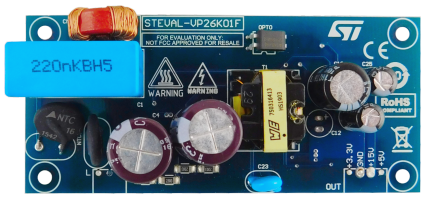
STEVAL-VP26K01F

Data brief

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**

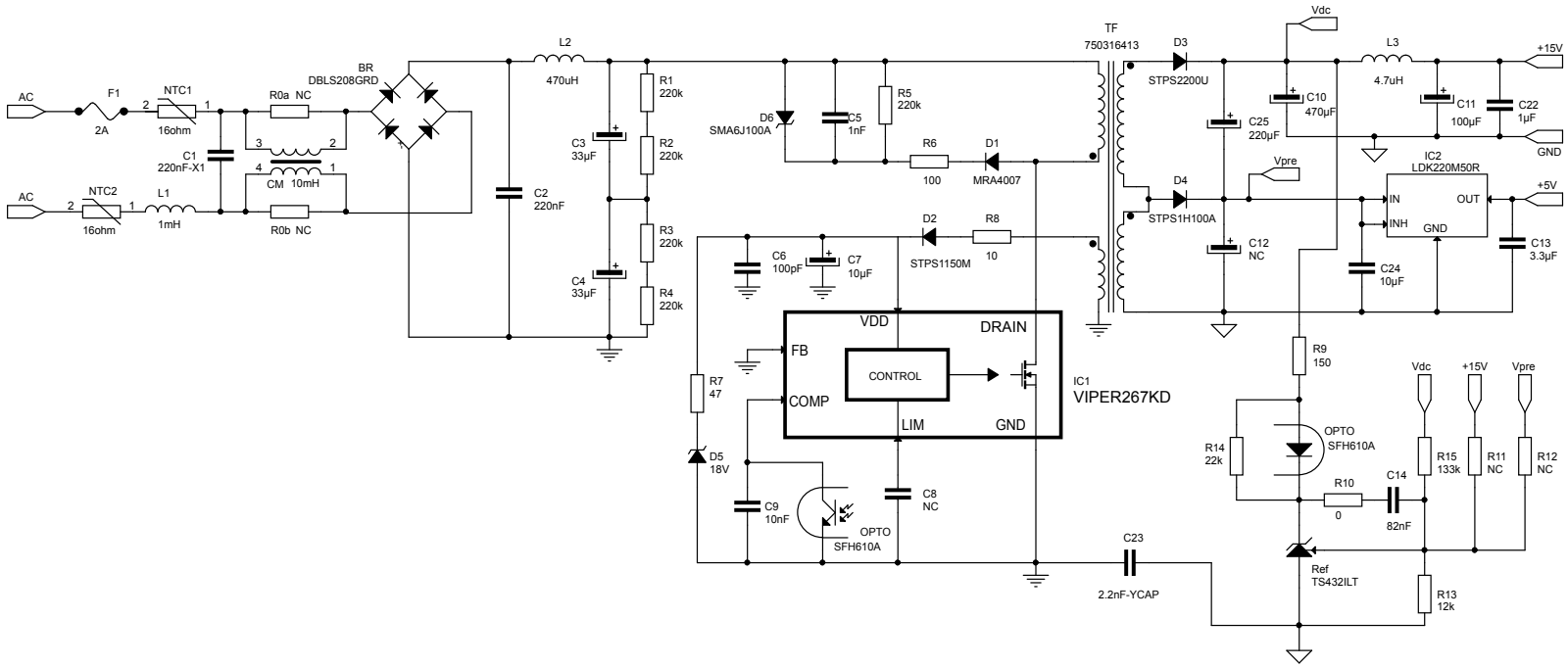
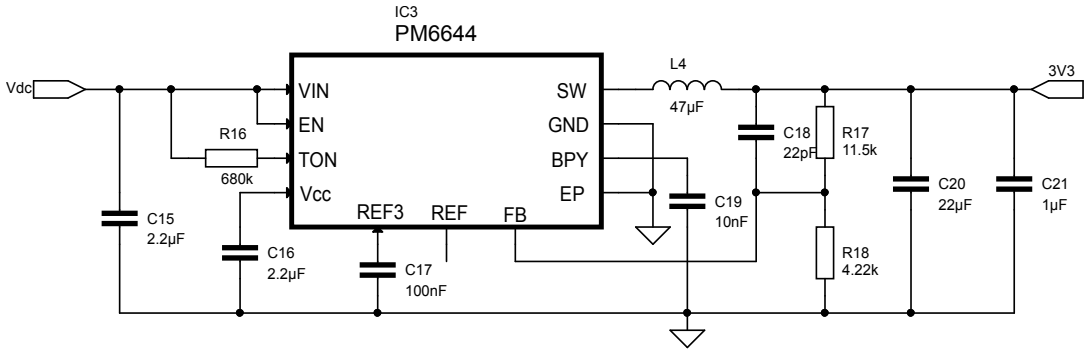


Figure 2. **STEVAL-VP26K01F schematic - dedicated DC/DC for 3V3 rail**



Revision history

Table 2. **Document revision history**

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