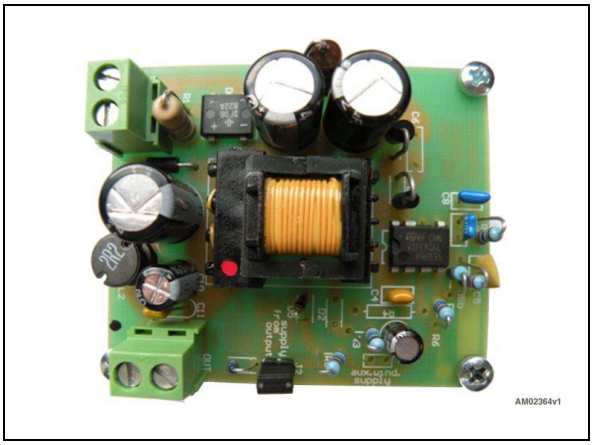
STEVAL-ISA118V1

Offline power converter demonstration board using the Viper16

Data brief

Features

- Offline converter for wide range input voltage
- Output power: up 6 W
- No need for auxiliary winding (selectable option)
- 30 mW standby consumption (with auxiliary winding)
- High efficiency tested in accordance with the ENERGY STAR® active mode method
- EMI test pre-compliant to EN55022 Class B
- RoHS compliant



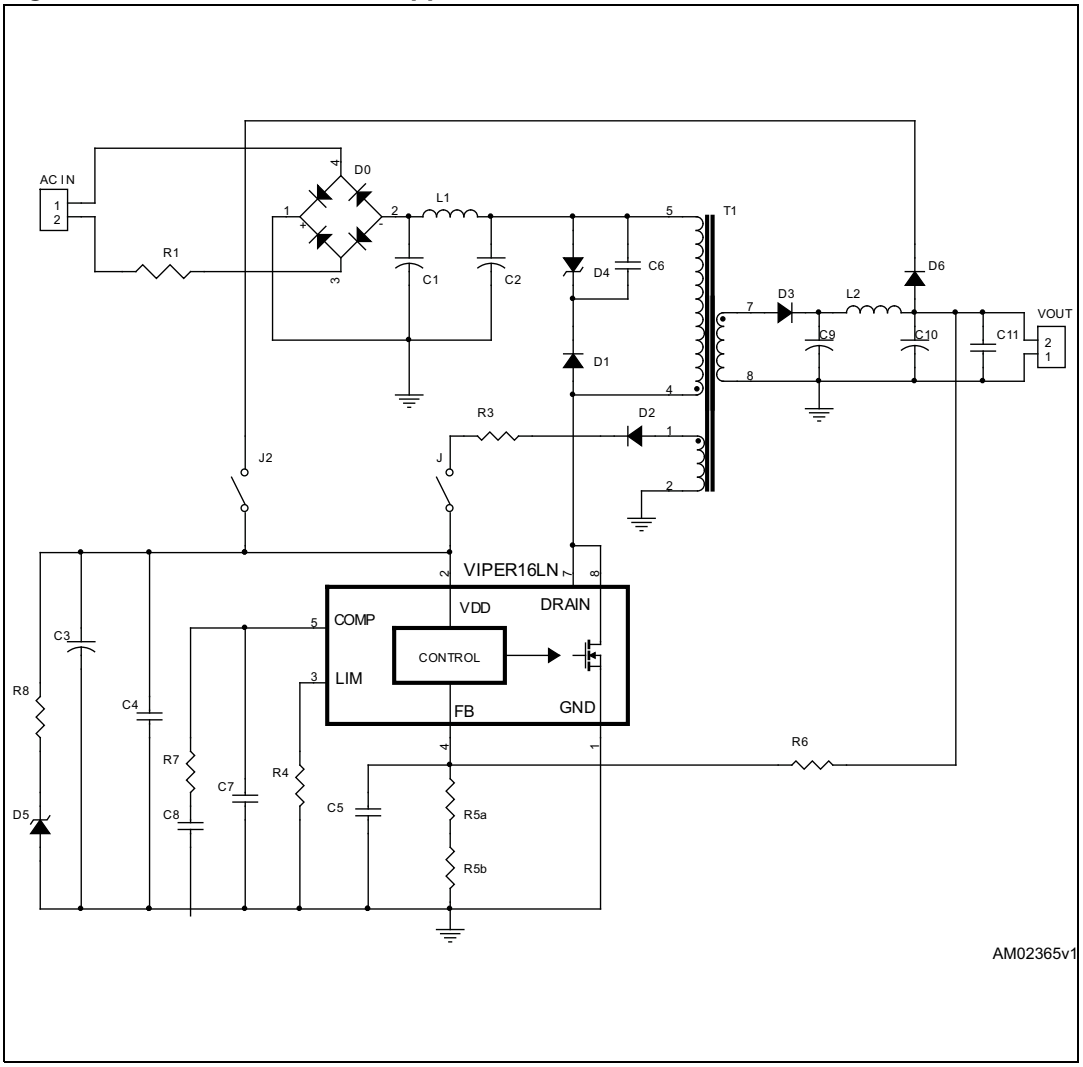
Description

The STEVAL-ISA118V1 is an offline power converter in flyback topology with jittered fixed frequency. The board uses the VIPer16, allowing the application to handle up to approximately 6 W over a wide input voltage range, and up to about 10 W in the European single input voltage range.

The VIPer16 can operate with or without an auxiliary winding; both options are implemented on the board. When operating with the auxiliary winding, it can achieve very low standby consumption. Available protection features include thermal shutdown with hysteresis, delayed overload and open-loop failure protection.

1 Schematic diagram

Figure 1. STEVAL-ISA118V1 application schematic



2 Bill of material

Table 1. BOM list

Reference	Part	Description	Manufacturer
C1, C2		4.7 µF, 400 V NHG series electrolytic capacitor	Panasonic
C3		10 µF, 35 V GA series electrolytic capacitor	Panasonic
C4, C11		100 nF, 50 V RPER7 series ceramic capacitor	Murata
C5		150 pF, 100 V 682 series ceramic capacitor	AVX
C6	Not mounted		
C7		4.7 nF, 50 V B3798x series ceramic capacitor	EPCOS
C8		150 nF, 50 V B3798x series ceramic capacitor	EPCOS
C9		470 µF, 25 V ZL series ultra-low ESR electrolytic capacitor	Rubycon
C10		100 µF, 25 V VR series electrolytic capacitor	Nichicon
D0	DF06M	600 V 1 A diode bridge	Vishay
D1	STTH1L06	Clamp diode	STMicroelectronics
D2	BAT46	Small signal diode	STMicroelectronics
D3	STPS2H100	Output diode 2 A, 100 V	STMicroelectronics
D4	P6KE300A	Transil	STMicroelectronics
D5	BZX79-C18	18 V Zener diode	NXP
D6	Not mounted	Small signal diode (1N4148)	
R1		4.7 Ω 3/4 W resistor	
R3		15 W 1/4 W resistor	
R4	Not mounted		
R5a		10 kΩ 1% 1/4 W resistor	
R5b		2.2 kΩ 1% 1/4 W resistor	
R6		47 kΩ 1% 1/4 W resistor	
R7		33 kΩ 1/4 W resistor	
R8		68 kΩ1/4 W resistor	
L2	RFB0807-2R2L	2.2 µH power inductor	Coilcraft
J,J2		Jumpers	
T1	1335.0062	Transformer	Magnetica
IC	VIPer16LN		STMicroelectronics

3 Revision history

Table 2. Document revision history

Date	Revision	Changes
09-Jan-2013	1	Initial release.

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