PRODUCT INFORMATION LETTER

PIL IPD-IPC/13/8115
Dated 08 Oct 2013

VIPER17 : introduction of a new test program

Sales Type/product family label	VIPER17 in all package options
Type of change	Test program / platform change
Reason for change	To improve the testing yield
Description	We have made a minor change on the test program of the VIPER17.
Forecasted date of implementation	01-Oct-2013
Forecasted date of samples for customer	01-Oct-2013
Forecasted date for **STMicroelectronics** change Qualification Plan results availability	01-Oct-2013
Involved ST facilities	ST Shenzhen and ST Long Gang in China

DOCUMENT APPROVAL

Name	Function
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ATTACHMENT TO PIL IPG-IPC/13/8115

WHAT*:*
We have introduced a minor modification on the Test program of the VIPER17 products listed below :

Product Line	Commercial Product	Package description	Packing type
MV34	VIPER17HN	PDIP 7 - MDIP .25	Tube
	VIPER17LN	PDIP 7 - MDIP .25	Tube
	VIPER17HD VIPER17HDTR	SO 16 .15 TO JEDEC MS-	Tube Tape&Reel
	VIPER17LD VIPER17LDTR	SO 16 .15 TO JEDEC MS-	Tube Tape&Reel

This modification will not affect any conditions related to form, fit, function, quality and reliability of these products.

WHY*:*
The change was made in order to improve the testing yield.
The data collected at the Final Test in the Back-End plants have confirmed the yield improvement.

HOW*:*
The modification consists in the introduction of the following two tests:
IDLIM@ VDD 10V limits 380mA – 420mA
IDLIM@ VDD 8.5V limits 380mA – 460mA
The revision of the datasheet to refer to is the Rev.09

The new products will be identified by our data code, as follows :

Commercial product	Date code (year–assembly week)
VIPER17HN VIPER17LN VIPER17LD(TR)	330
VIPER17HD(TR)	335

WHEN*:*
The change of the test program is effective immediately.

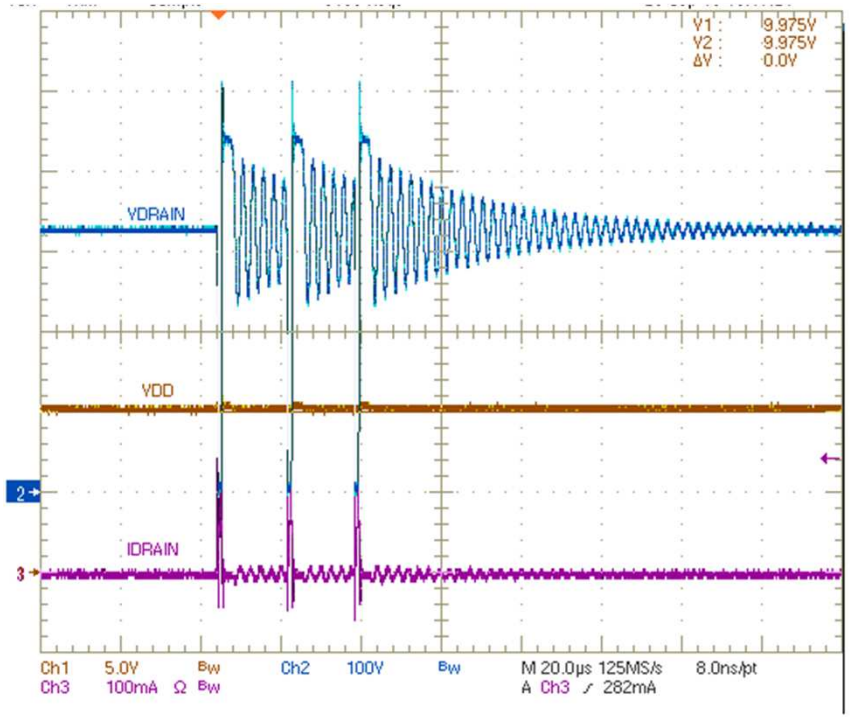
Scope: showing that I_{DLIM} occurs at $V_{DD} > V_{DDmin}$

Test board: Flyback isolated (12V/0.6A)

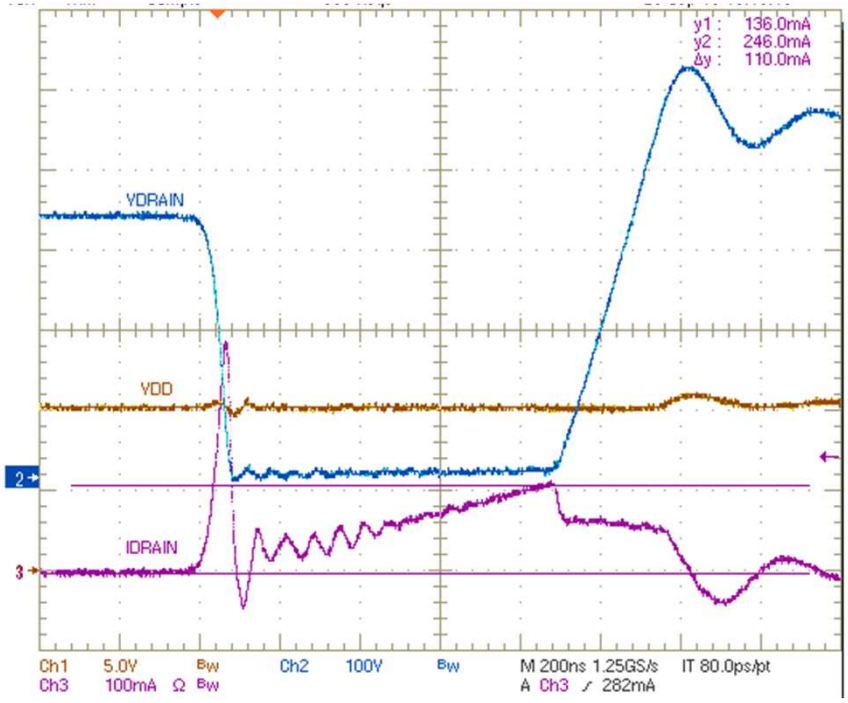
Device: VIPer17LN

V_{IN} = 230V_{AC}, no load

V_{DDmin} = 9.975V



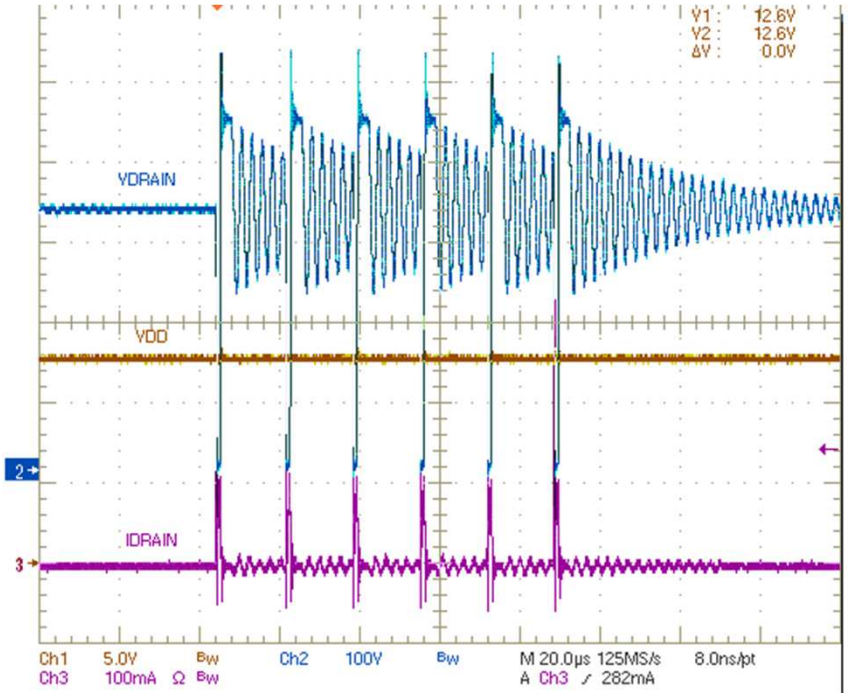
I_{DRAIN_pk} = 110mA = I_{D_BM}



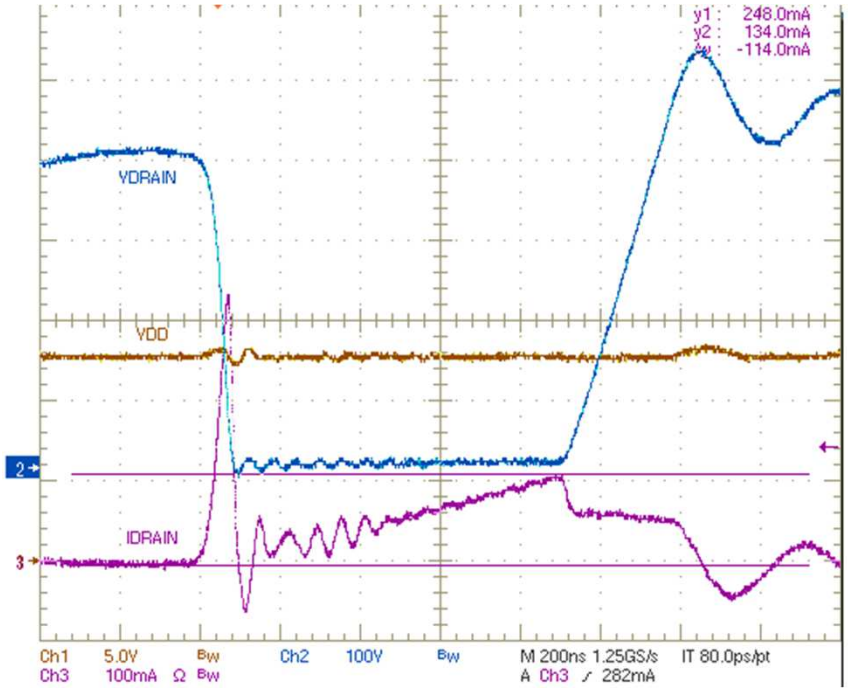
- V_{DD} is supplied by the transformers auxiliary winding
- The minimum voltage across V_{DD} pin (V_{DDmin}) is reached in no load condition at V_{IN} = 230V_{AC}
- In order to guarantee correct steady-state operation, it should always be: $V_{DDmin} > V_{DDoffmax}$ = 8.5V
- P_{IN} is very low, the converter is operated in burst mode and the DRAIN peak current value is the burst mode one (I_{D_BM})

V_{IN} = 230V_{AC}, light load (30mA)

V_{DDmin} = 12.6V



I_{DRAIN_pk} = 110mA = I_{D_bm}

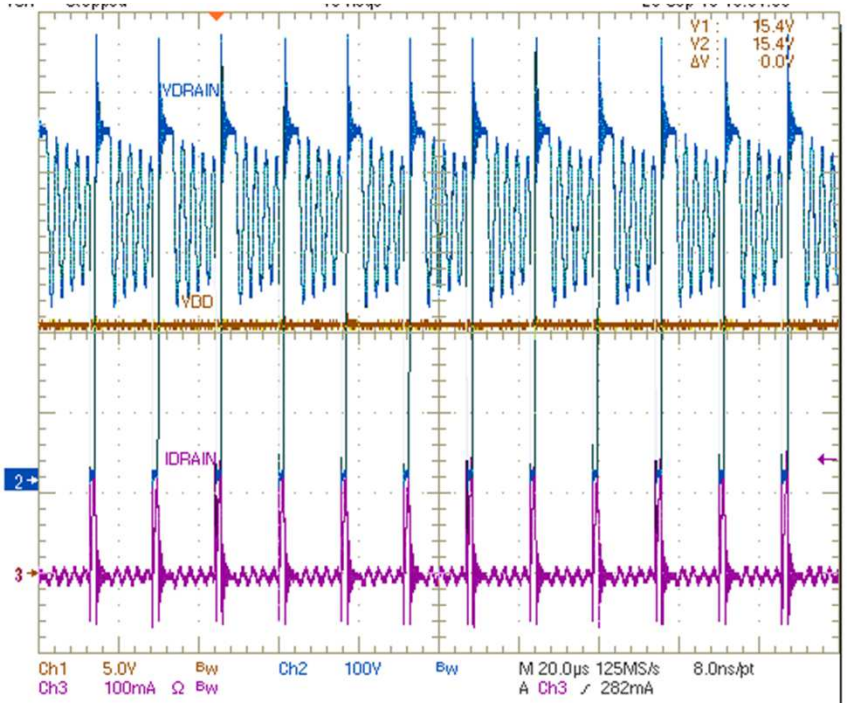


- Connecting some load, even small, to the output, makes V_{DD} significantly increase respect to V_{DDmin}

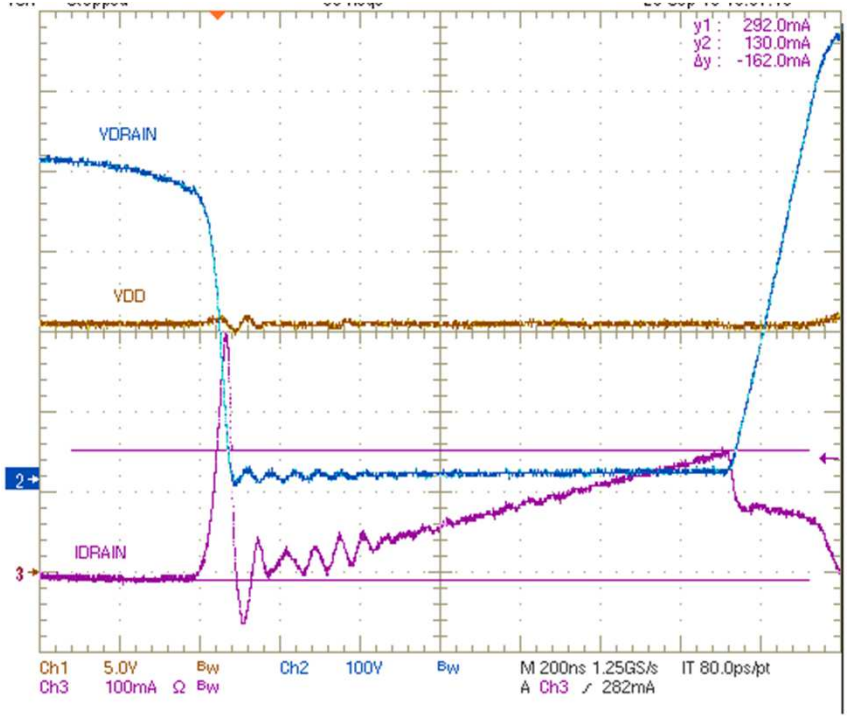
- While the converter is still in burst mode, the DRAIN peak current value is still I_{D_BM}

V_{IN} = 230V_{AC}, medium load (150mA)

V_{DDmin} = 15.4V



I_{DRAIN_pk} = 160mA

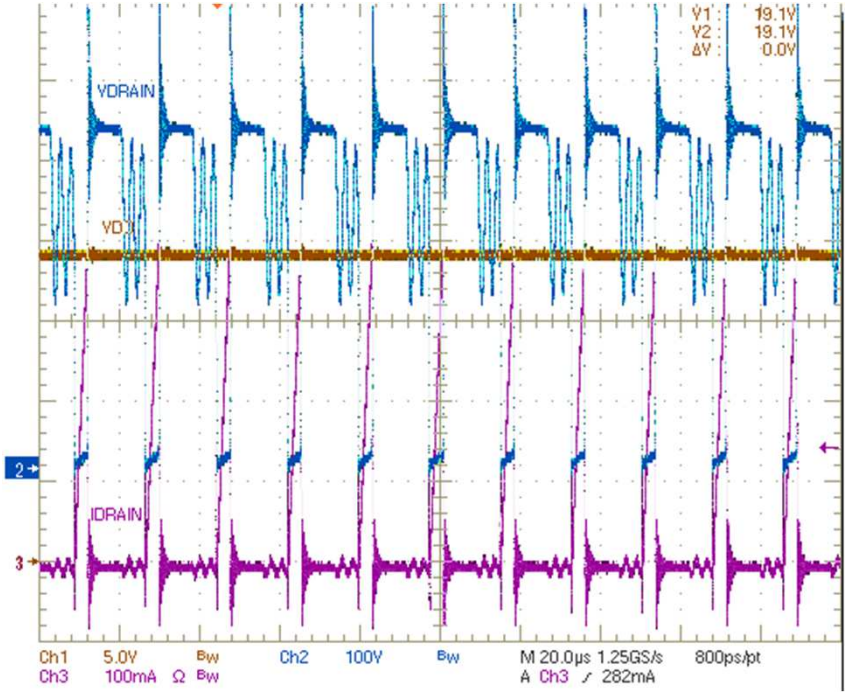


- Further increasing the output load makes the V_{DD} voltage further increase

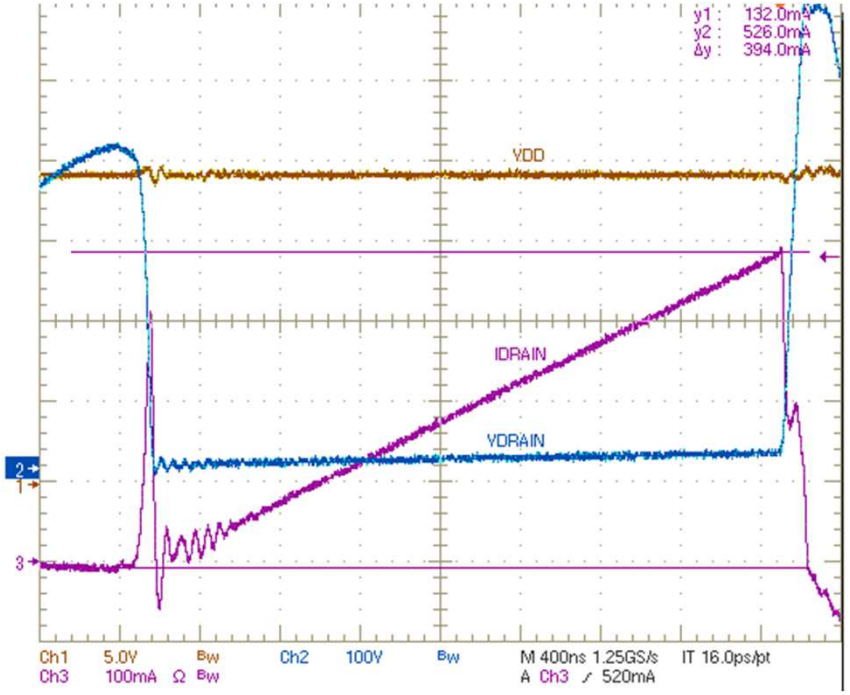
- As the converter exit burst mode, I_{DRAIN} increases respect to I_{D_BM}, but is still quite low

V_{IN} = 230V_{AC}, full load

V_{DDmin} = 19.1V



I_{DRAIN_pk} = 394mA = I_{DLIM}



- At full load load, when finally I_{DRAIN} reaches I_{DLIM} (400mA), the V_{DD} voltage value is 19V

Conclusions

- V_{DD} minimum value (V_{DDmin}) is reached in no load condition

- It is always $V_{DDmin} > 8.5V$

- When $V_{DD} = V_{DDmin} \rightarrow I_{DRAIN} \approx I_{D\_BM}$

- When the load increases, V_{DD} increases as well, rapidly walking away from V_{DDmin}

- In conclusion, the conditions

  1 - $I_{DRAIN} \approx I_{DLIM}$
  2 - $V_{DD} \approx V_{DDoff}$

  cannot be met at the same time

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