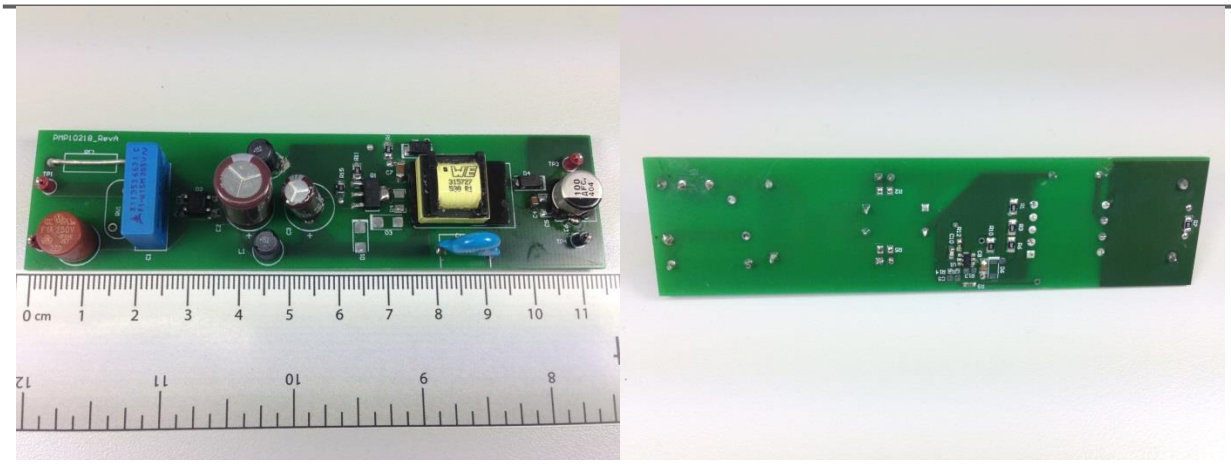
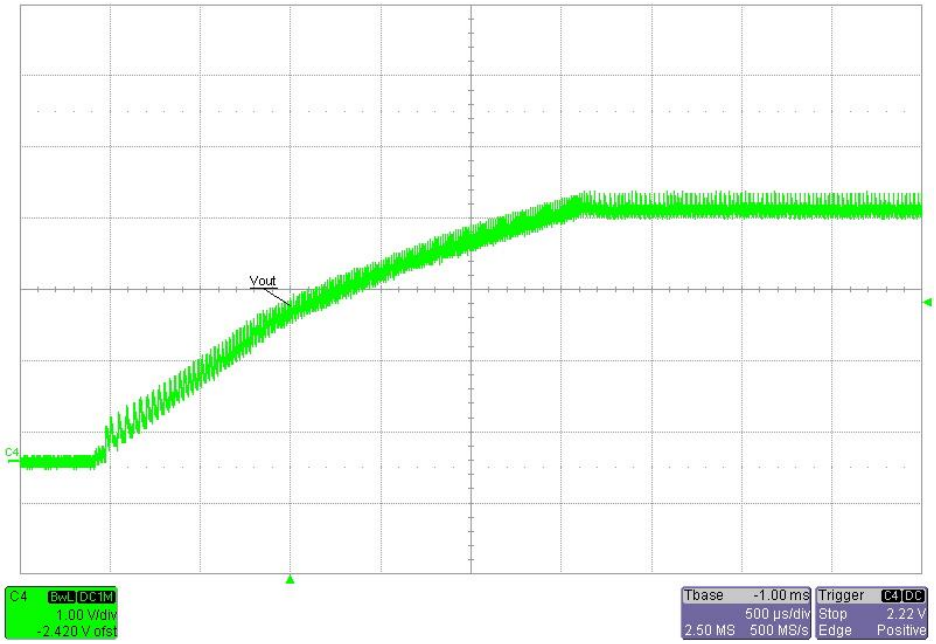
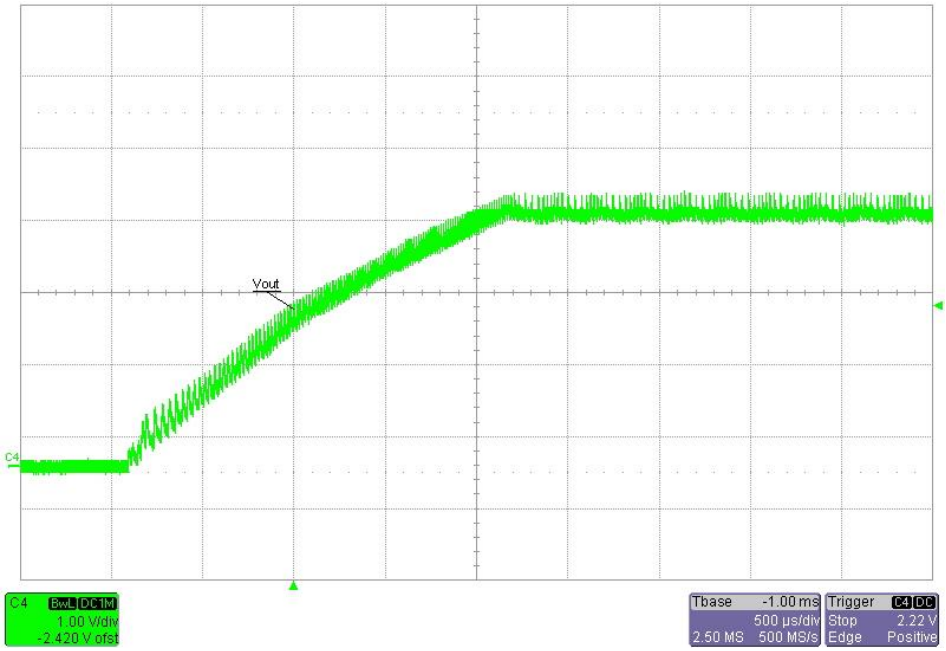


1 Startup

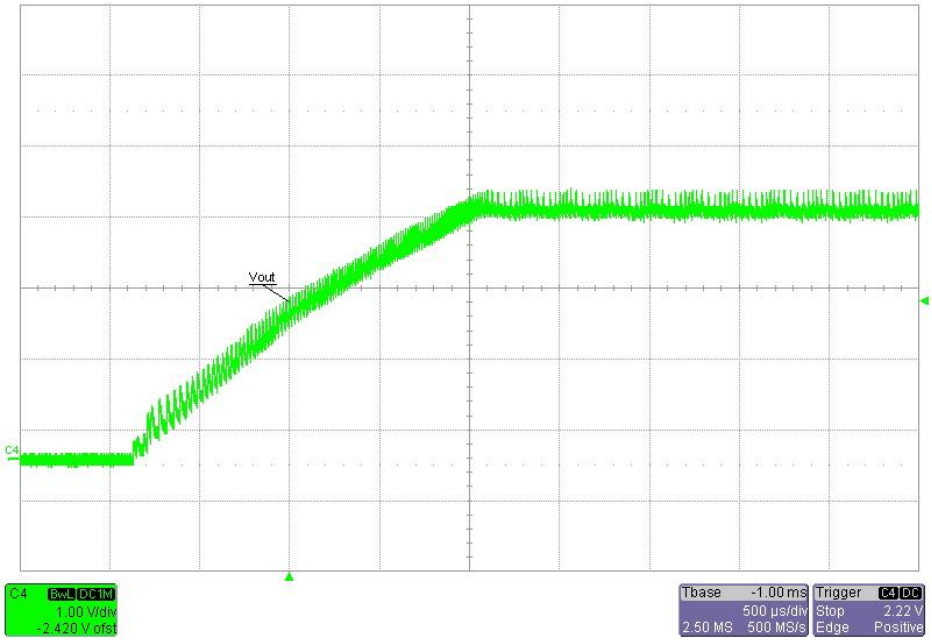
Input voltage = 138VAC
Load current = 120mA



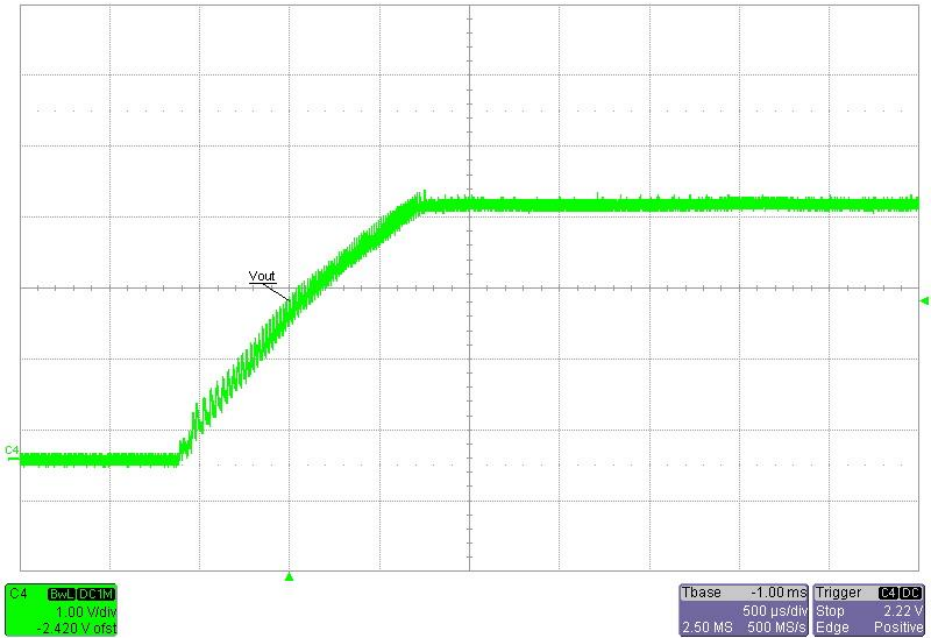
Input voltage = 230VAC
Load current = 120mA



Input voltage = 264VAC
Load current = 120mA

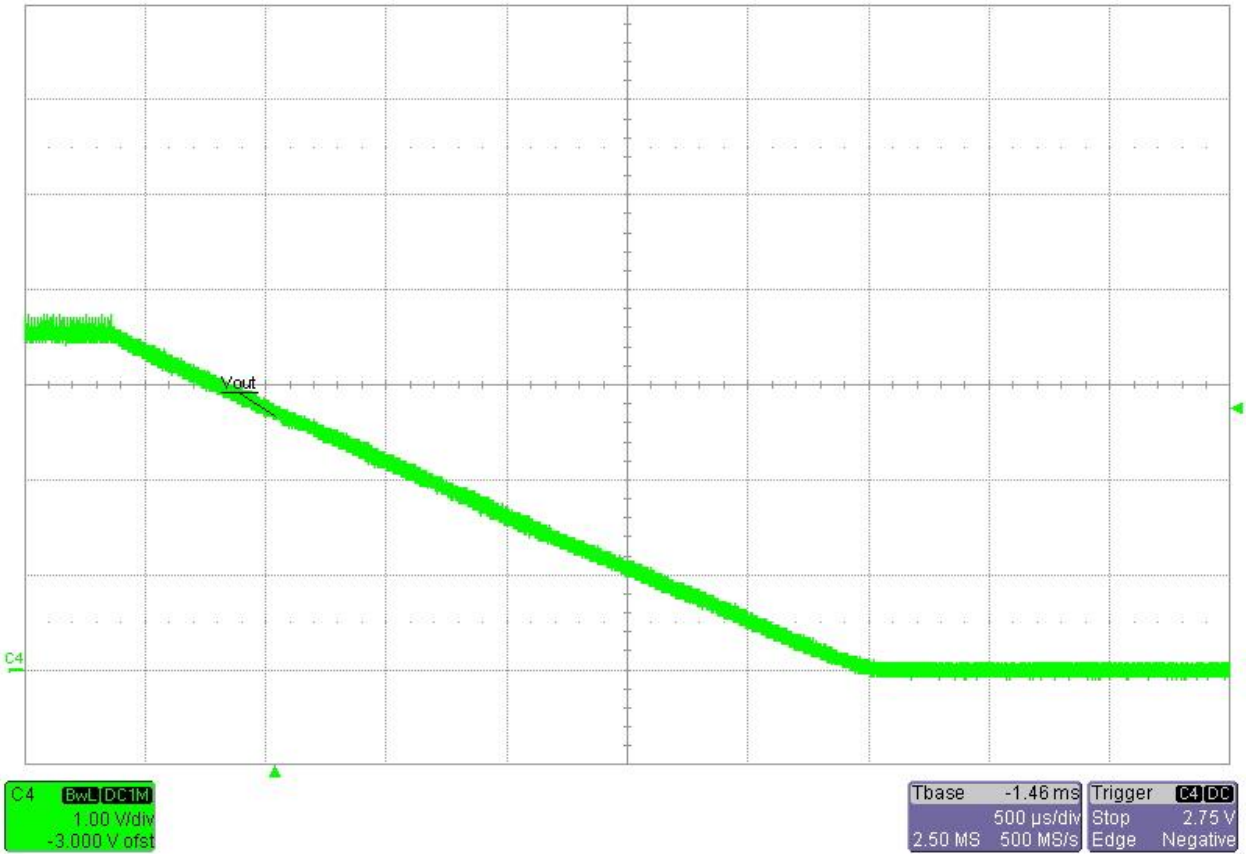


Input voltage = 230VAC
Load current = no load

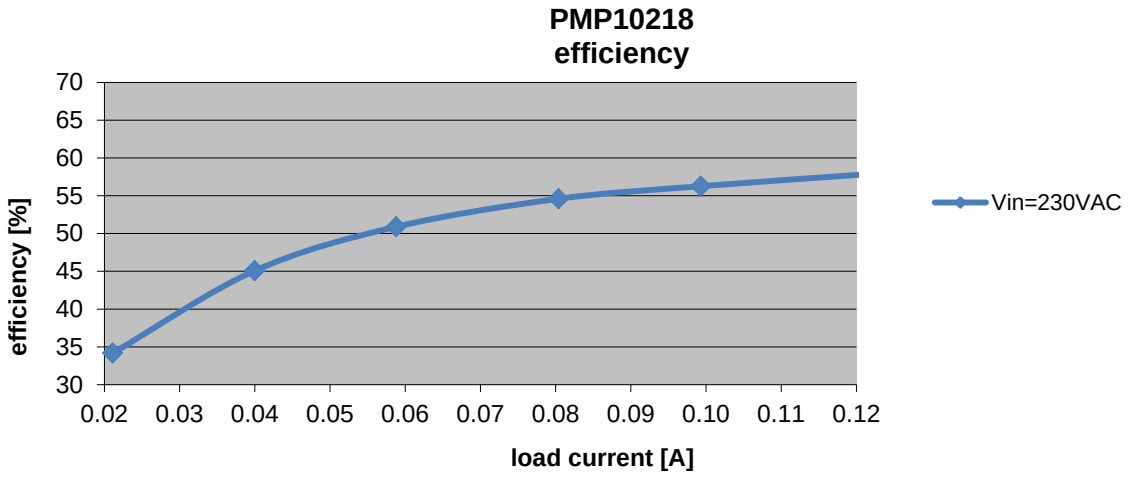


2 Shutdown

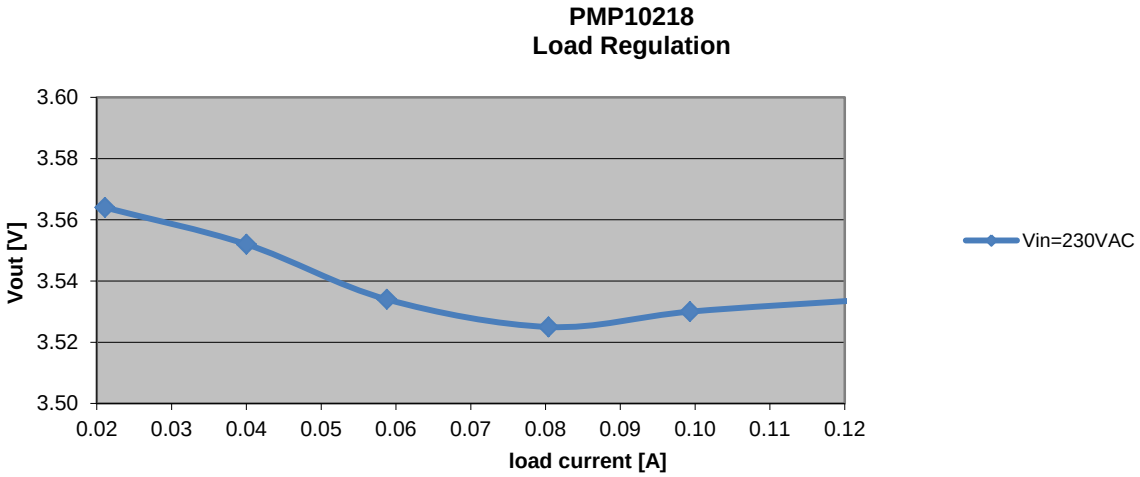
Input voltage = 230VAC
Load current = 0A



3 Efficiency

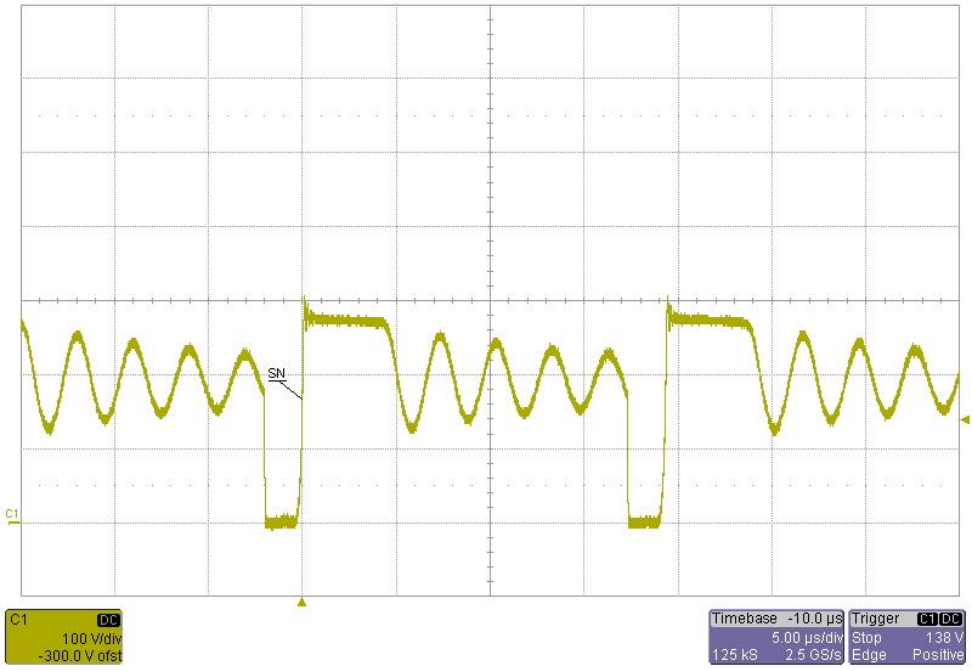


4 Load regulation

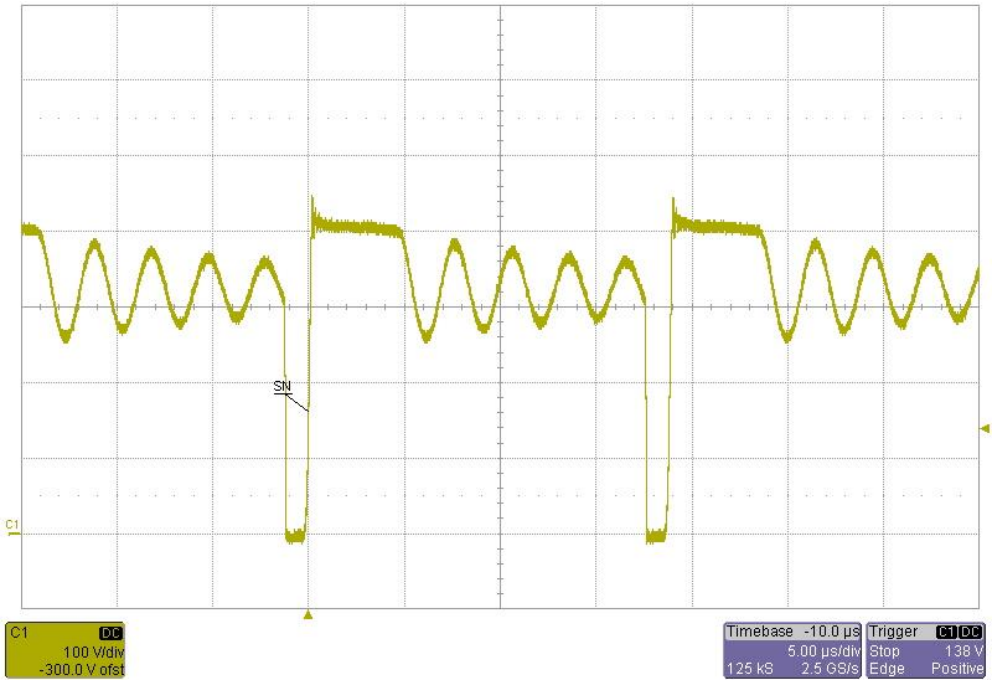


6 Switch Node

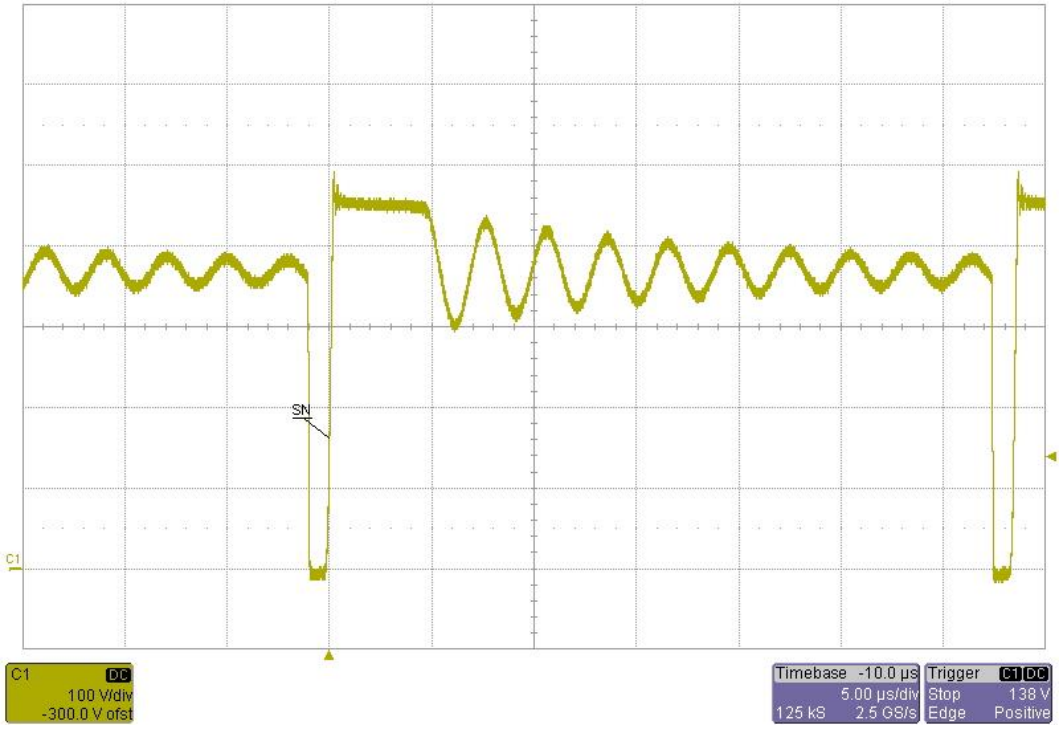
Input voltage = 138VAC
Load current = 120mA



Input voltage = 230VAC
Load current = 120mA

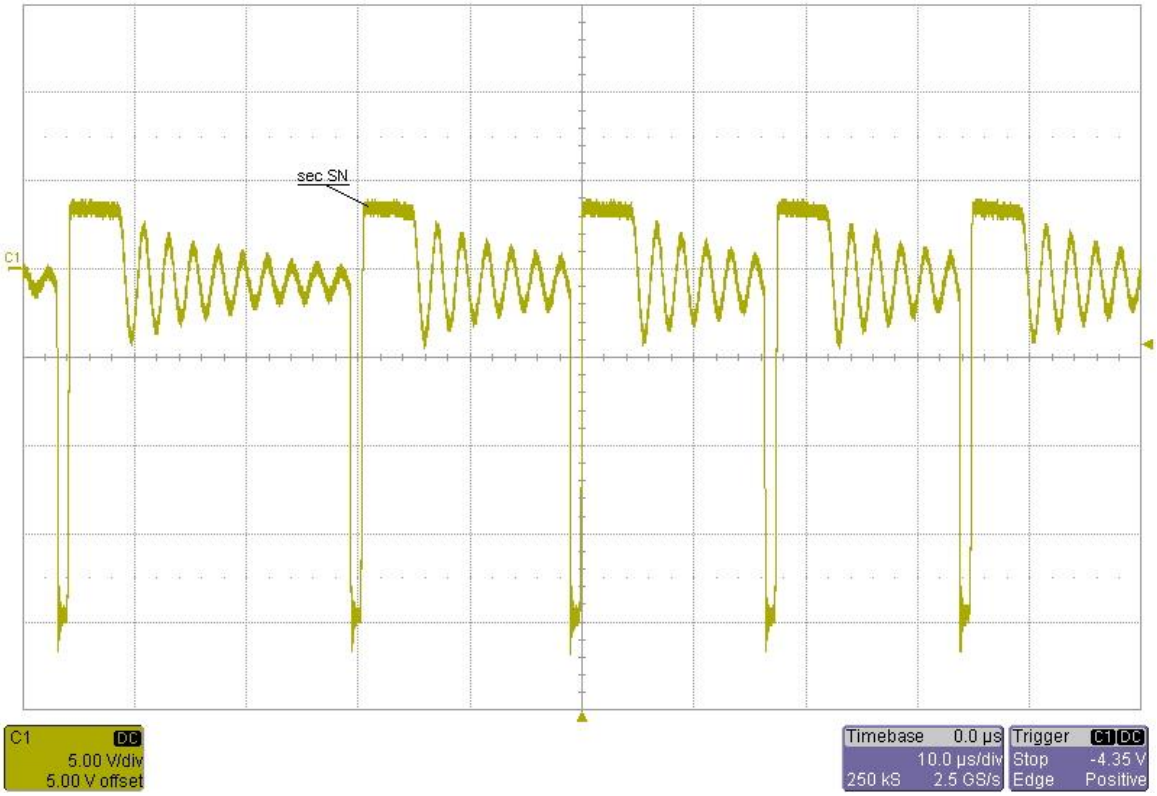


Input voltage = 264VAC
Load current = 120mA



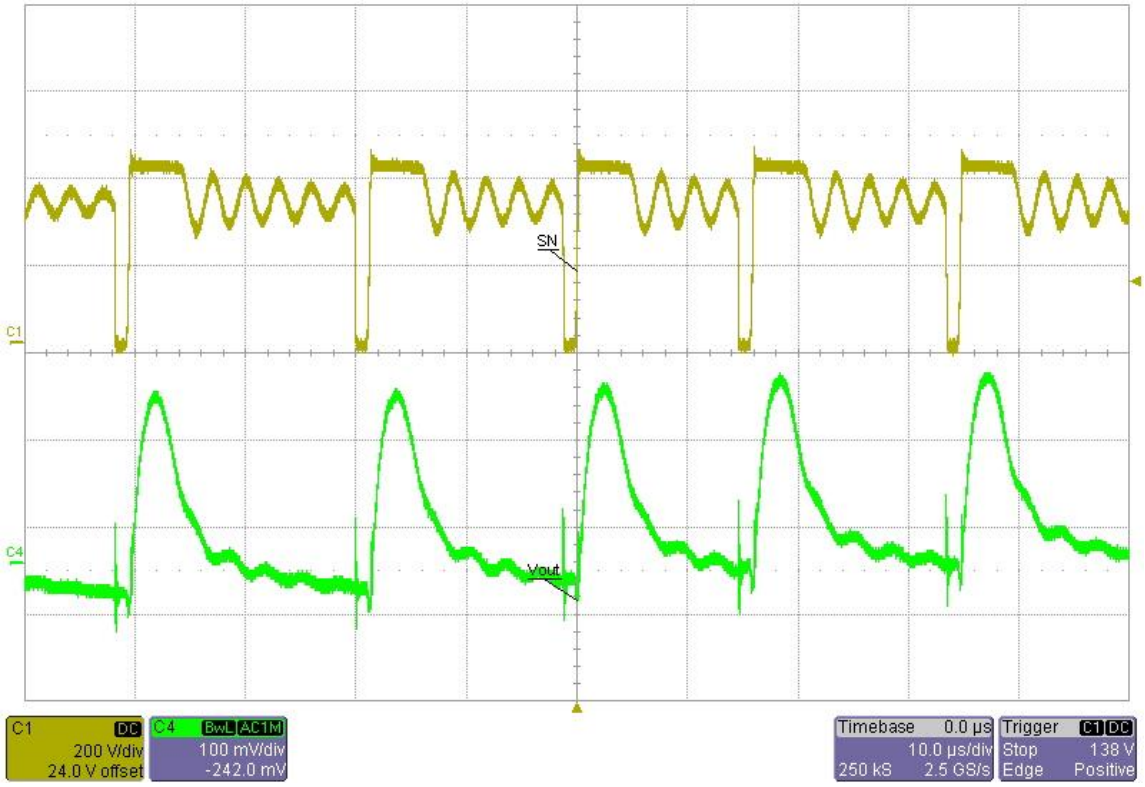
7 Switch Node secondary side

Input voltage = 264VAC
Load current = 120mA



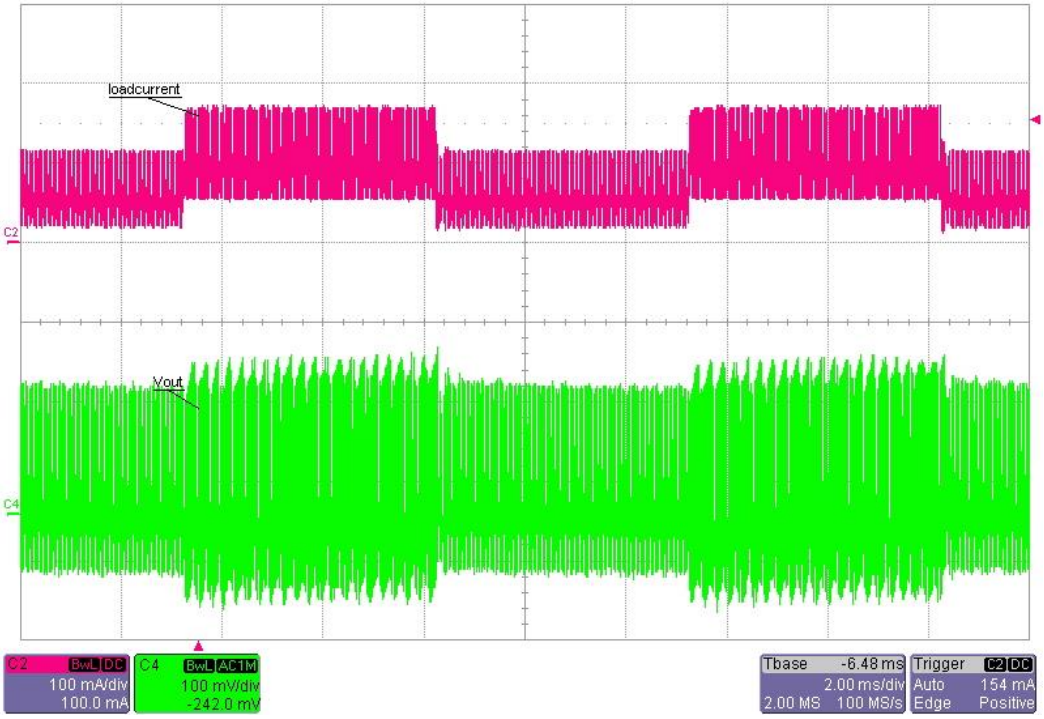
8 Output ripple voltage

Input voltage = 230VAC
Load current = 120mA



9 Load Transients

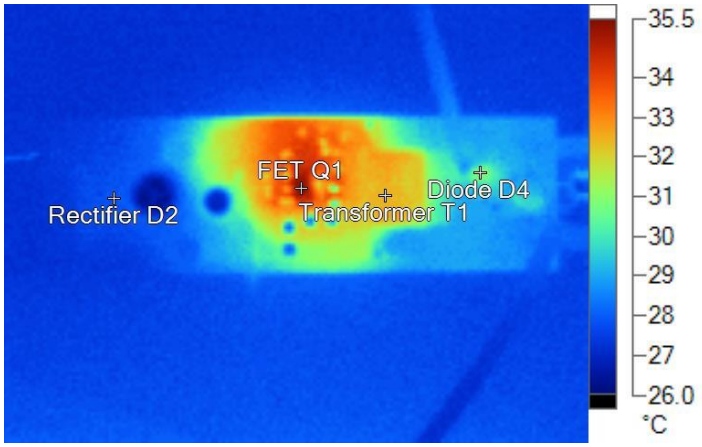
Input voltage = 230VAC
Load current = 60mA - 120mA



10 Thermal Analysis

The image below shows the infrared image taken from the FlexCam after 15min at full load (3.5V@0.12A).

Input voltage = 230VAC
Output = 3.5V@0.12A
Ambient temperature = 22°C
No heatsink, no airflow

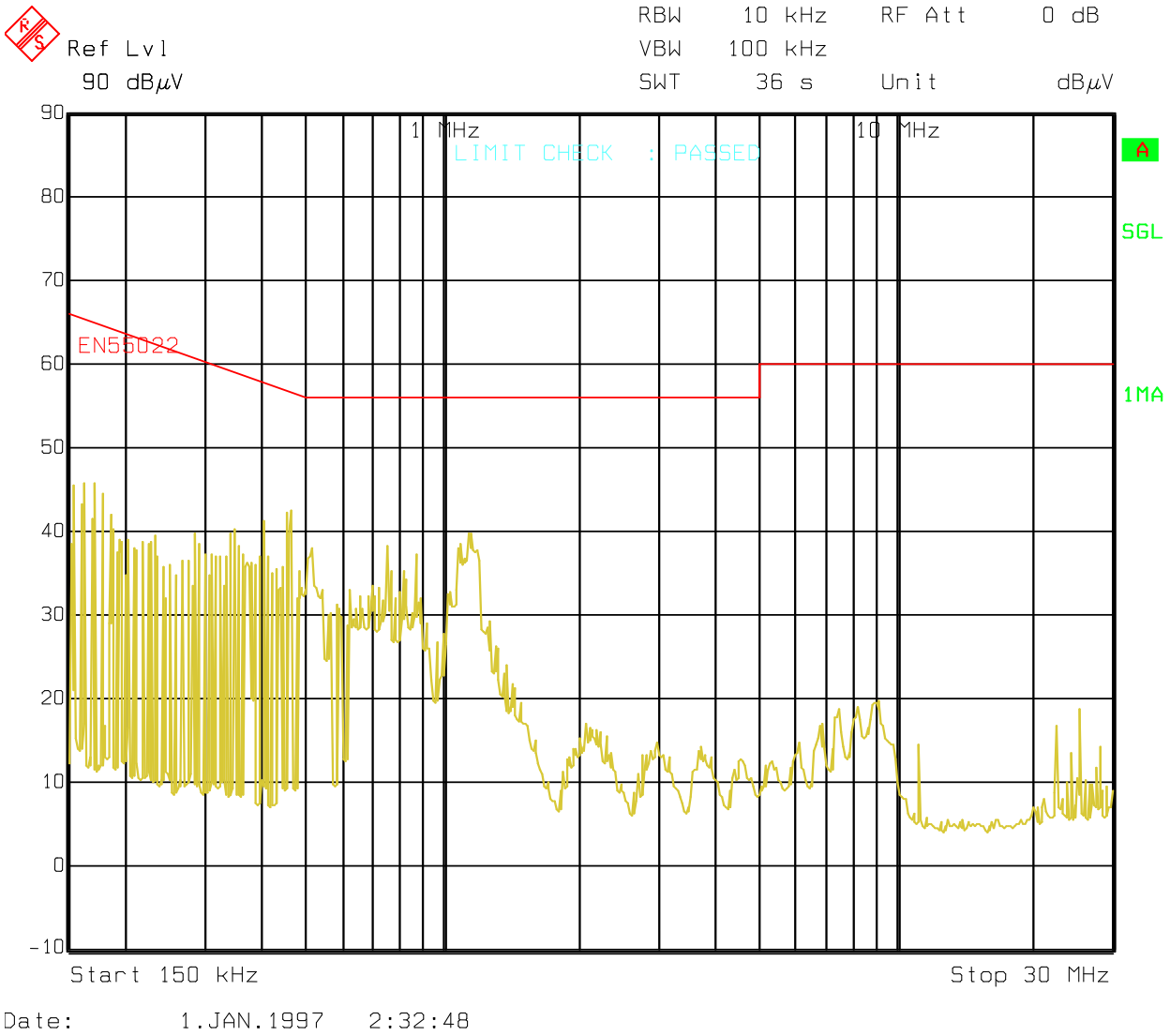


IR20151009_0650 Vin=230VAC I=0.12A.is2

Name	Temperature	
FET Q1	35.5°C	
Transformer T1	32.5°C	
Diode D4	31.0°C	
Rectifier D2	28.0°C	

11 EMI Measurement

The graph below shows the conducted emission EMI noise and the EN55022 Class-B Quasi-Peak limits (measurement from the worst case line). The load was connected to a LISN and an isolation transformer; the load current was 120mA (power resistor), while the input voltage was 230Vac.The receiver was set to Quasi-peak detector, 10 KHz bandwidth.
The negative terminal of the converter has been connected to the ground of the LISN.



IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES “AS IS” AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements. These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI’s products are provided subject to TI’s Terms of Sale (https:www.ti.com/legal/termsofsale.html) or other applicable terms available either on ti.com or provided in conjunction with such TI products. TI’s provision of these resources does not expand or otherwise alter TI’s applicable warranties or warranty disclaimers for TI products.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265