



life.augmented

# VIPer

give a boost to  
your SMPS design



# Contents

- 3 When every mW counts**
- 6 VIPer series**
  - 6 VIPerGaN: GaN HEMT power transistor
  - 6 VIPer0P: zero power mode
  - 7 VIPer series 1: low standby, low VCC voltage
  - 7 VIPer series x22: minimal BoM, 730  $\text{BV}_{\text{DSS}}$
  - 8 VIPer series 5: quasi-resonant
  - 8 VIPer series 6: smart features
  - 9 VIPer series 7: brownout
  - 9 VIPer series 8: peak power
- 10 A Plus for your applications**
  - 10 Metering
  - 10 Lighting
  - 11 Home appliances
  - 11 Home automation
  - 12 Consumer and adapters
  - 12 Air conditioning
- 13 Evaluation board**

# Where every mW counts

Today, power supply units require more sophisticated methods for improving performance while energy-saving regulations push for greater efficiency.

VIPer series of high-voltage converters addresses this challenge, by using classic avalanche-rugged power transistor or latest innovative HEMT GaN Transistor, together with state-of-the-art PWM circuitry for control, and offering a comprehensive set of features and built-in protections. SMPS designs featuring VIPer converters meet the most demanding energy-saving regulations and more: high reliability, flexibility and reduce the number of BOM components.

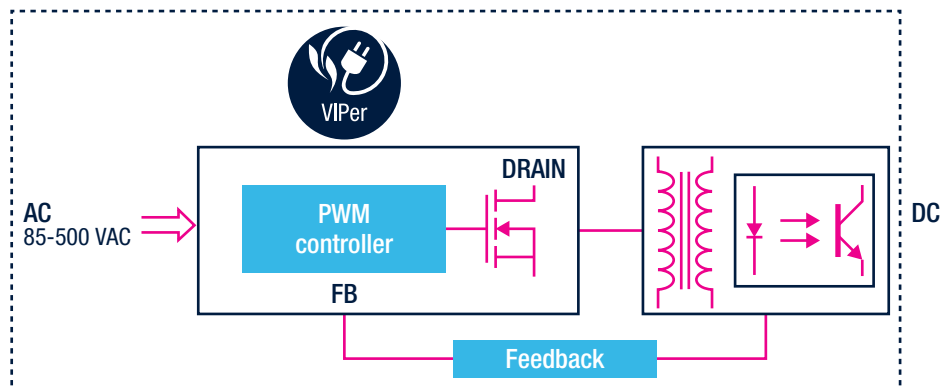
## MAIN APPLICATIONS

- Metering
- Lighting
- Home appliances
- Home automation
- Consumer and adapters
- Air conditioning

## GET IT ALL WITH VIPER

- **Efficiency**
  - The easiest way to comply with the most stringent energy-saving regulation
- **Reliability**
  - Improves SMPS lifetime
  - Up to 1050 V avalanche-rugged power MOSFET enabling ultra-wide VAC input range
- **Versatility**
  - Compatible with the most common topologies and power ranges up to 100 W
  - Smart stand by architecture using VIPer zero power
- **Cost-effectiveness**
  - Small, highly-integrated ICs reduce the number of external components required
  - Up to 240 kHz switching frequency to reduce magnetic components size

## MAIN FUNCTIONAL BLOCKS



# FAMILY PORTRAIT



Fly-back Converter: 85-265 VAC	4-5 W	6-8 W	12 W	15-18 W	50 W	65 W	100 W
Buck Converter	200 mA	300 mA	350 mA	600 mA			
$R_{DSon}$	27 $\Omega$	15 $\Omega$	7 $\Omega$	3.5 $\Omega$	450 m $\Omega$	260 m $\Omega$	225 m $\Omega$
$I_{DLIM}$	450 mA	620 mA	700 mA	1 A	2.25 A	3 A	3.5 A

## DIFFERENTIATORS - FIND THE PLUS FOR YOUR APPLICATION

Quasi-resonant (up to 240 kHz)			VIPer series 5					VIPerGaN
Jittered frequency (30, 60 or 115/120 kHz)	VIPer0P	VIPer series 1		VIPer series 6	VIPer series 7	VIPer series 8	VIPer series x22	
Brown-out protection (settable)			VIPer series 5		VIPer series 7			VIPerGaN
Low input voltage (18 VDC)		VIPer series 1						
Extra power timer (peak power)						VIPer series 8		
Double-level OCP			VIPer series 5		VIPer series 7	VIPer series 8		
Feed forward compensation			VIPer series 5					VIPerGaN
Embedded E/A 3.3 V, 1.2 V (V*1 & VOP)	VIPer0P	VIPer series 1		VIPer series 6			VIPer series x22	
Floating E/A ground (for easy negative output setting)	VIPer0P							
Self-supply option (remove auxiliary winding)	VIPer0P	VIPer series 1		VIPer series 6			VIPer series x22	
Wide range $V_{cc}$ (4.5 to 30 V)	VIPer0P	VIPer series 1					VIPer series x22	
$V_{cc}$ protection	VIPer0P	VIPer series 1		VIPer series 6			VIPer series x22	VIPerGaN
Flux runaway protection (for low start up peak current)	VIPer0P	VIPer series 1						
Zero power mode (ZPM)	VIPer0P							
Input OVP (Overvoltage protection)		VIPer series 1						VIPerGaN
Output OVP (Overvoltage protection)		VIPer series 1	VIPer series 5		VIPer series 7	VIPer series 8		VIPerGaN
Input UVP		VIPer series 1						
PWM current mode using optocoupler VIPer series 1 Cycle-by-cycle OCP Light load management (Burst mode/PFM) Soft start up Thermal shutdown Short-circuit protection Automatic restart after fault	VIPer0P 10 mW 4 mW (ZPM)	VIPer series 1 10 mW	VIPer series 5 30 mW	VIPer series 6 30 mW	VIPer series 7 30 mW	VIPer series 8 30 mW	VIPer series x22 40 mW	VIPerGaN 30 mW

## TOPOLOGIES- THE BEST FIT FOR THE MOST COMMON ARCHITECTURES

Isolated flyback	Primary Side Regulation (PSR)	VIPer0P	VIPer series 1		VIPer series 6			VIPer series x22
	Secondary Side Regulation (SSR)	VIPer0P	VIPer series 1	VIPer series 5	VIPer series 6	VIPer series 7	VIPer series 8	VIPer series x22 VIPerGaN
Non-isolated	Flyback/buck/ buck boost	VIPer0P	VIPer series 1		VIPer series 6			VIPer series x22

# VIPer series

## VIPerGaN: GaN HEMT power transistor

VIPerGaN50	VIPerGaN65	VIPerGaN100
50 W	65 W	100 W
650 V (850 V $T_{pulse} < 1 \mu s$ )		
$R_{DS(on)}$ 450 m $\Omega$ $I_{DLIM}$ 2.25 mA	$R_{DS(on)}$ 260 m $\Omega$ $I_{DLIM}$ 3 A	$R_{DS(on)}$ 225 m $\Omega$ $I_{DLIM}$ 3.5 A

### RECOMMENDED FOR

- Charger & adapters
- 5G/Comm infrastructure
- Appliances
- Aircon
- Consumer

### DIFFERENTIATORS

- Ultra-small QFN 5x6 package
- Pin-to-pin compatibility in the range 50 – 100 W
- Advanced QR controller + 650 V GaN HEMT
- Embedded HV start up generator
- Embedded full set of protections
- Up to 240 kHz switching frequency + jittering
- Less than 30 mW standby power consumption
- Multimode Operation (QR, valley, skipping, frequency foldback, burst mode)
- Higher power density
- Highest efficiency

## VIPer0P: ZERO POWER MODE

VIPer0P
7 W
$V_{BVDS}$ 800 V
Max $R_{DS(on)}$ 20 $\Omega$ $I_{DLIM}$ 400 mA

### RECOMMENDED FOR

- Home appliances
- Small home appliances
- Home lighting
- Home automation
- Air conditioning

### DIFFERENTIATORS

- Fixed frequency with jittering lowers EMI, thus reducing the number of BOM components
- Zero Power Mode (ZPM) allows smart turn ON and OFF using a button or an MCU
- Integrated error amplifier with 1.2 V reference and floating ground to enable direct feedback and simplify BoM for negative output
- Wide supply voltage range: 4.5 V to 30 V
- 4.5 V enables external supply from low voltage output (5 V)
- 30 V enables wide auxiliary voltage in case the transformer is used
- Pulse-skip protection to prevent flux runaway and the peak start current
- Topologies supported: flyback (PSR and SSR), buck, buck-boost

## VIPer series 1: LOW STANDBY, LOW VCC VOLTAGE

VIPer01	VIPer11	VIPer31
4 W	7 W	18 W
$V_{\text{BVDS}}$ 800 V		
Max $R_{\text{DS(on)}}$ 30 $\Omega$ $I_{\text{DLIM}}$ 120/240/360 mA	Max $R_{\text{DS(on)}}$ 17 $\Omega$ $I_{\text{DLIM}}$ 370/480/590 mA	Max $R_{\text{DS(on)}}$ 3.5 $\Omega$ $I_{\text{DLIM}}$ 710/850/990 mA

### RECOMMENDED FOR

- Home appliances
- Small home appliances
- Home lighting
- Home automation
- Air conditioning
- Metering

## DIFFERENTIATORS

- Fixed frequency with jittering lowers EMI, thus reducing the number of BOM components
- Disable pin to set the input or output OVP
- Integrated error amplifier with 1.2 V reference to enable direct feedback by resistor divider
- Input UVP (VIPer31)
- HV current source starts at 18 VDC (VIPer01), 26 VDC (VIPer11) and 24VDC (VIPer31) input voltage
- Wide supply voltage range: 4.5 V to 30 V
  - 4.5 V enables external supply from low voltage output (5 V)
  - 30 V enables wide auxiliary voltage in case the transformer is used
- Pulse-skip protection to prevent flux runaway and the peak start current
- Topology supported: flyback (PSR and SSR), buck, buck-boost

## VIPER SERIES X22: MINIMAL BOM, 730 BVDS

VIPer122	VIPer222
5 W	8 W
$V_{\text{BVDS}}$ 730 V	
Max $R_{\text{DS(on)}}$ 27 $\Omega$ $I_{\text{DLIM}}$ 450 mA	Max $R_{\text{DS(on)}}$ 15 $\Omega$ $I_{\text{DLIM}}$ 620 mA

## DIFFERENTIATORS

- Fixed frequency with jittering reduces the EMI allowing the minimal bill of material
- Integrated error amplifier to allow direct feedback by resistor divider
- Topology supported: flyback (PSR and SSR), buck, and buck-boost

### RECOMMENDED FOR

- Home appliances
- Consumer goods
- Industrial
- Lighting

## VIPER SERIES 5: QUASI-RESONANT OPERATION

VIPer25	VIPer35
12 W	15 W
$V_{BVDS}$ 800 V	
Max $R_{DSON}$ 7 $\Omega$ $I_{DLIM}$ 700 mA	Max $R_{DSON}$ 4.5 $\Omega$ $I_{DLIM}$ 1 A

### DIFFERENTIATORS

- The quasi-resonant operation reduces the switching losses and improves power conversion efficiency at wide range load
- Quasi-resonant operations reduces the EMI allowing to minimize the input filter size
- Feed forward compensation ensures a stable power capability for a wide input voltage
- Embedded protections: output OVP, short circuit/OLP, 2nd OCP, settable brown-out
- Topology supported: isolated flyback- SSR

### RECOMMENDED FOR

- Consumer
- Adapters
- Air conditioning

## VIPER SERIES 6: SMART FEATURES, HIGHEST ROBUSTNESS

VIPer06	VIPer16	VIPer26 VIPer26K
4 W	6 W	12 W
$V_{BVDS}$ 800 V		
Max $R_{DSON}$ 32 $\Omega$ $I_{DLIM}$ 350 mA	Max $R_{DSON}$ 24 $\Omega$ $I_{DLIM}$ 400 mA	Max $R_{DSON}$ 7 $\Omega$ $I_{DLIM}$ 700 mA

### DIFFERENTIATORS

- Fixed frequency with jittering reduces the EM, thus reducing the number of BOM components
- Integrated error amplifier enables direct feedback using a resistor divider
- No auxiliary winding costs
- Feedback disconnection protection
- Topologies supported: flyback (PSR and SSR), buck, and buck-boost
- 1050 V avalanche-rugged power MOSFET embedded (VIPer26K)

### RECOMMENDED FOR

- Home appliances
- Lighting
- Home automation
- 1-phase/3-phases industrial systems



## VIPER SERIES 7: BROWNOUT

VIPer17	VIPer27	VIPer37
6 W	12 W	15 W
$V_{\text{BVDS}}$ 800 V		
Max $R_{\text{DS(on)}}$ 24 $\Omega$ $I_{\text{DLIM}}$ 400 mA	Max $R_{\text{DS(on)}}$ 7 $\Omega$ $I_{\text{DLIM}}$ 700 mA	Max $R_{\text{DS(on)}}$ 4.5 $\Omega$ $I_{\text{DLIM}}$ 1 A

### DIFFERENTIATORS

- Fixed frequency with jittering lowers EMI, thus reducing the number of required BOM and external components
- Brown out protection with configurable minimum input voltage
- Embedded protections: output OVP, short circuit/OLP, 2nd OCP
- Topology supported: isolated flyback-SSR

### RECOMMENDED FOR

- Adapters
- Lighting
- Industrial power supplies
- Air conditioning

## VIPER SERIES 8: PEAK POWER

VIPer28	VIPer38
12 W/20 W (peak)	15 W/25 W (peak)
$V_{\text{BVDS}}$ 800 V	
Max $R_{\text{DS(on)}}$ 7 $\Omega$ $I_{\text{DLIM}}$ 800 mA	Max $R_{\text{DS(on)}}$ 4.5 $\Omega$ $I_{\text{DLIM}}$ 1.15 A

### DIFFERENTIATORS

- Fixed frequency with jittering lowers EMI, thus reducing the number of required BOM and external components
- Extra power timer (peak power) for improved response during load transient
- Embedded protections: output OVP, short circuit/OLP, 2nd OCP
- Topology supported: isolated flyback-SSR

### RECOMMENDED FOR

- Metering
- Lighting
- Consumer

# A plus for your applications

## A PLUS FOR METERING

### REQUIREMENTS

- Very high voltage robustness
- High immunity to electrical discharge
- Reduced noise in the communication band
- Peak power for data transfer

### RECOMMENDED:

VIPer series 6

VIPer series 8

VIPer series 1

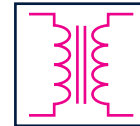
## KEY BENEFITS FOR METERING

- Three switching frequency options to avoid noise in the communication band
- Up to 1050 V avalanche-rugged power MOSFET allowing ultra wide range input Vac to be covered
- Embedded error amplifier for direct feedback from output or primary regulation
- Settable timer for peak power capability

## BEST-FIT TOPOLOGIES



- Non-isolated converter
  - buck
  - buck boost (negative output)
  - flyback with direct output feedback



- Isolated Flyback
  - SSR with optocoupler
  - Peak power

## A PLUS FOR LIGHTING

### REQUIREMENTS

- Low standby consumption
- High efficiency
- Robustness
- Cost saving
- Reduced size

### RECOMMENDED:

VIPerGaN

VIPerOP

VIPer series 1

VIPer series 5

VIPer series 6

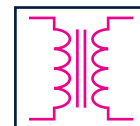
## KEY BENEFITS FOR LIGHTING

- Energy-saving: 10 mW @ no load @ 230 Vac and 4 mW in ZPM @ 230 Vac
- Quasi-resonant for high efficiency
- 800 V avalanche-rugged power MOSFET allowing ultra-wide range input Vac to be covered
- Reduced peak drain current during the start-up
- Smart and efficient buck led driver using the floating ground and low ref voltage
- Embedded error amplifier for direct feedback from output or primary regulation
- Operating temperature: -40 to +150 °C
- Brown-out with settable turn-ON and turn-OFF thresholds

## BEST-FIT TOPOLOGIES



- Non-isolated converter
  - buck
  - buck boost (negative output)
  - flyback with direct output feedback



- Isolated Flyback
  - SSR with optocoupler
  - PSR by auxiliary winding
  - Quasi-resonant

## A PLUS FOR HOME APPLIANCES

### REQUIREMENTS

- Low standby power
- High efficiency at light load
- Small EMI input filter
- Ultra-wide input voltage
- Small size

### RECOMMENDED:

VIPerGaN

VIPerOP

VIPer series 1

VIPer series 6

VIPer series x22

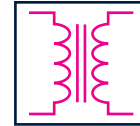
## KEY BENEFITS FOR HOME APPLIANCES

- Frequency jittering reduces the EMI enabling small input filter
- Compliance with the most stringent energy saving regulations
- Zero Power Mode enabling IC shut down and wake up using smart interface with MCU for touch button or remote control
- Ultra wide range input Vac to be covered
- Self-supply for reduced part count
- Embedded error amplifier for direct feedback from output or primary regulation
- Reduced peak drain current during the start up
- Wide supply voltage range: 4.5 to 30 V
  - 4.5 V enables external supply from low voltage output (5 V)
  - 30 V enables wide auxiliary voltage in case the transformer is used
  - Very high switching frequency (240 kHz with VIPerGaN)
  - Highest efficiency

## BEST-FIT TOPOLOGIES



- Non-isolated converter
  - buck
  - buck boost (negative output)
  - flyback with direct output feedback



- Isolated Flyback
  - SSR with optocoupler
  - PSR by auxiliary winding

## A PLUS FOR HOME AUTOMATION

### REQUIREMENTS

- Small size
- Low standby power
- High efficiency at light load
- Small EMI input filter
- Reduced part count

### RECOMMENDED:

VIPerOP

VIPer series 1

VIPer series 6

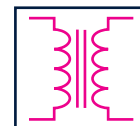
## KEY BENEFITS FOR HOME AUTOMATION

- Energy saving: 10 mW @ no load @ 230 Vac, 4 mW in ZPM @ 230 Vac
- 800 V avalanche-rugged power MOSFET enabling ultra-wide range input Vac
- Embedded auto-restart protections
- Self-supply for reduced part count
- Embedded error amplifier for direct feedback from output or primary regulation
- Operating temperature: -40 to +150 °C
- Remote control availability through ZPM function (only VIPerOP)

## BEST-FIT TOPOLOGIES



- Non-isolated converter
  - buck
  - buck boost (negative output)
  - flyback with direct output feedback



- Isolated Flyback
  - SSR with optocoupler
  - PSR by auxiliary winding

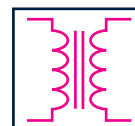
## A PLUS FOR CONSUMER APPLICATIONS AND ADAPTERS

REQUIREMENTS	RECOMMENDED:
<ul style="list-style-type: none"> <li>• Low standby power</li> <li>• High efficiency</li> <li>• Reliability</li> <li>• Cost saving</li> <li>• Minimized size and weight</li> <li>• Robustness</li> </ul>	<ul style="list-style-type: none"> <li>• VPerGaN</li> <li>• VPer series 5</li> <li>• VPer series 8</li> <li>• VPer series x22</li> </ul>

### KEY BENEFITS FOR CONSUMER AND ADAPTERS

- Very high power density
- Light and small PCB
- Highest efficiency
- Very high switching frequency (240 kHz with VPerGaN)
- Compliance with the more stringent energy saving regulations
- Advanced QR for highest efficiency
- Peak power capability for improved response during load transient
- Operating temperature: -40 to +150 °C
- Brown-out with settable turn-ON and turn-OFF thresholds

### BEST-FIT TOPOLOGIES



- Isolated Flyback
  - SSR with optocoupler
  - Peak power
  - Quasi-resonant

## A PLUS FOR AIR CONDITIONING

REQUIREMENTS	RECOMMENDED:
<ul style="list-style-type: none"> <li>• Robustness &amp; Reliability</li> <li>• Low EMI</li> <li>• High efficiency</li> <li>• Ultra wide range input voltage</li> <li>• Minimized size and BoM</li> </ul>	<ul style="list-style-type: none"> <li>• VPerGaN</li> <li>• VPerOP</li> <li>• VPer35</li> <li>• VPer37</li> <li>• VPer31</li> </ul>

### KEY BENEFITS FOR AIR CONDITIONING

- Embedded full set of protections
- Frequency Jittering for reduced EMI
- Quasi Resonant for high efficiency and reduced EMI
- Remote control availability through ZPM function (only ViperOP)
- Energy efficiency meets the most stringent regulations
- Embedded auto-restart protections and thermal shutdown

### BEST-FIT TOPOLOGIES



- Isolated Flyback
  - SSR with optocoupler
  - PSR by auxiliary winding

# Evaluation boards

## Quasi resonant flyback-GaN HEMT transistor from 50 W to 100 W at wide input voltage range-isolated

Order code	Part number	Short description	Vin	Vout/Iout	Power
EVLVIPGAN50PD	VIPERGAN50	QR isolated Flyback converter USB PD, multimode operation, QFN 5x6 package	85-265 V <sub>AC</sub>	5-9-15 V@3 A; 20 V@2.25 A	50 W
EVLVIPGAN50FL	VIPERGAN50	QR isolated SSR Flyback converter, multimode operation, QFN 5x6 package	85-265 V <sub>AC</sub>	15 V@3.3 A	50 W
EVLVIPGAN65PD	VIPERGAN65	QR isolated Flyback converter USB PD, multimode operation, QFN 5x6 package	80-265 V <sub>AC</sub>	5-9-15 V@3 A; 20 V@3.25A	65 W
EVLVIPGAN100PD*	VIPERGAN100	QR isolated Flyback converter USB PD, multimode operation, QFN 5x6 package	85-265 V <sub>AC</sub>	5-9-15 V@3 A; 20 V@5 A	100 W

Note: \* available by Q1 2023

## Non-Isolated, inductor-based topologies - Buck or Buck-Boost Up to Iout 600 mA at wide and Ultra-Wide Input voltage range

Order code	Part number	Short description	Vin	Vout/Iout	Document
STEVAL-ISA010V1	VIPER16LN	Non-isolated buck converter, 60 kHz, DIP7 package	85-500 V <sub>AC</sub>	12 V ±10%, 5 V ±4%, 150 mA	AN2872
STEVAL-ISA096V1	VIPER06XS	Non-isolated buck boost converter, 30 kHz, SSO10 package	85-265 V <sub>AC</sub>	-12 V/150 mA	UM1470
STEVAL-ISA114V1	VIPER06XS	Non-isolated buck converter, 30 kHz, SSO10 package	80-265 V <sub>AC</sub>	5 V/160 mA	AN4273
STEVAL-ISA115V1	VIPER06XS	Non-isolated buck converter, 30 kHz, SSO10 package	85-265 V <sub>AC</sub>	12 V/150 mA	AN4260
STEVAL-ISA116V1	VIPER26LD	Non-isolated buck converter, 60 kHz, S016N package	85-265 V <sub>AC</sub>	16 V, 5 V/300 mA	AN4562
STEVAL-ISA119V1	VIPER16LD	Non-isolated buck converter, 60 kHz, S016N package	85-265 V <sub>AC</sub>	12, 5 V/150 mA	AN4345
STEVAL-ISA130V1	VIPER06XN	Non-isolated buck converter, 30 kHz, DIP7 package	85-375 V <sub>AC</sub>	12 V/140 mA	DN0009
STEVAL-ISA178V1	VIPER013XS	Non-isolated buck converter, jittered 30 kHz, SSO10 package	85-265 V <sub>AC</sub>	5 V/200 mA	AN4858
STEVAL-ISA179V1	VIPER0PLD	Non-isolated buck converter, jittered 60 kHz, S016N package	85-265 V <sub>AC</sub>	15 V/150 mA	AN4857
STEVAL-ISA195V1	VIPER115XS	Non-isolated buck converter, 30 kHz, SSO10 package	85-265 V <sub>AC</sub>	5 V/350 mA	AN5081
STEVAL-LL003V1	VIPER0PLD	Non-isolated buck converter, 60 kHz, S016N package	85-275 V <sub>AC</sub>	8 W/130 mA	AN5107
STEVAL-VP013B1B	VIPER013BLS	Non-isolated buck converter, jittered 60 kHz, SSO10 package	60-300 V <sub>AC</sub>	5 V/100 mA	AN5396
STEVAL-VP12201B	VIPER122LS	Non-isolated buck converter, 60 kHz, SSO10 package	85-265 V <sub>AC</sub>	15 V/200 mA	AN5401
STEVAL-VP22201B	VIPER222XS	Non-isolated buck converter, 30 kHz, SSO10 package	85-265 V <sub>AC</sub>	5 V/360 mA	AN5401
STEVAL-VP26K01B	VIPER265KD	Non-isolated buck converter, 60 kHz, S016N package	90-600 V <sub>AC</sub>	15 V/100 mA	AN5380
STEVAL-VP319X1B	VIPER319X	Non-isolated buck converter, 30 kHz, S016N package	85-265 V <sub>AC</sub>	5 V/600 mA	AN5521

## Flyback

### Up to 4.5 W at Wide Input Voltage Range - Non Isolated

Order code	Part number	Short description	Vin	Vout/Iout	Document
STEVAL-ISA112V1	VIPER06HN	Flyback, 115 kHz, DIP7 package	85-265 V <sub>AC</sub>	12 V/350 mA	AN4116
STEVAL-ISA113V1	VIPER06HS	Flyback, 115 kHz, SSO10 package	85-265 V <sub>AC</sub>	12 V/350 mA	AN4164
STEVAL-ISA177V1	VIPER013LS	Flyback, 60 kHz, SSO10 package	85-265 V <sub>AC</sub>	5 V/800 mA	AN4855

### Up to 4.5 W at Wide Input Voltage Range - Isolated

Order code	Part number	Short description	Vin	Vout/Iout	Document
STEVAL-ILL017V1	VIPER17HN	Flyback (LED driver), 115 kHz DIP7 package	220 ±20%	7 V/500 mA	AN2811
STEVAL-ISA134V1	VIPER06HN	Flyback, 115 kHz, DIP7 package	85-265 V <sub>AC</sub>	12 V/330 mA	AN4372
STEVAL-ISA135V1	VIPER06HS	Flyback, 115 kHz, SSO10 package	85-265 V <sub>AC</sub>	12 V/330 mA	AN4404
STEVAL-ISA136V1	VIPER06HN	Flyback, 115 kHz, DIP7 package	85-265 V <sub>AC</sub>	5 V/600 mA	AN4410
STEVAL-ISA137V1	VIPER06HS	Flyback, 115 kHz, SSO10 package	85-265 V <sub>AC</sub>	5 V/600 mA	AN4418
STEVAL-VP26K01F	VIPER267KD	Isolated triple output flyback converter, 60 kHz, S016N package	90 TO 440 V <sub>AC</sub>	15 V at 0.55 Arms (0.7 A peak), 3.3 V at 200 mA, 5 V at 100 mA	AN5303
STEVAL-VP26K02F	VIPER267KD	Isolated double output flyback converter, 60 kHz, S016N package	85 TO 500 V <sub>AC</sub>	12 V at 0.7 Arms (1 A peak), 6 V at 200 m	AN5374
STEVAL-VP26K03F	VIPER267KD	Isolated double output flyback converter, 60 kHz, S016N package	85 TO 498 V <sub>AC</sub>	12 V at 0.7 Arms (1 A peak), 6 V at 200 mA	AN5375

## Up to 7 W at Wide Input Voltage Range - Non Isolated

Order code	Part number	Short description	Vin	Vout/Iout	Document
STEVAL-ISA071V2	VIPER16LN	Flyback (negative), 60 kHz, DIP7 package	85-265 Vac	-5 V/400 mA, +7 V/160 mA	UM0920
STEVAL-ISA118V1	VIPER16LN	Flyback, 60 kHz, DIP7 package	85-265 Vac	16 V/280 mA	AN3028
STEVAL-ISA129V1	VIPER16HN	Flyback, 115 kHz, DIP7 package	85-265 Vac	16 V/280 mA	
STEVAL-ISA174V1	VIPER0PLD	Flyback, 60 kHz, SO16N package, Zero-Power	85-265 Vac	7 V, -5 V 7 W	AN4836
STEVAL-ISA192V1	VIPER0PLD	Flyback, 60 kHz, SO16N package, Zero-Power with Tactile switches and STM32L	85-265 Vac	-5 V/800 mA, +7 V/400 mA	AN4941
STEVAL-ISA196V1	VIPER114LS	Flyback, 60 kHz, SO16N package	85-265 Vac	5 V/1.2 A	AN5072

## Up to 8 W at Wide Input Voltage Range - Isolated

Order code	Part number	Short description	Vin	Vout/Iout	Document
STEVAL-ISA062V1	VIPER17HN	Flyback (double out), 115 kHz, DIP7 package	85-265 Vac	5 V, 12 V/750 mA	AN2934
STEVAL-ISA117V1	VIPER16LN	Flyback, 60 kHz, DIP7 package	85-265 Vac	12 V/400 mA	AN4259
STEVAL-ISA124V1	VIPER17HN	Flyback (CC/CV charger), 115 kHz, DIP7 package	85-265 Vac	5 V/1 A	AN2840
STEVAL-ISA125V1	VIPER28LN	Flyback (PEAK Power), 60 kHz, DIP7 package	85-265 Vac	5 V/2.4 A	DB1985
STEVAL-ISA126V1	VIPER28HN	Flyback (PEAK Power), 115 kHz, DIP7 package	85-265 Vac	5 V/2.4 A	AN2950
STEVAL-ISA180V1	VIPEROPHD	Flyback, 60kHz, SO16N package, Zero Power	85-265 Vac	12 V/0.5 A	AN4905
STEVAL-ISA181V1	VIPEROPHD	STM32L151C6, Flyback, 120 kHz, SO16N package, Zero Power, Remote control	85-265 Vac	12 V/0.5 A	AN4940
STEVAL-ISA197V1	VIPER114LS	Flyback (iso), 60 kHz, SO16N package	85-265 Vac	12 V/0.65 A	AN5057
STEVAL-VP12201F	VIPER122LS	Flyback, 60 kHz, SS010 package	85-265 Vac	12 V/416 mA	AN5441

## Up to 12 W at Wide Input Voltage Range - Non Isolated

Order code	Part number	Short description	Vin	Vout/Iout	Document
STEVAL-ISA110V1	VIPER26LN	Flyback, 60 kHz, DIP7 package	85-265 Vac	12 V/1 A	AN4106
STEVAL-ISA111V1	VIPER26HN	Flyback, 115 kHz, DIP7 package	85-265 Vac	12 V/1 A	AN4165

## Up to 12 W at Wide Input Voltage Range - Isolated

Order code	Part number	Short description	Vin	Vout/Iout	Document
STEVAL-ISA081V1	VIPER26LN	Flyback (PRIMARY reg), 60 kHz, DIP7 package	85-265 Vac	12 V, 3.3 V/1 A	UM0984
STEVAL-ISA122V1	VIPER27HN	Flyback, 115 kHz, DIP7 package	85-265 Vac	5 V/2.2 A	AN3011
STEVAL-ISA162V1	VIPER25HD	Quasi-resonant flyback, 225 kHz frequency limit, SO16N package	85-265 Vac	12 V/830 mA	AN4685
STEVAL-ISA175V1	VIPER26HD	Three outputs, flyback for Smart meter and Power Line Communication system	85-440 Vac	16 V/500 mA (700 mA pk) 5 V/100 mA, 3.3 V/200 mA	AN4878
STEVAL-ISA182V1	VIPER38HD	Flyback (PEAK Power), 115 kHz, SO16N package	85-132 Vac	12 V/0.7 A (2.5 A peak for 10 ms)	AN4924
STEVAL-VP26K01F	VIPER267KD	Flyback, 60 kHz, SO16N package	85-440 Vac	15 V/550 mA (700 mA pk) 5 V/100 mA, 3.3 V/200 mA	AN5303
STEVAL-VP26K02F	VIPER267KD	Flyback, 60 kHz, SO16N package	85-500 Vac	12 V/700 mA (1 A pk) 6 V/200 mA	AN5374
STEVAL-VP26K03F	VIPER267KD	Flyback (Primary reg.), 60 kHz, SO16N package	85-500 Vac	12 V/700 mA (1 A pk) 6 V/200 mA	AN5375

## Up to 18 W at Wide Input Voltage Range - Isolated

Order code	Part number	Short description	Vin	Vout/Iout	Document
STEVAL-ISA121V1	VIPER37LE	Flyback, 60 kHz, SDIP10 package	85-265 Vac	5 V, 3 A	AN4407
STEVAL-ISA140V1	VIPER37HE	Flyback, 60 kHz, SDIP10 package	85-265 Vac	12 V/1.2 A	AN4419
STEVAL-ISA153V1	VIPER38LE	Flyback (PEAK Power), 60 kHz, SDIP10 package	90-265 Vac	12 V/1.2 A peak 1.8 A	AN4479
STEVAL-ISA171V1	VIPER35HD	Quasi-resonant flyback, 225 kHz frequency limit, SO16N package	85-265 Vac	12 V/1.25 A	AN4812
STEVAL-ISA191V1	VIPER37LE	Flyback double output, 60 kHz, SDIP10 package	85-265 Vac	5 V/1.2 A, 12 V/0.75 A	AN4830
STEVAL-ISA183V1	VIPER35LD	Quasi resonant triple output flyback, 136 kHz frequency limit	175-275 Vac	12 V/1 A, 15 V/0.2 A 5 V/0.2 A	AN5030
STEVAL-ISA184V1	VIPER37LD	Flyback double output, 60 kHz, SO16N package	85-265 Vac	5 V/1.2 A, 12 V/0.75 A	AN4830
STEVAL-VP318L1F	VIPER318LD	Flyback, 60 kHz, SO16N package	85-265 Vac	15 V/1.2 A	AN5558
STEVAL-VP318L2F	VIPER318LD	Flyback (Primary reg.), 60 kHz, SO16N package	90-265 Vac	15 V/1.2 A	AN5642

# Available online

## SURFACE-MOUNT AND THROUGH-HOLE PACKAGES



QFN 5x6



S016N



SDIP10

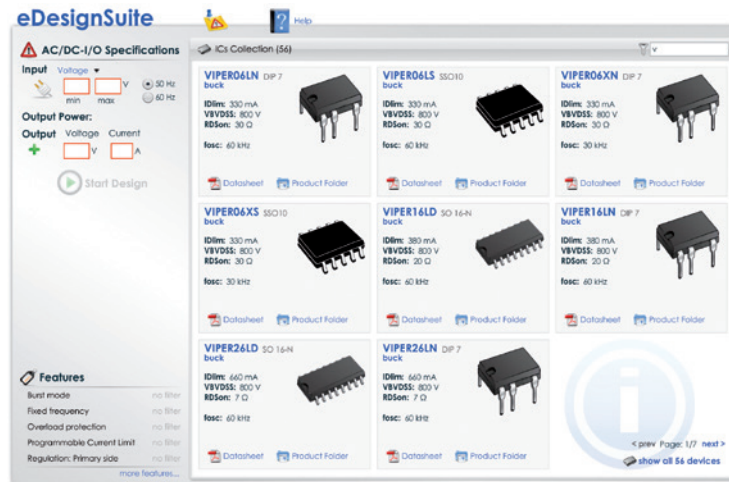


DIP7



SS010

## MAKE YOUR DESIGN EASILY USING EDESIGNSUITE



For technical documentation, samples  
and online ordering, visit us at  
[www.st.com/high-voltage-ac-dc-converters](http://www.st.com/high-voltage-ac-dc-converters)

# life.augmented



Order code: BR2208VIPER

For more information on ST products and solutions, visit [www.st.com](http://www.st.com)

© STMicroelectronics - August 2022 - Printed in the United Kingdom - All rights reserved  
ST and the ST logo are registered and/or unregistered trademarks of STMicroelectronics International NV or its affiliates in the EU and/or elsewhere. In particular, ST and the ST logo are Registered in the US Patent and Trademark Office. For additional information about ST trademarks, please refer to [www.st.com/trademarks](http://www.st.com/trademarks).  
All other product or service names are the property of their respective owners.

