

Fixed frequency VIPer™ plus family

Datasheet - production data

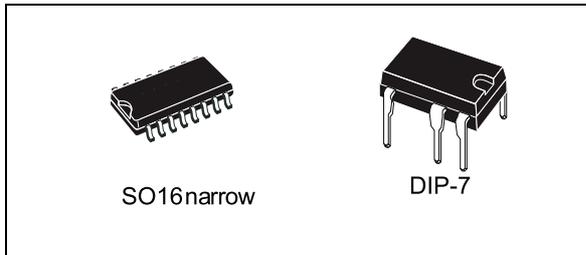
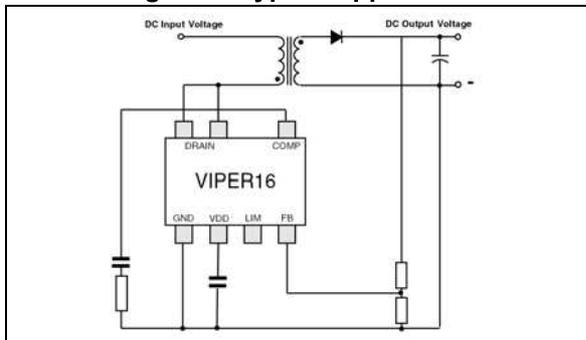


Figure 1. Typical application



Features

- 800 V avalanche rugged power section
- PWM operation with frequency jittering for low EMI
- Operating frequency:
 - 60 kHz for L type
 - 115 kHz for H type
- No need of auxiliary winding for low power application

- Standby power < 30 mW at 230 V_{AC}
- Limiting current with adjustable set point
- On-board soft-start
- Safe auto-restart after a fault condition
- Hysteretic thermal shutdown

Application

- Replacement of capacitive power supply
- Auxiliary power supply for appliances,
- Power metering
- LED drivers

Description

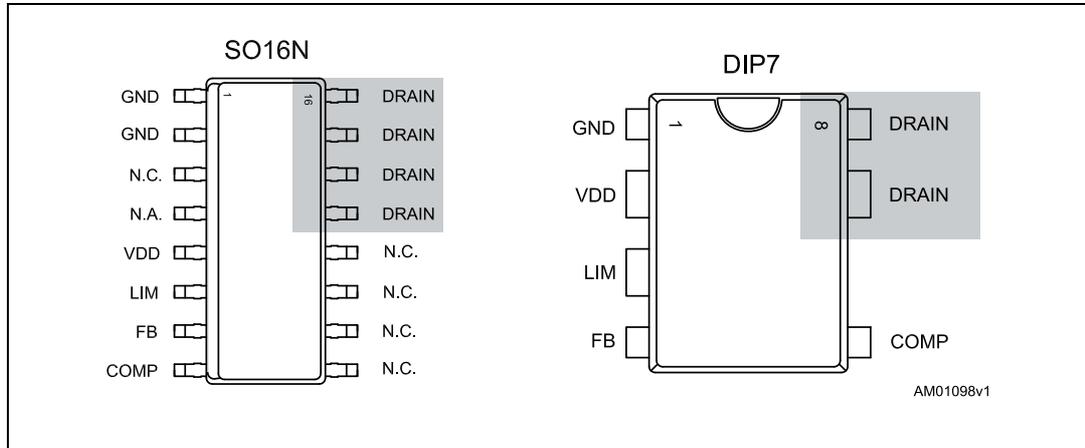
The device is an off-line converter with an 800 V avalanche ruggedness power section, a PWM controller, user defined overcurrent limit, protection against feedback network disconnection, hysteretic thermal protection, soft start up and safe auto restart after any fault condition. It is able to power itself directly from the rectified mains, eliminating the need for an auxiliary bias winding. Advance frequency jittering reduces EMI filter cost. Burst mode operation and the devices very low consumption both help to meet the standard set by energy saving regulations.

Table 1. Device summary

Order codes	Package	Packaging
VIPER16LN	DIP-7	Tube
VIPER16HN		
VIPER16HD	SO16 narrow	Tube
VIPER16HDTR		Tape and reel
VIPER16LD		Tube
VIPER16LDTR		Tape and reel

3 Pin settings

Figure 3. Connection diagram (top view)



Note: The copper area for heat dissipation has to be designed under the DRAIN pins.

Table 3. Pin description

Pin N.		Name	Function
DIP-7	SO16		
1	1-2	GND	Connected to the source of the internal power MOSFET and controller ground reference.
-	4	N.A.	Not available for user. This pin is mechanically connected to the controller die pad of the frame. In order to improve the noise immunity, is highly recommended connect it to GND (pin 1-2).
2	5	VDD	Supply voltage of the control section. This pin provides the charging current of the external capacitor.
3	6	LIM	This pin allows setting the drain current limitation to a lower value respect to I_{Dlim} , which is the default one. The limit can be reduced by connecting an external resistor between this pin and GND. In case of high electrical noise, a capacitor could be connected between this pin and GND, the capacitor value must be lower than 470 nF in order to not impact the functionality of the pin. The pin can be left open if default drain current limitation, I_{Dlim} , is used.
4	7	FB	Inverting input of the internal trans conductance error amplifier. Connecting the converter output to this pin through a single resistor results in an output voltage equal to the error amplifier reference voltage (see V_{FB_REF} on Table 8). An external resistors divider is required for higher output voltages.

Table 3. Pin description (continued)

Pin N.		Name	Function
DIP-7	SO16		
5	8	COMP	Output of the internal trans conductance error amplifier. The compensation network have to be placed between this pin and GND to achieve stability and good dynamic performance of the voltage control loop. The pin is used also to directly control the PWM with an optocoupler. The linear voltage range extends from V_{COMPL} to V_{COMPH} (Table 8).
7,8	13-16	DRAIN	High voltage drain pin. The built-in high voltage switched start-up bias current is drawn from this pin too. Pins connected to the metal frame to facilitate heat dissipation.