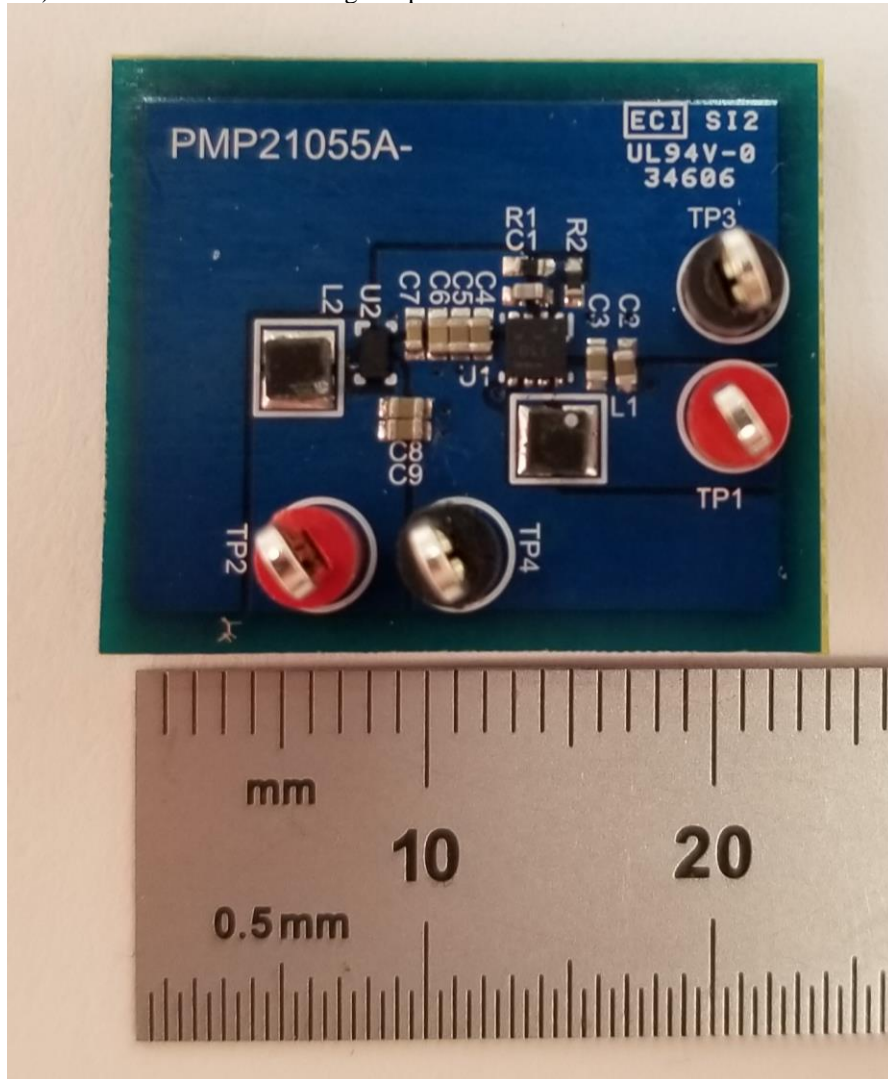




## 1 Board Photo

The image below shows PMP21055. This is a 0.8V-4.2V input boost+buck design producing 330mW (3.3V@100mA). The solution size excluding test points measures 10mm x6mm.



## 2 System Standby Power

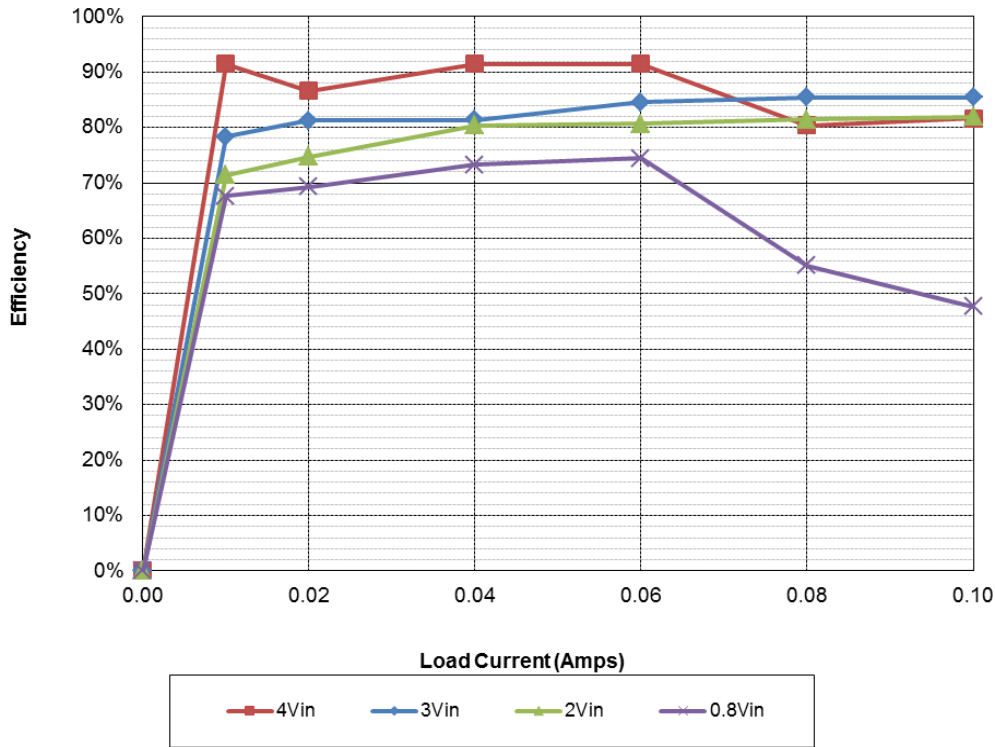
Vin	Standby current
4.0V	119 $\mu$ A



### 3 Efficiency

The following efficiency data was taken from TP1 and TP3 for input to TP2 and TP4 for output.

#### 3.1 Plot



lout	Vout	Vin	lin	Pin	Pout	Losses	Efficiency
0.000	3.305	4.0	0.00012	0.0005	0.00	0.00	0.0%
0.010	3.301	4.0	0.0090	0.0361	0.03	0.00	91.5%
0.020	3.299	4.0	0.019	0.0762	0.07	0.01	86.6%
0.040	3.297	4.0	0.036	0.1442	0.13	0.01	91.4%
0.060	3.296	4.0	0.054	0.2162	0.20	0.02	91.5%
0.080	3.296	4.0	0.082	0.3279	0.26	0.06	80.4%
0.100	3.296	4.0	0.101	0.4036	0.33	0.07	81.7%

lout	Vout	Vin	lin	Pin	Pout	Losses	Efficiency
0.000	3.305	3.0		0.0000	0.00	0.00	0.0%
0.010	3.301	3.0	0.0140	0.0421	0.03	0.01	78.3%
0.020	3.299	3.0	0.027	0.0812	0.07	0.02	81.2%
0.040	3.297	3.0	0.054	0.1622	0.13	0.03	81.3%
0.060	3.296	3.0	0.078	0.2339	0.20	0.04	84.5%
0.080	3.296	3.0	0.103	0.3085	0.26	0.04	85.5%
0.100	3.296	3.0	0.129	0.3858	0.33	0.06	85.4%

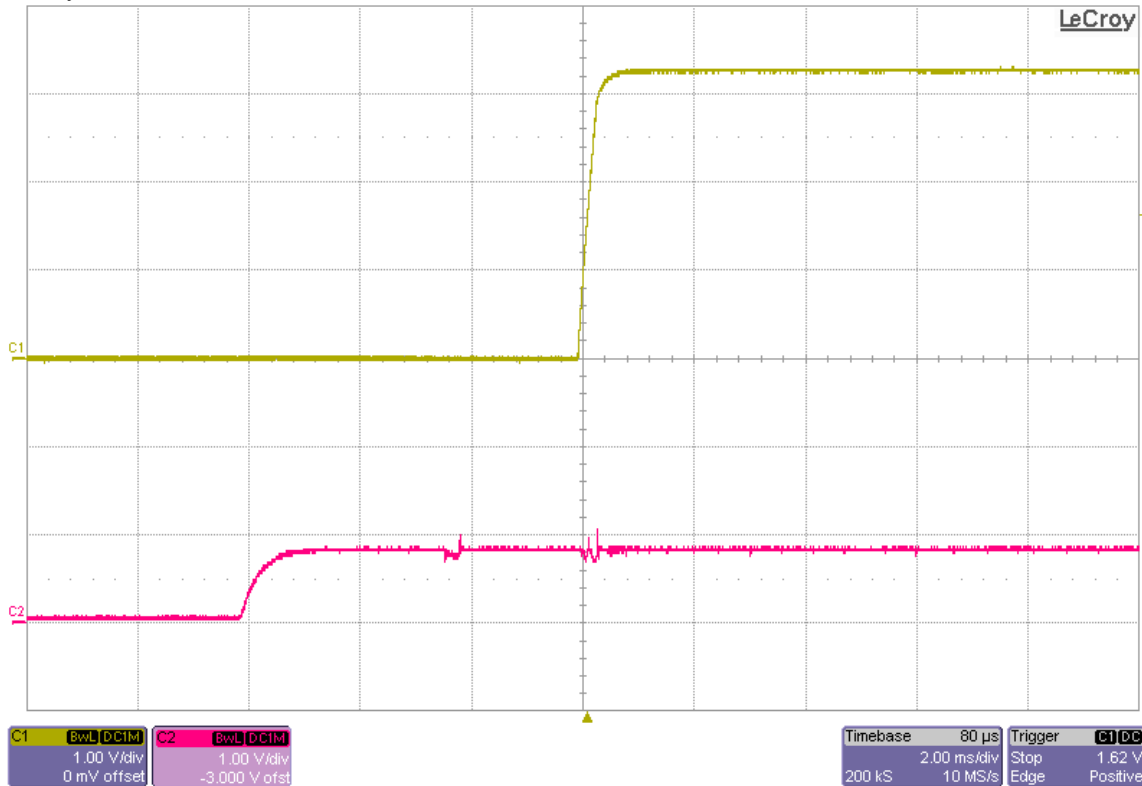


Iout	Vout	Vin	Iin	Pin	Pout	Losses	Efficiency
0.000	3.305	2.0		0.0000	0.00	0.00	0.0%
0.010	3.301	2.0	0.0230	0.0462	0.03	0.01	71.4%
0.020	3.299	2.0	0.044	0.0883	0.07	0.02	74.8%
0.040	3.297	2.0	0.082	0.1640	0.13	0.03	80.4%
0.060	3.296	2.0	0.123	0.2451	0.20	0.05	80.7%
0.080	3.296	2.0	0.163	0.3239	0.26	0.06	81.4%
0.100	3.297	2.0	0.203	0.4021	0.33	0.07	82.0%

Iout	Vout	Vin	Iin	Pin	Pout	Losses	Efficiency
0.000	3.306	0.8		0.0000	0.00	0.00	0.0%
0.010	3.301	0.8	0.0610	0.0488	0.03	0.02	67.6%
0.020	3.300	0.8	0.119	0.0952	0.07	0.03	69.3%
0.040	3.297	0.8	0.225	0.1800	0.13	0.05	73.3%
0.060	3.297	0.8	0.332	0.2656	0.20	0.07	74.5%
0.080	3.297	0.8	0.598	0.4784	0.26	0.21	55.1%
0.100	3.299	0.8	0.863	0.6913	0.33	0.36	47.7%

### 4 Startup

The image below shows startup for the 0.8V case. Channel 2 is the Input and Channel 1 is the output of the total system.

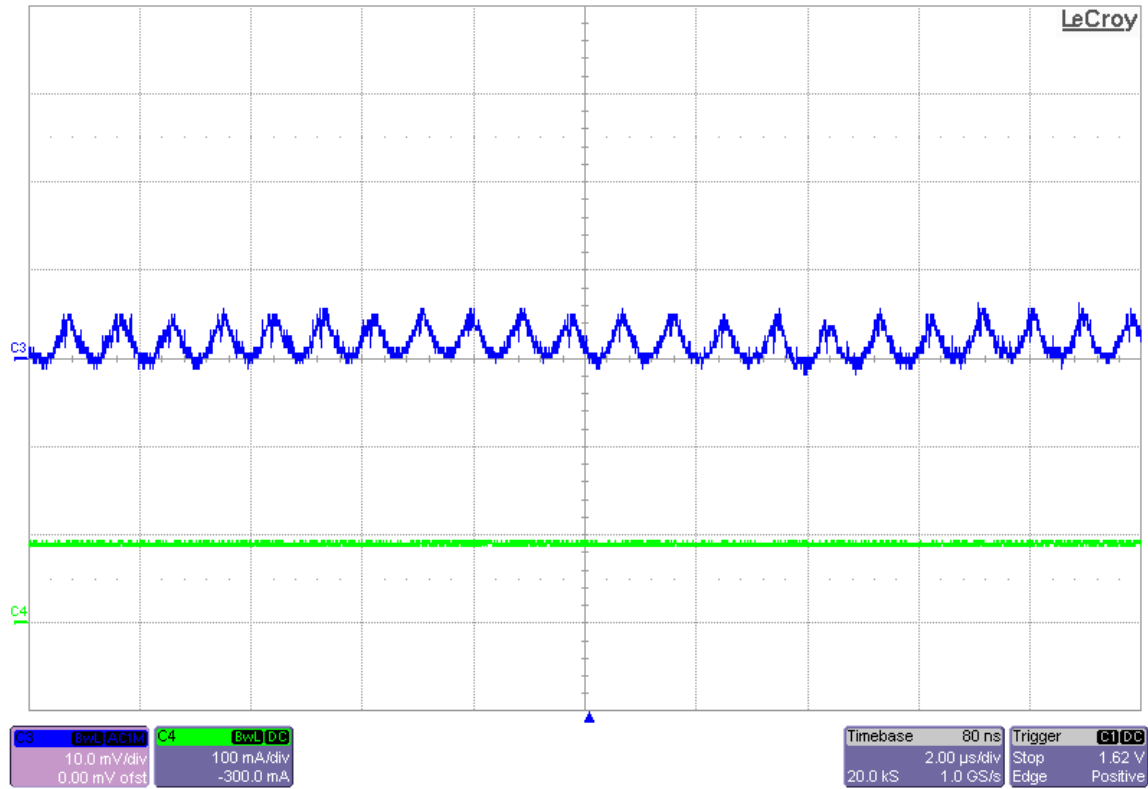




## 5 Output Ripple Voltage

The following image shows the output ripple at full load.

### 5.1 Output Ripple (3Vin, 100mA Load)

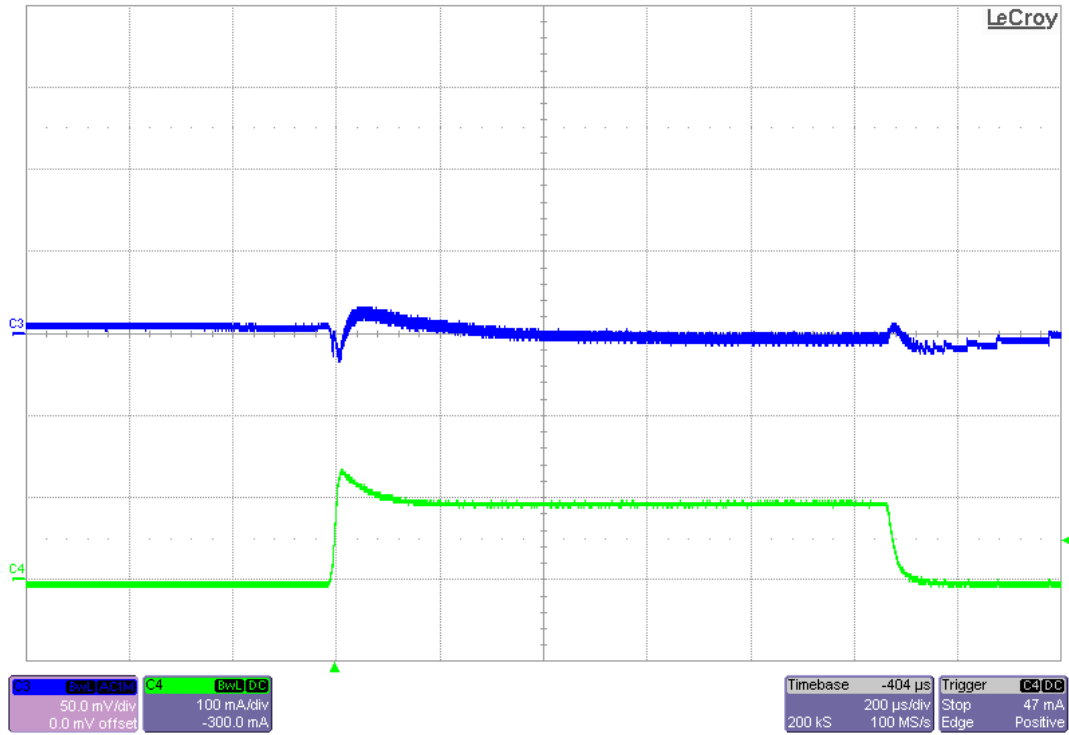




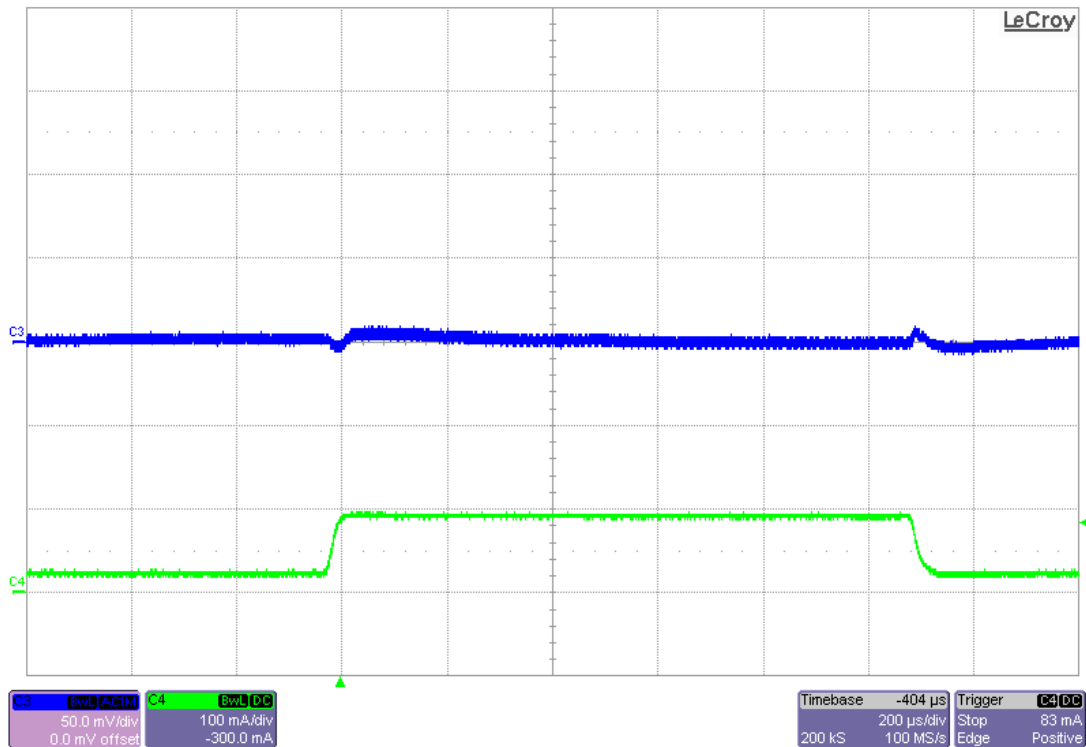
## 6 Load Transients

The following waveforms were taken with  $V_{in} = 3V$ .

### 6.1 3.3Vout, 0-100mA Load Step



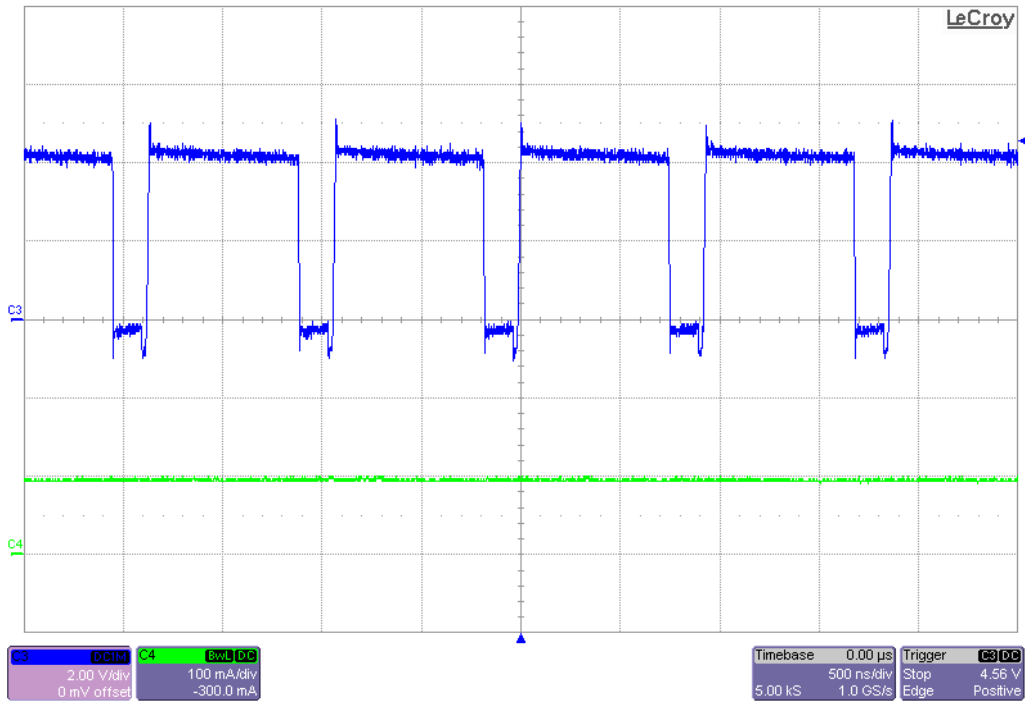
### 6.2 3.3Vout, 30mA-100mA Load step



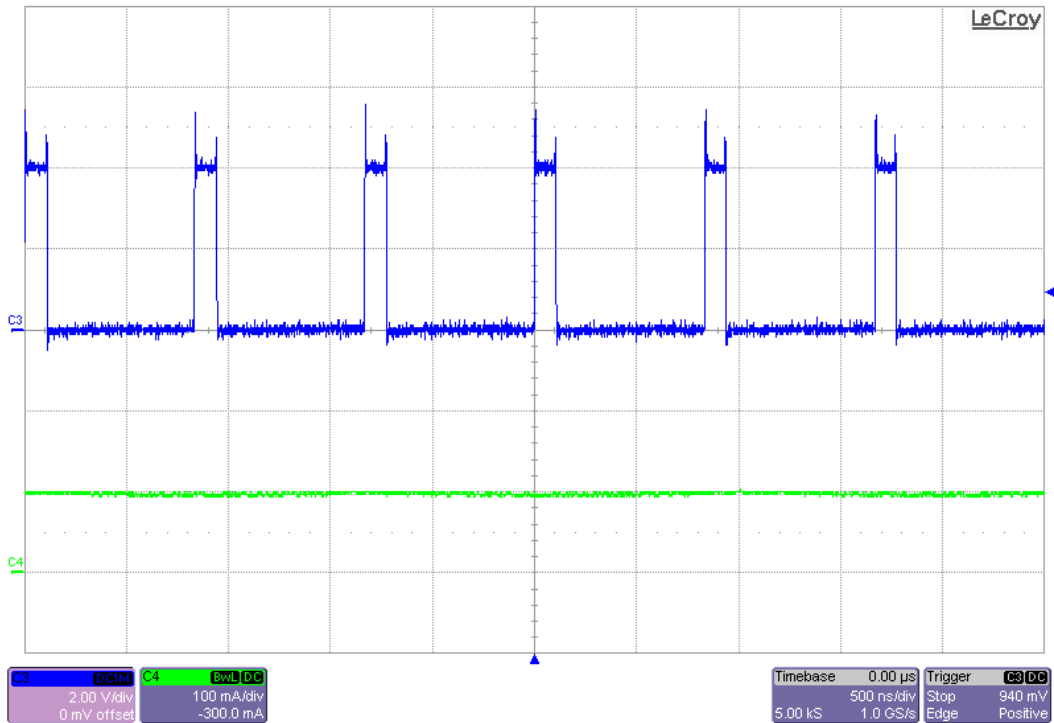


## 7 Switch Node Waveforms

### 7.1 Buck SW node at 4.2Vin, 100mA load



### 7.2 Boost SW node at 0.8Vin, 100mA load

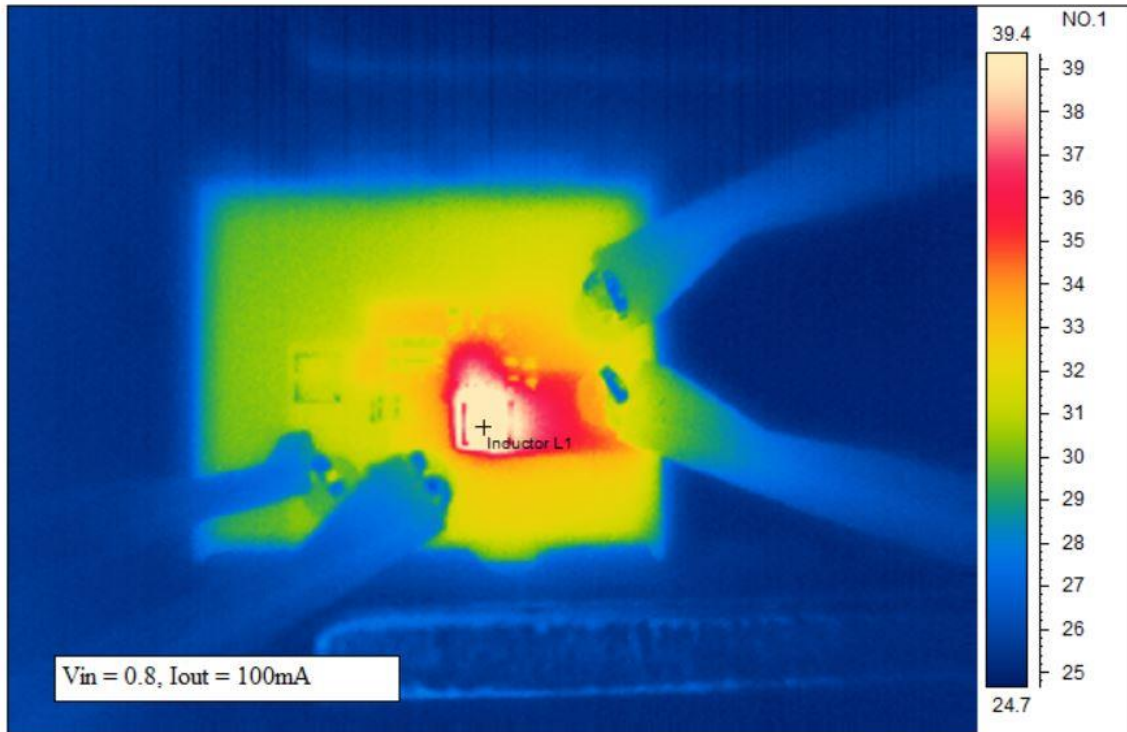




## 8 Thermal Images

These thermal images were taken after a 15 minute soak when fully loaded to 100mA.

### 8.1 0.8Vin



Spot analysis	Value	NO.1
Inductor L1 Temperature	48.1°C	

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