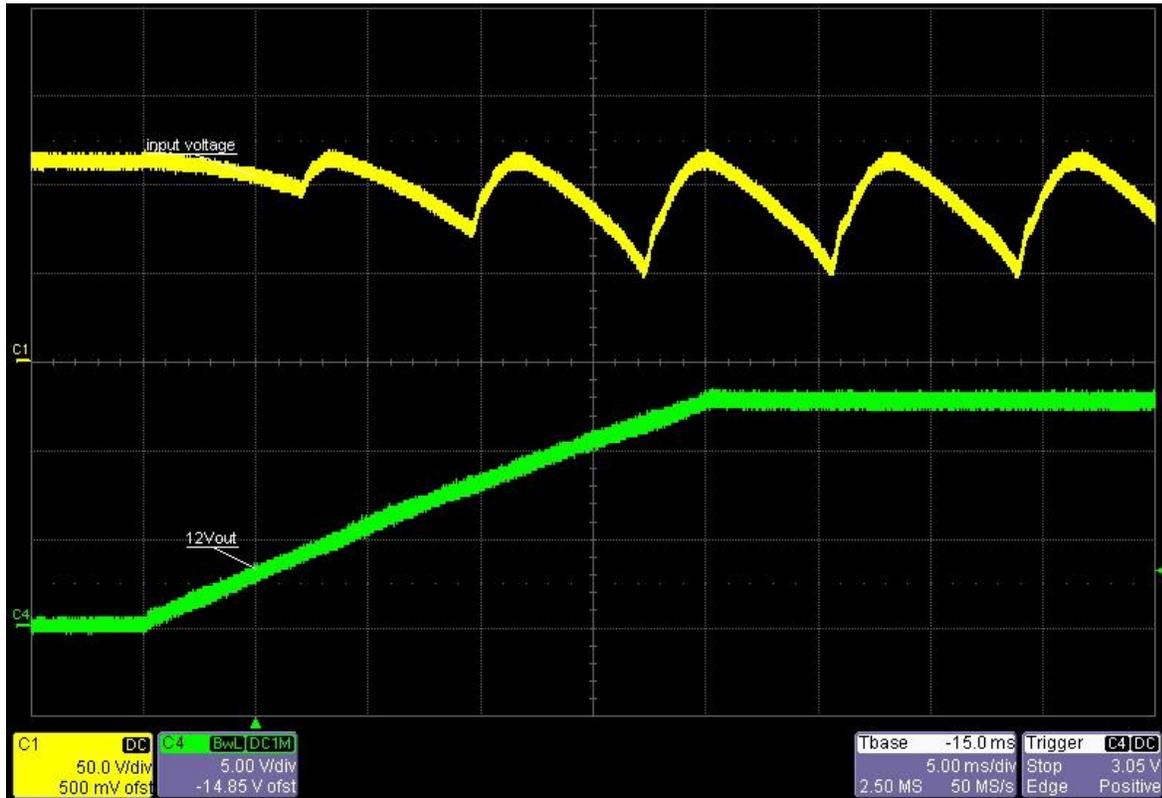


## 1 Startup

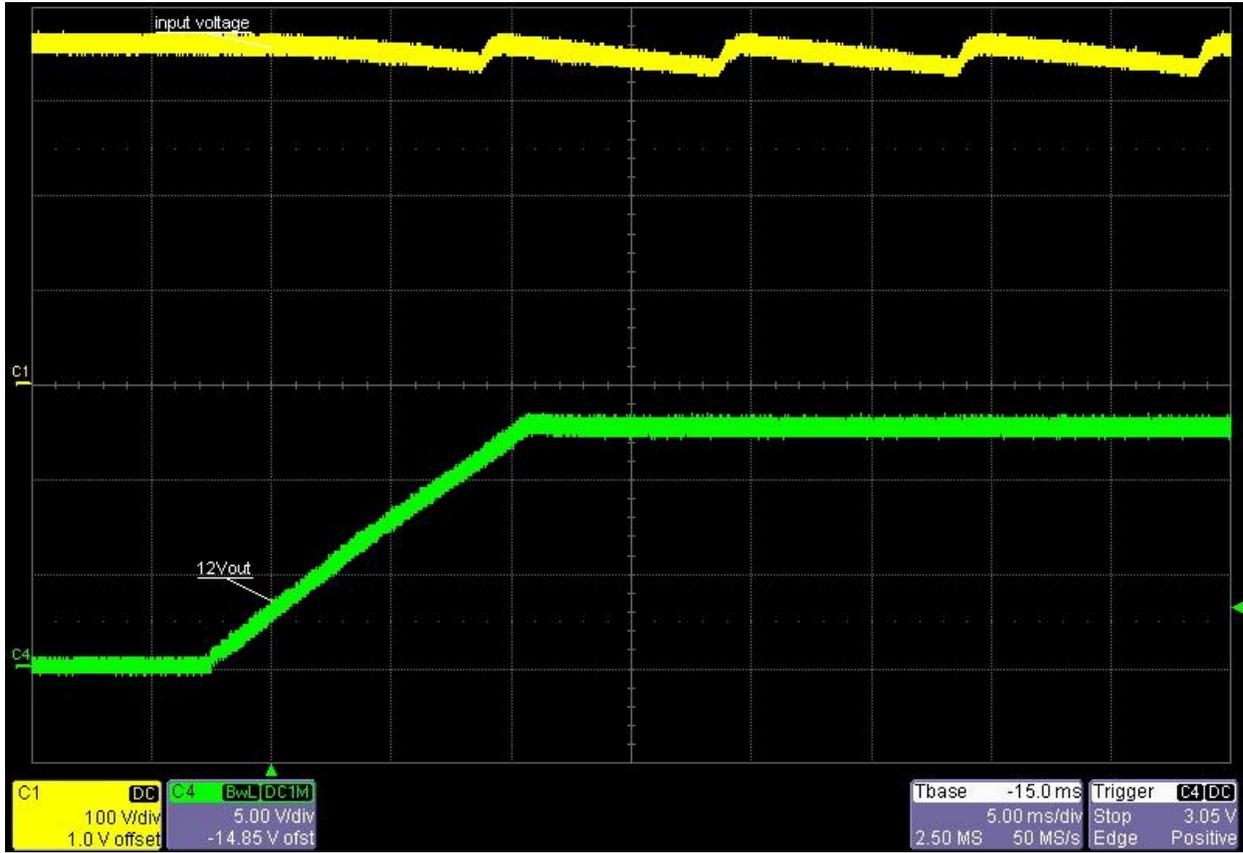
Input voltage = 85VAC/60Hz  
Load current 12Vout = 0.9A  
Load current 5Vout = 0.11A



Input voltage = 265VAC/50Hz

Load current 12Vout = 0.9A

Load current 5Vout = 0.11A

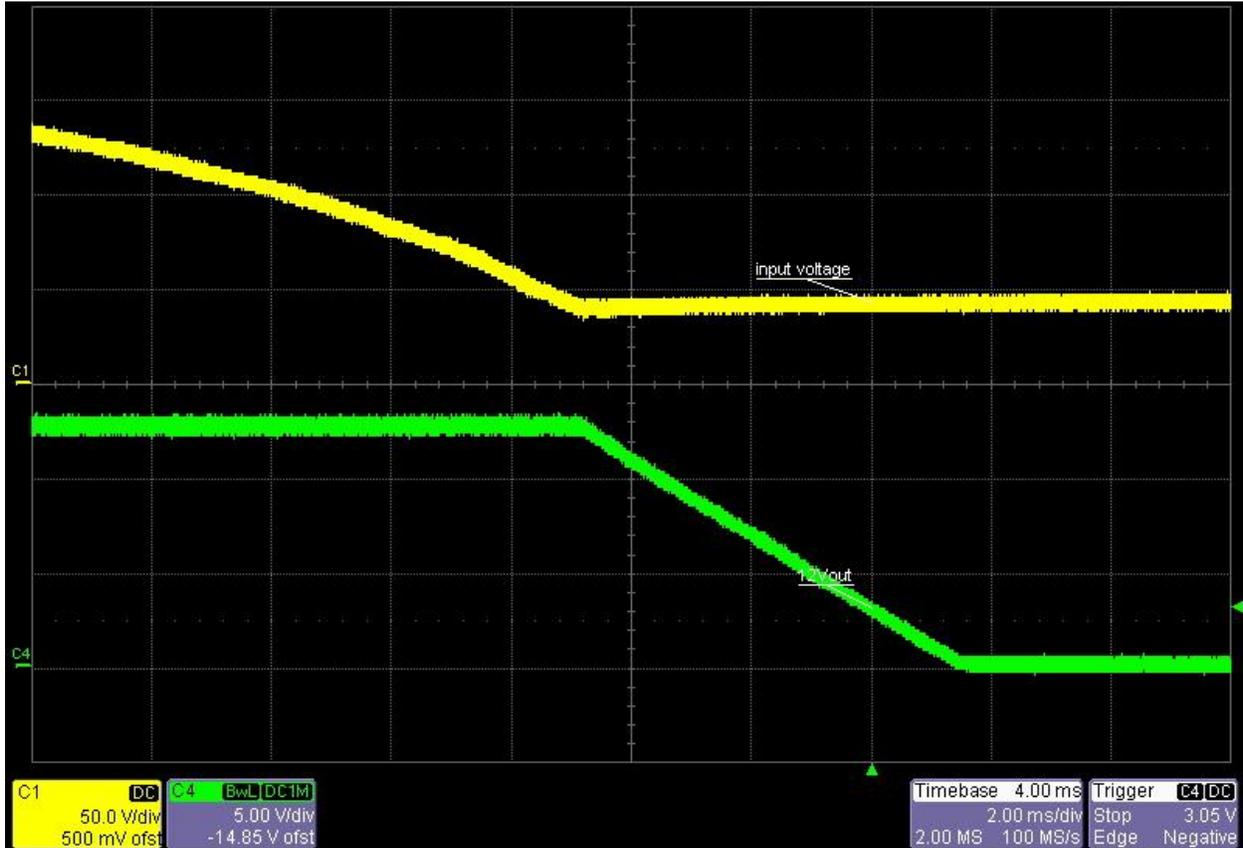


## 2 Shutdown

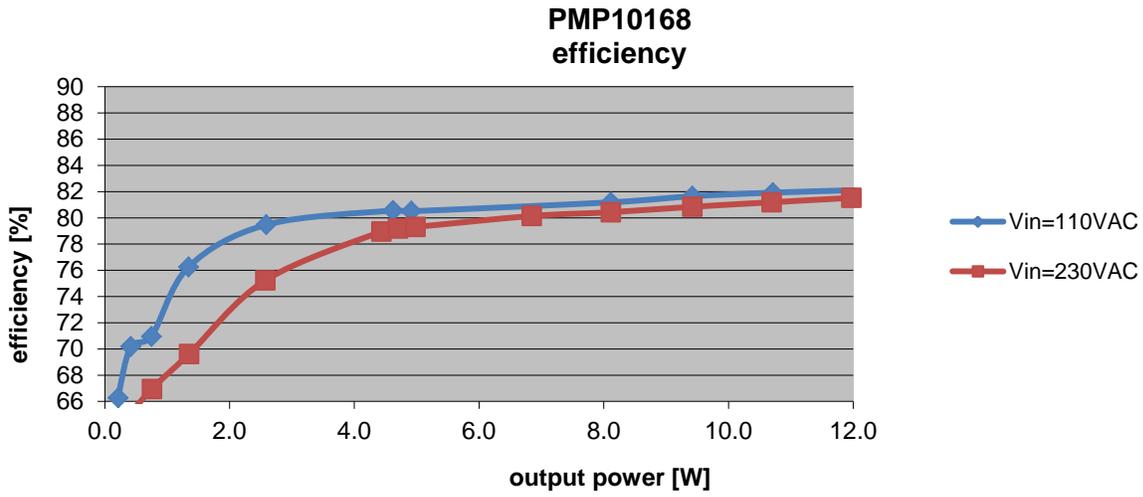
Input voltage = 230VAC/50Hz

Load current 12Vout = 0.9A

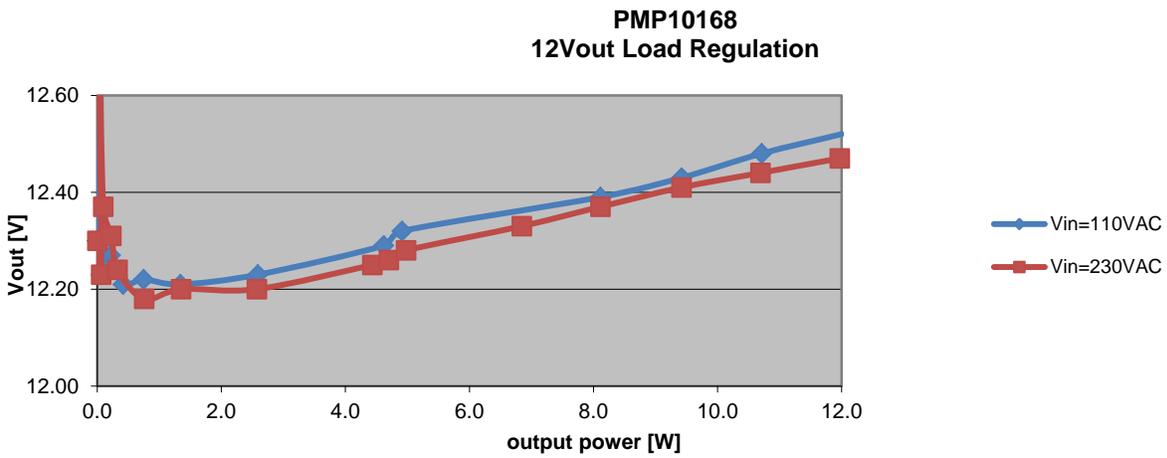
Load current 5Vout = 0.11A



### 3 Efficiency



### 4 Load regulation

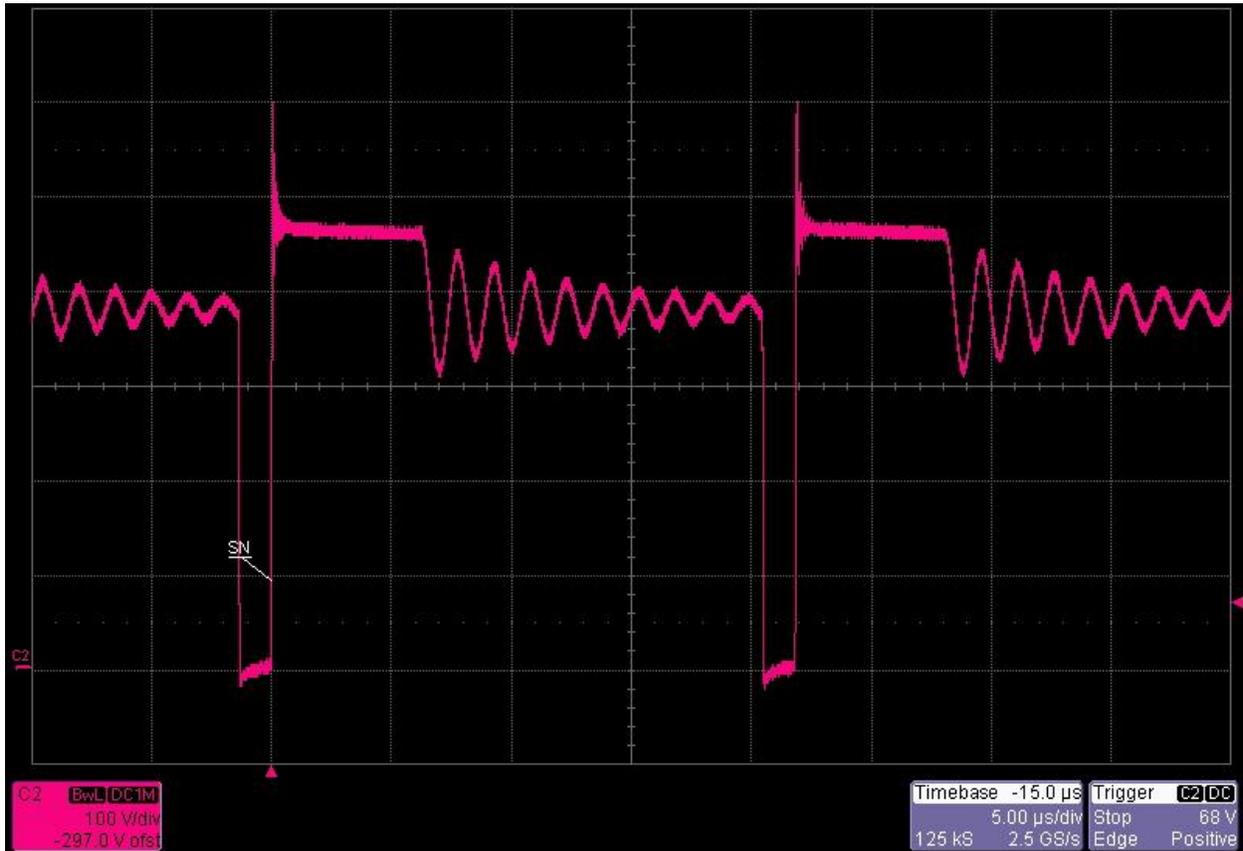


### 5 Switch Node

Input voltage = 375VDC

Load current 12Vout = 0.9A

Load current 5Vout = 0.11A



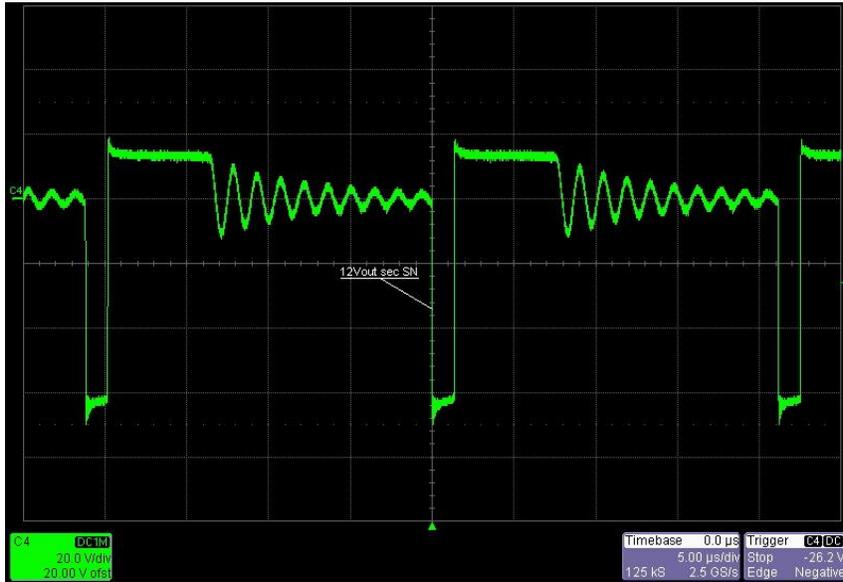
## 6 Secondary Switch Nodes

### 6.1 12Vout Switch Node

Input voltage = 375VDC

Load current 12Vout = 0.9A

Load current 5Vout = 0.11A

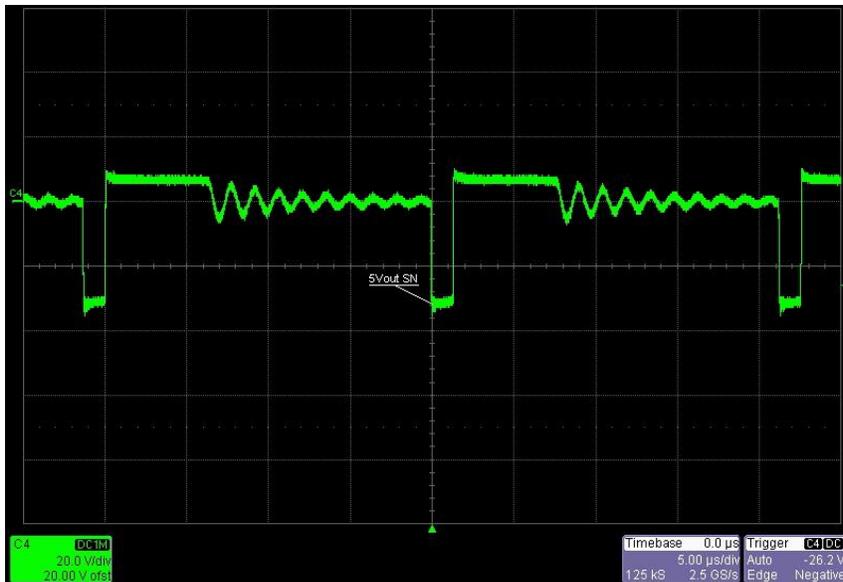


### 6.2 5Vout Switch Node

Input voltage = 375VDC

Load current 12Vout = 0.9A

Load current 5Vout = 0.11A

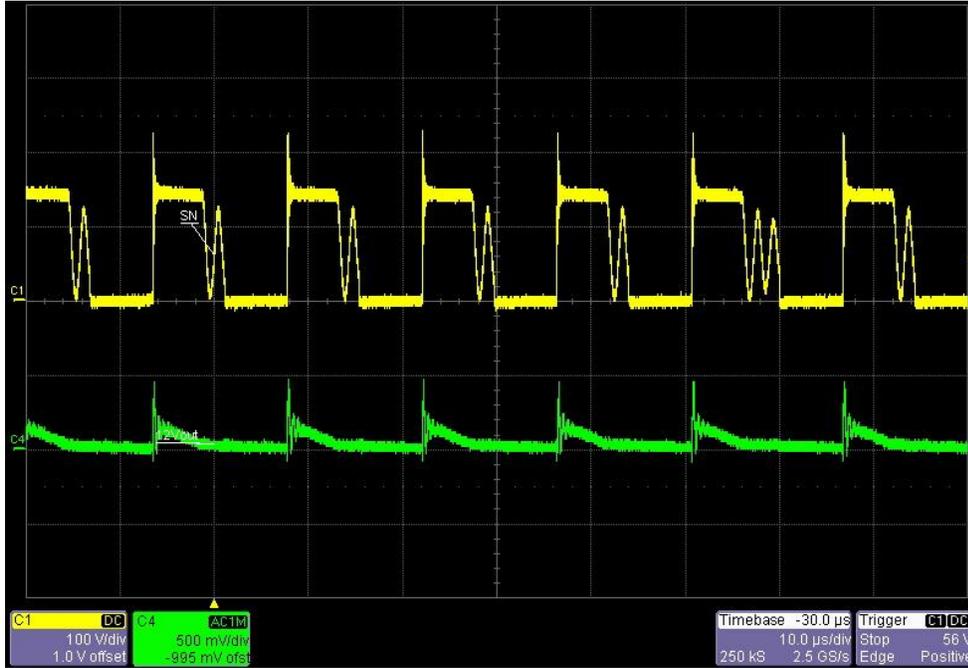


### 7 Output ripple voltage (12Vout)

Input voltage = 85VAC

Load current 12Vout = 0.9A

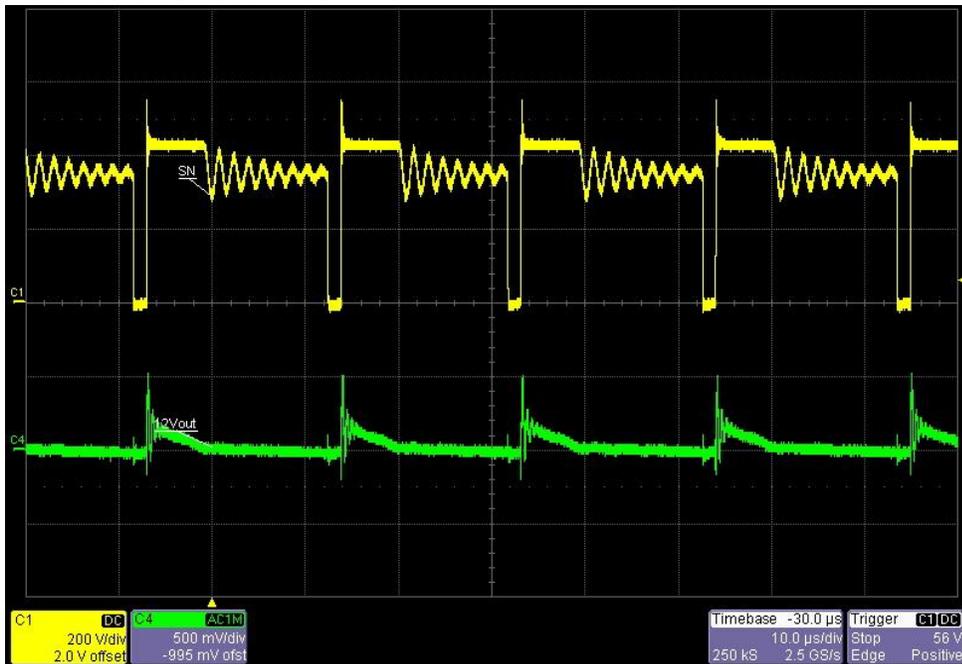
Load current 5Vout = 0.11A



Input voltage = 265VAC

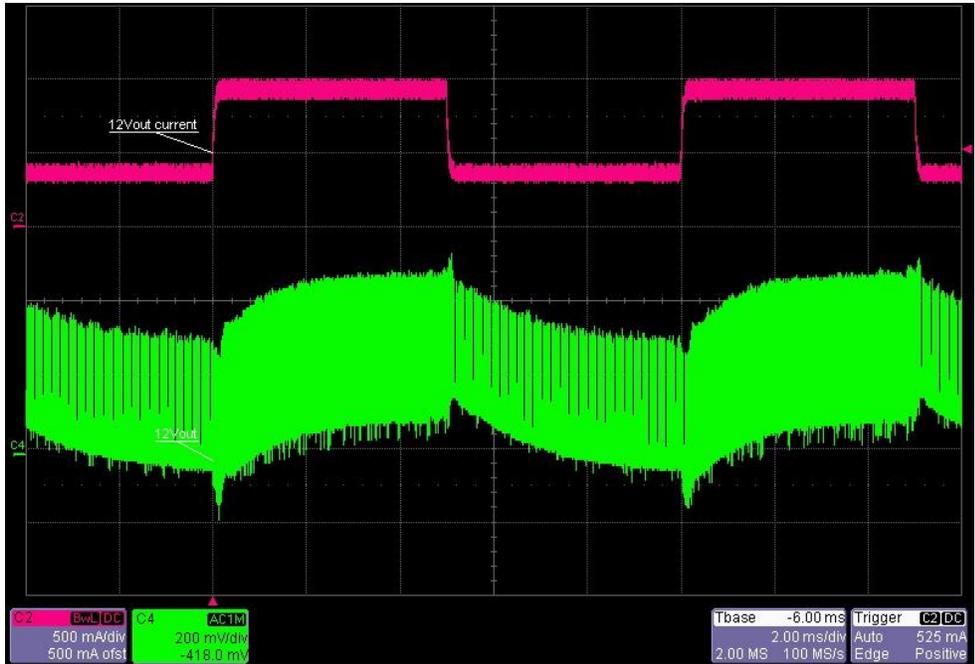
Load current 12Vout = 0.9A

Load current 5Vout = 0.11A

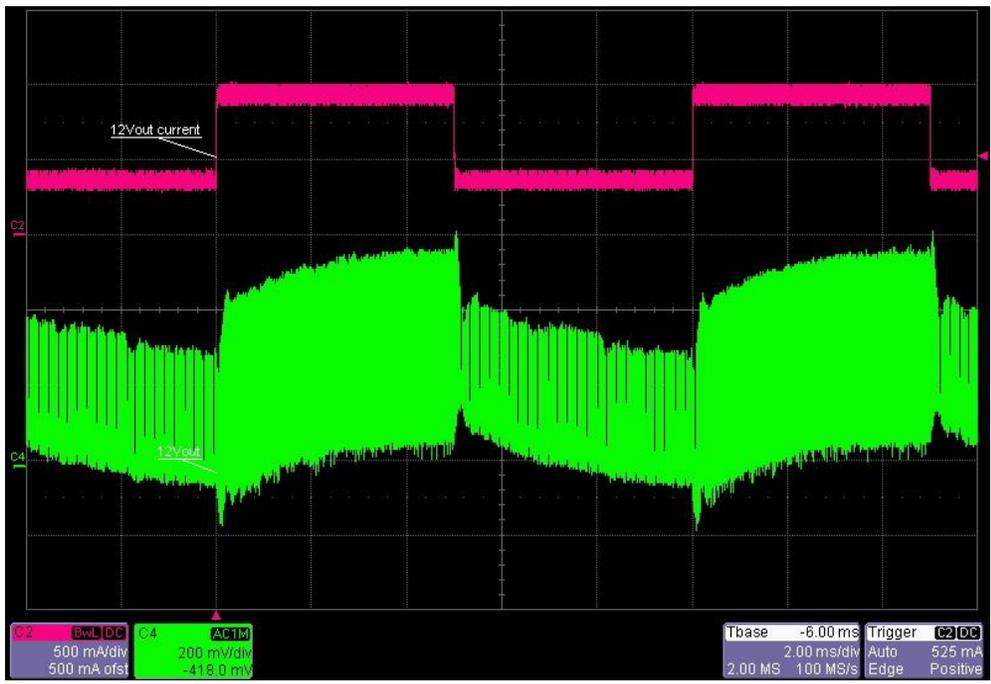


### 8 Load Transients (12Vout)

Input voltage = 85VAC  
Load current 12Vout = 0.35Ato0.9A



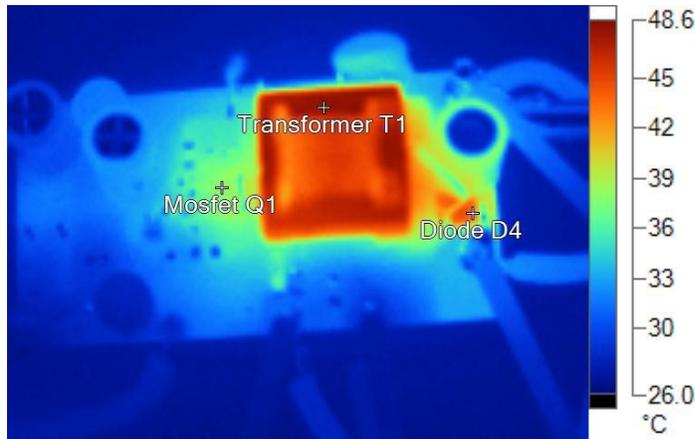
Input voltage = 265VAC  
Load current 12Vout = 0.35Ato0.9A



## 9 Thermal Analysis

The images below show the infrared images taken from the FlexCam after 15min.

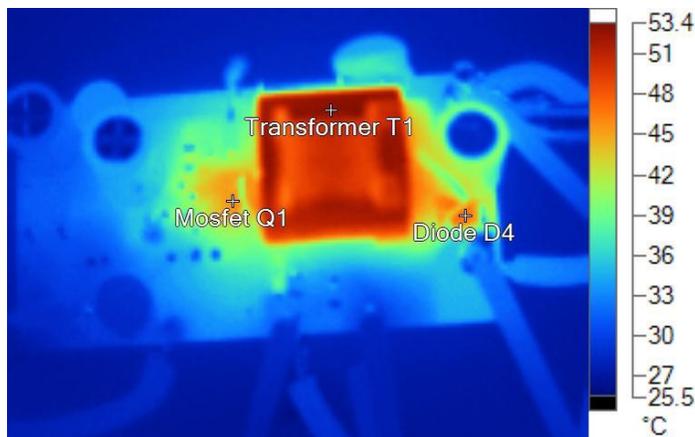
Input voltage = 110VAC  
 Nominal Output power = 4.75W (12V@0.35A, 5V@0.11A)  
 Ambient temperature = 25°C  
 No heatsink, no airflow



IR20150428\_0566 nom load Vin=110VAC.is2

Name	Temperature
Mosfet Q1	38.0°C
Transformer T1	48.1°C
Diode D4	43.8°C

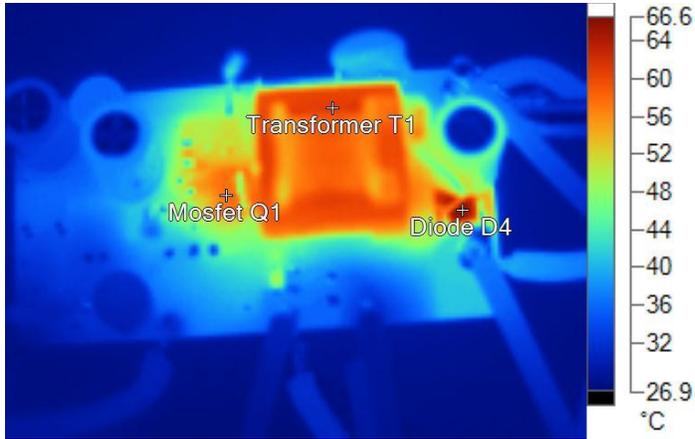
Input voltage = 230VAC  
 Nominal Output power = 4.75W (12V@0.35A, 5V@0.11A)  
 Ambient temperature = 25°C  
 No heatsink, no airflow



IR20150428\_0565 nom load Vin=230VAC.is2

Name	Temperature
Mosfet Q1	45.5°C
Transformer T1	53.1°C
Diode D4	47.0°C

Input voltage = 230VAC  
Output power = 12W  
Ambient temperature = 25°C  
No heatsink, no airflow



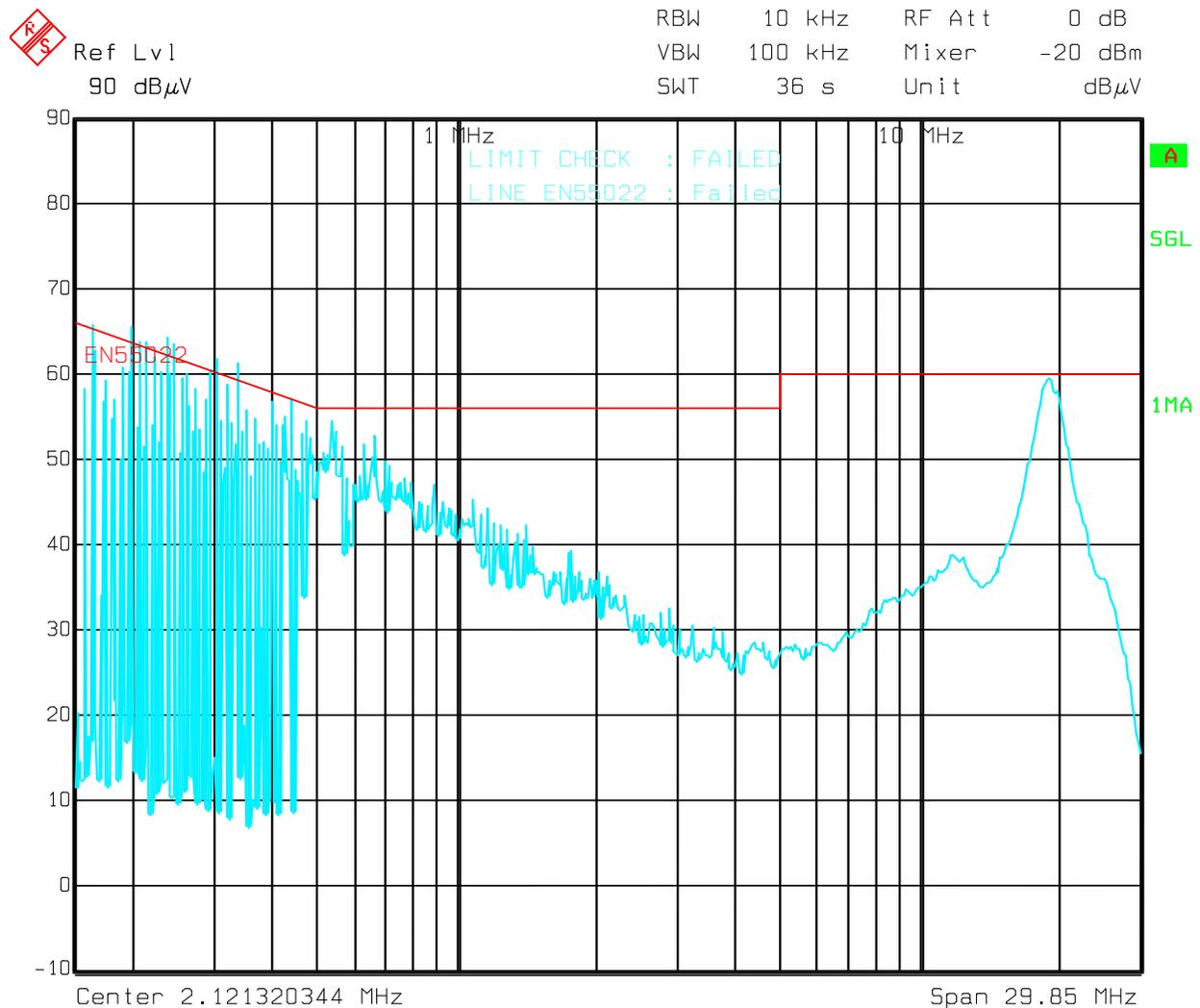
Name	Temperature
Mosfet Q1	57.6°C
Transformer T1	61.1°C
Diode D4	66.3°C

IR20150428\_0564 full load Vin=230VAC.is2

## 10 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; two power resistors were connected to the outputs (12V@0.35A and 5V@0.11A). The receiver was set to Quasi-peak detector, 10 KHz bandwidth. The secondary side GND of the converter was connected to the ground of the LISN.

R1 = DNP (DO NOT POPULATE)  
Input voltage = 230VAC  
Output power = 4.75W (12V@0.35A, 5V@0.11A)



Date: 4.MAY.2015 15:48:42

R1 = DNP (DO NOT POPULATE)

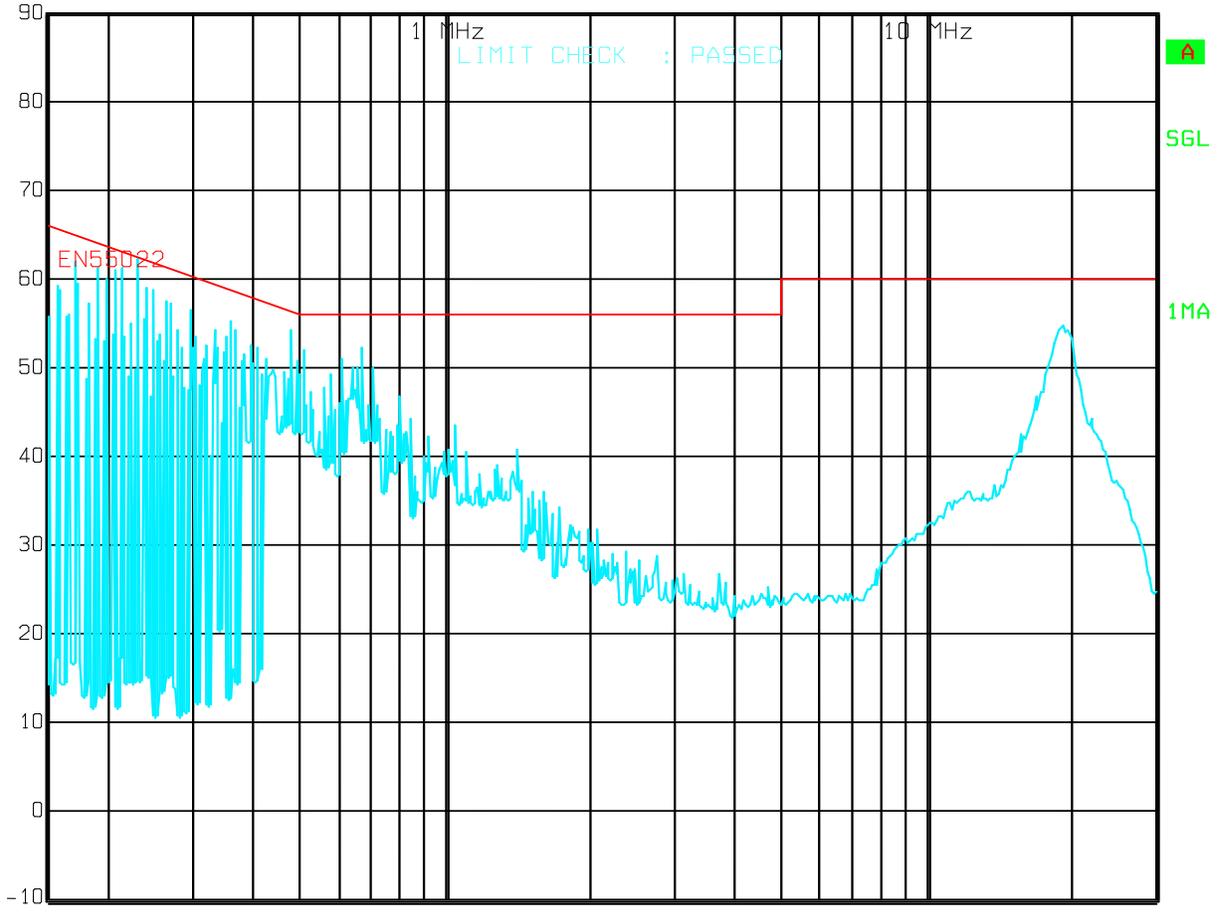
Input voltage = 110VAC

Output power = 4.75W (12V@0.35A, 5V@0.11A)



Ref Lvl  
90 dB $\mu$ V

RBW	10 kHz	RF Att	0 dB
VBW	100 kHz	Mixer	-20 dBm
SWT	36 s	Unit	dB $\mu$ V



Center 2.121320344 MHz

Span 29.85 MHz

Date: 4.MAY.2015 15:51:48

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