

VIPer17: Advanced solutions for switch-mode power supplies

The most cost-effective and efficient power supplies using an advanced single-package high-voltage converter



The new VIPer™ plus family is introducing innovation and value for power supply solutions. The new products include the subfamilies VIPerx7, VIPerx8, VIPerx6 and VIPerx5.

The first product on the market is the VIPer17, suitable for offline power supplies up to 6 W with a wide-range input voltage, and up to 10 W with the European input-voltage range.

VIPer plus includes both the power section and controller in one package. The power section is avalanche rugged with a breakdown voltage of 800 V.

Key features

- 800 V avalanche rugged power section
- PWM operation with frequency jittering for low EMI
- Fixed operating frequency:
 - 60 kHz for L type
 - 115 kHz for H type
- Standby power < 50 mW at 265 V_{AC}
- Limiting current with adjustable set point
- Adjustable and accurate overvoltage protection
- On-board soft start
- Safe auto restart after a fault condition
- Overload protection (OLP)
- Brown-out protection
- Hysteretic thermal shutdown protection

Key benefits

- Standby PSU consumption less than 50 mW
- High-efficiency PSU
- Low component count
- Robust power section allows solutions without snubber

Targeted applications

- Auxiliary power supply for LCD/PDP TVs, monitors, audio systems, computers and industrial screens
- Adapters for PDAs, camcorders, shavers, cellular phones and videogames
- SMPS for white goods and home appliances
- SMPS for set-top boxes, DVD players and recorders

Targeted SMPS topologies

- Flyback isolated converters
- Flyback non-isolated converters
- Buck and buck-boost converters

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VIPer17 Overview

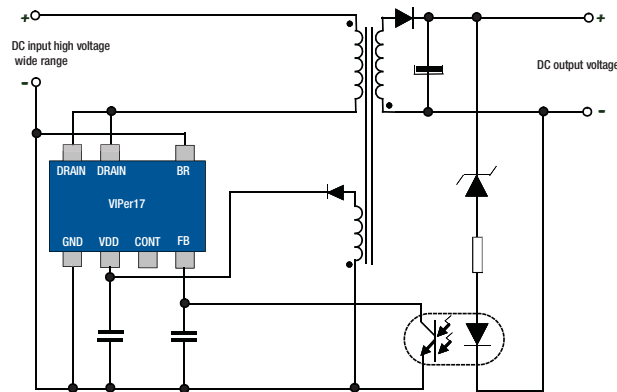
VIPer17 is an innovative high-voltage converter suitable for very smart and cost-effective power supplies, and includes the power section and controller in one package.

The power section is avalanche rugged with a breakdown voltage of 800 V; this ensures robustness and reliability for power supplies. The power section includes a SenseFET, temperature sensor and high-voltage start-up circuit.

The controller uses advanced BCD technology, operates using the current-mode technique and is suitable for flyback converters. It features very advanced circuits to minimize consumption in normal mode, and reduces consumption even further during standby. You can thus design a PSU with a standby consumption under no-load conditions of less than 50 mW using a wide input-voltage range, and so be compliant with energy saving standards.

VIPer17 also offers new functionalities that guarantee higher performance with a lower component count: the soft start-up function, simple feedback management, and frequency modulation jittering, which reduces EMI and helps meet standards regarding electromagnetic disturbance.

VIPer17 has two possible fixed operating frequencies: 60 kHz (VIPer17L) or 115 kHz (VIPer17H). Both versions are available in DIP-7 (VIPer17LN and VIPer17HN) and SO-16N packages (VIPer17LD and VIPer17HD).



Device summary

Part number	Package	Power capability [W]	Breakdown voltage [V]	VDD range [V]	Rds(on) [ohm]	Idlim [mA]	Switching frequency mode	Fsw[kHz]	Duty cycle (max)	Topology
VIPer17LN	DIP-7	6	800	8.5 -23	20	400 to 150	Fixed frequency	60	70	Flyback, buck and buck-boost
VIPer17HN	DIP-7	6	800	8.5 -23	20	400 to 150	Fixed frequency	115	70	Flyback, buck and buck-boost
VIPer17LD	SO16N	6	800	8.5 -23	20	400 to 150	Fixed frequency	60	70	Flyback, buck and buck-boost
VIPer17HD	SO16N	6	800	8.5 -23	20	400 to 150	Fixed frequency	115	70	Flyback, buck and buck-boost

Evaluation boards

Part number	Product	Power capability [W]	Output voltage [V]	Input voltage	Topology
EVALVIPer17H-6W	VIPer17HN	6	12	Wide range	Isolated flyback
EVALVIPer17L-7W	VIPer17LN	6	12	Wide range	Isolated flyback
EVLVIP17-5WCHG	VIPer17HN	5	5	Wide range	Flyback



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Full product information at www.st.com

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