output Current 1 – IOU1	10 mA	-	550 mA (rms)
	-	-	700 mA (peak)
Output Voltage 2 – VOUT2	4.75 V	5 V	5.25 V
Output Current 2 – IOU2	10 mA	60 mA	100 mA
Output Voltage 3 – VOUT3	3.1 V	3.3 V	3.5 V
Output Current 3 – IOU3	-	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

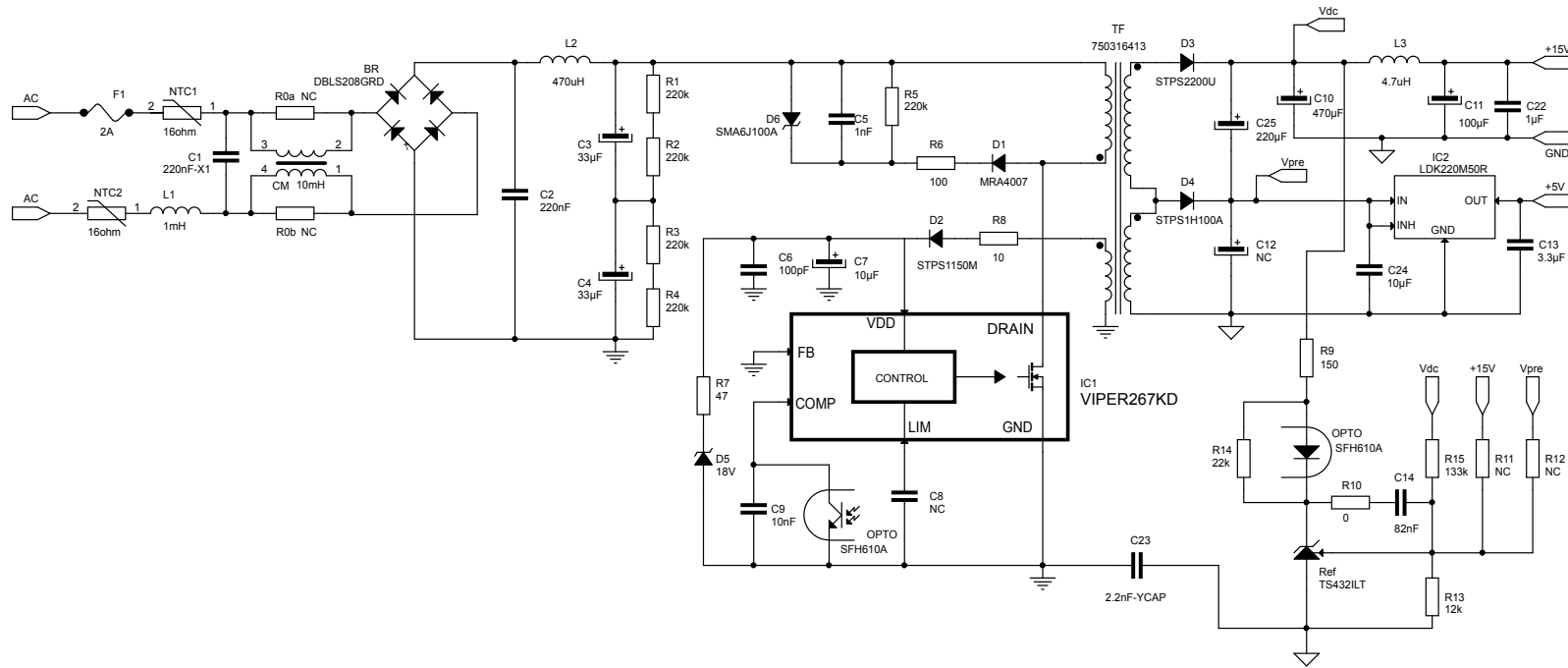
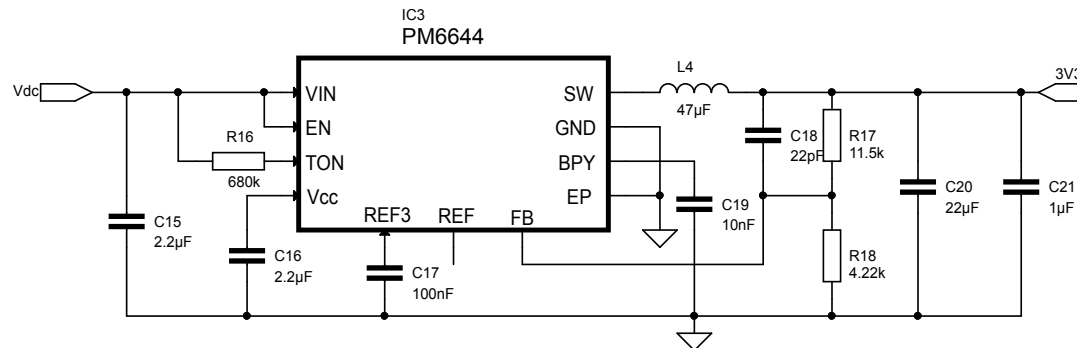


Figure 2. STEVAL-VP26K01F schematic - dedicated DC/DC for 3V3 rail



## Revision history

**Table 2. Document revision history**

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

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