



Texas Instruments

PMP4443 Test Procedure

China Power Reference Design

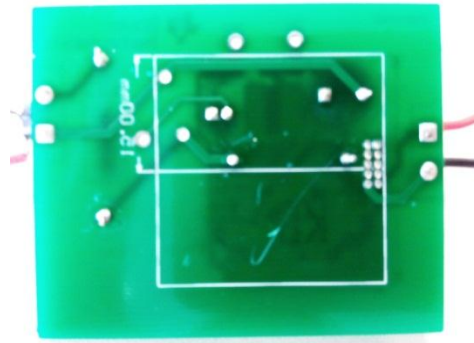
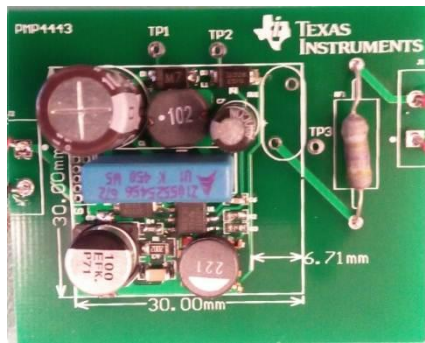
REV A

08/29/2014

1 GENERAL

1.1 PURPOSE

To provide detailed data for evaluating and verifying the PMP4443, which uses TI new Primary Side Controller UCC28910 for 20V0.1A power supply with 30mmx30mmx15mm. The below photo shows this demo board.



1.2 REFERENCE DOCUMENTATION

Schematic PMP4443_SCH.PDF

Assembly PMP4443_PCB.PDF

BOM.xls

1.3 TEST EQUIPMENTS

Power-meter: YOKOGAWA WT210

Multi-meter(current): Fluke 8845A

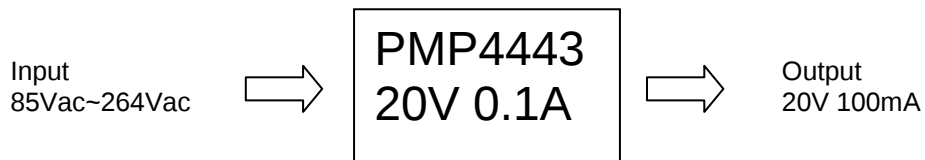
Multi-meter(voltage): Fluke 187

AC Source: Chroma 61530

LED load: Chroma 63110A module

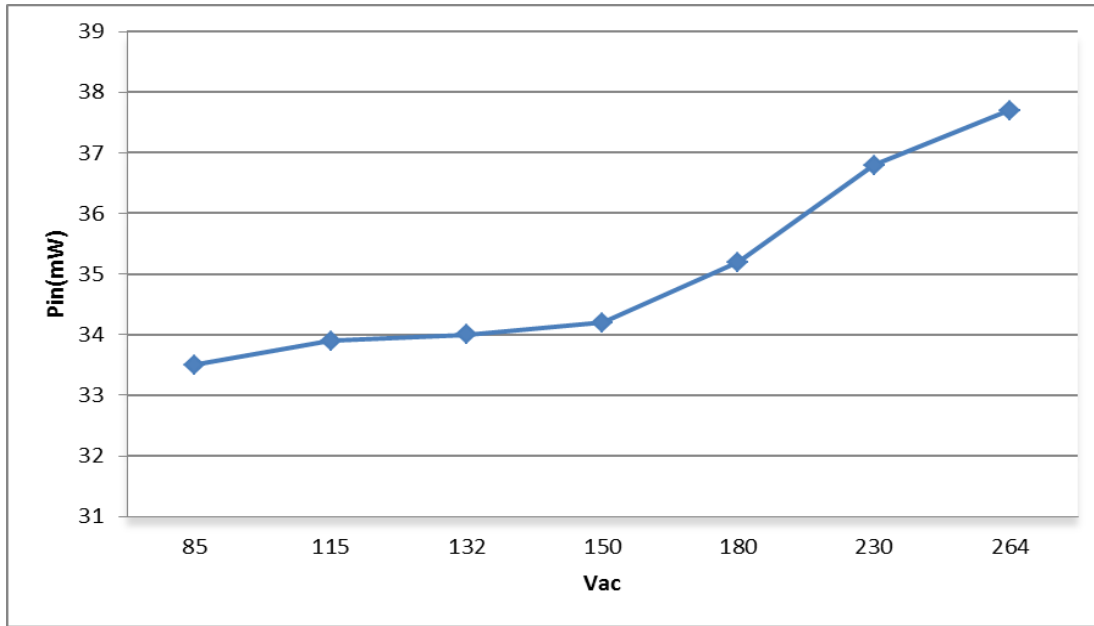
Testing demoboard: PMP4443

1.4 TEST DIAGRAM



2 INPUT CHARACTERISTICS

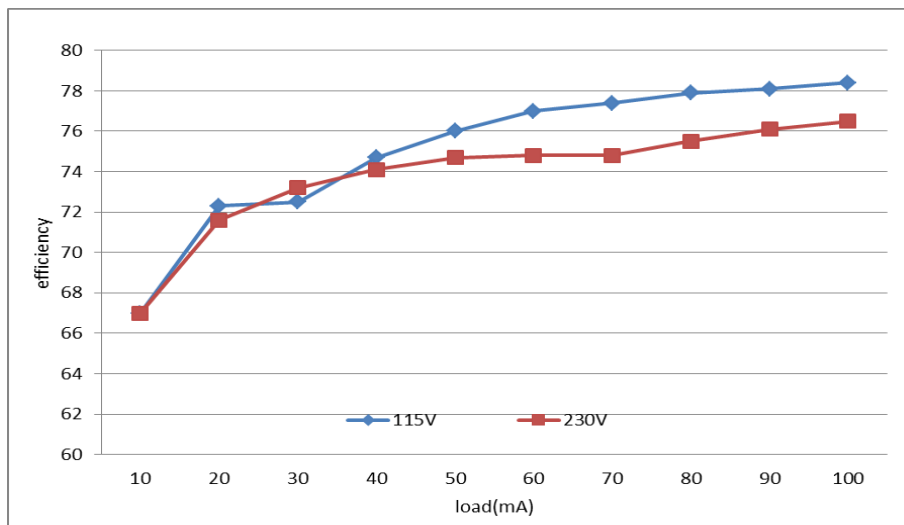
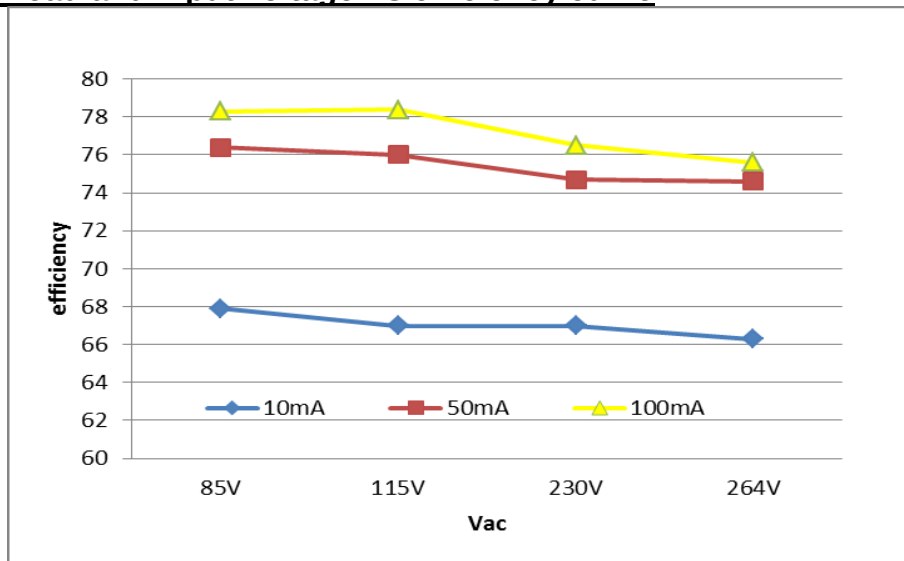
2.1 STANDBY POWER



2.2 EFFICIENCY DATA

85V				115V			
负载电流 (mA)	输出电压 (V)	输入功率 (W)	效率%	负载电流 (mA)	输出电压 (V)	输入功率 (W)	效率%
10	19.96	0.294	67.9	10	19.97	0.298	67
20	19.95	0.573	69.6	20	19.93	0.551	72.3
30	19.94	0.815	73.4	30	19.96	0.826	72.5
40	19.94	1.06	75.2	40	19.96	1.069	74.7
50	19.95	1.306	76.4	50	19.97	1.313	76
60	19.96	1.554	77.1	60	19.97	1.557	77
70	19.97	1.802	77.6	70	19.97	1.805	77.4
80	19.97	2.051	77.9	80	19.97	2.052	77.9
90	19.98	2.301	78.1	90	19.98	2.302	78.1
100	19.99	2.552	78.3	100	20	2.552	78.4
230V				264V			
负载电流 (mA)	输出电压 (V)	输入功率 (W)	效率%	负载电流 (mA)	输出电压 (V)	输入功率 (W)	效率%
10	19.98	0.298	67	10	19.95	0.301	66.3
20	19.97	0.558	71.6	20	19.94	0.559	71.3
30	19.95	0.818	73.2	30	19.97	0.817	73.3
40	19.93	1.076	74.1	40	19.97	1.08	74
50	19.91	1.332	74.7	50	19.96	1.338	74.6
60	19.97	1.602	74.8	60	19.96	1.6	74.9
70	19.98	1.871	74.8	70	19.97	1.867	74.9
80	19.98	2.117	75.5	80	19.96	2.14	74.6
90	19.98	2.364	76.1	90	19.96	2.392	75.1
100	19.98	2.612	76.5	100	19.95	2.64	75.6

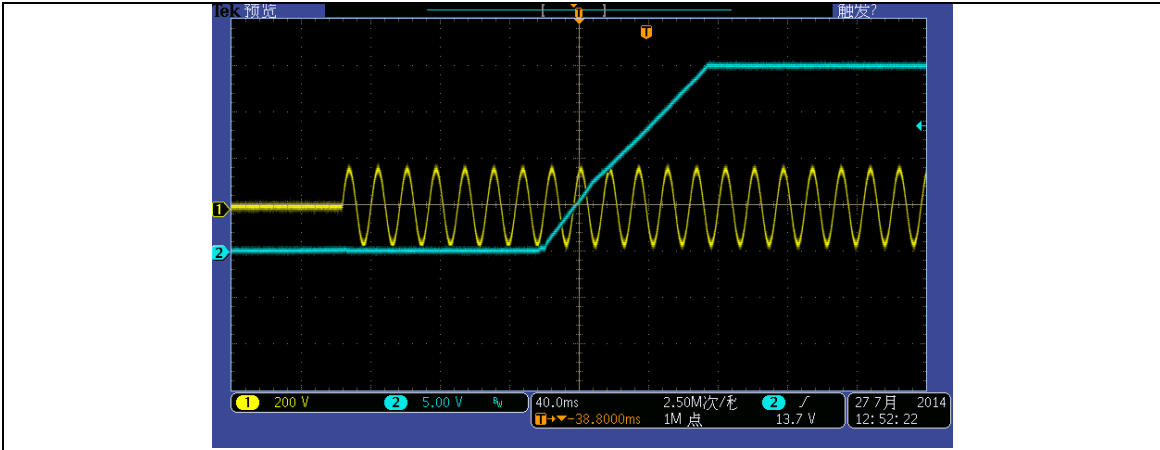
2.2.1 Load and input voltage Vs efficiency curve



3 OUTPUT CHARACTERISTICS

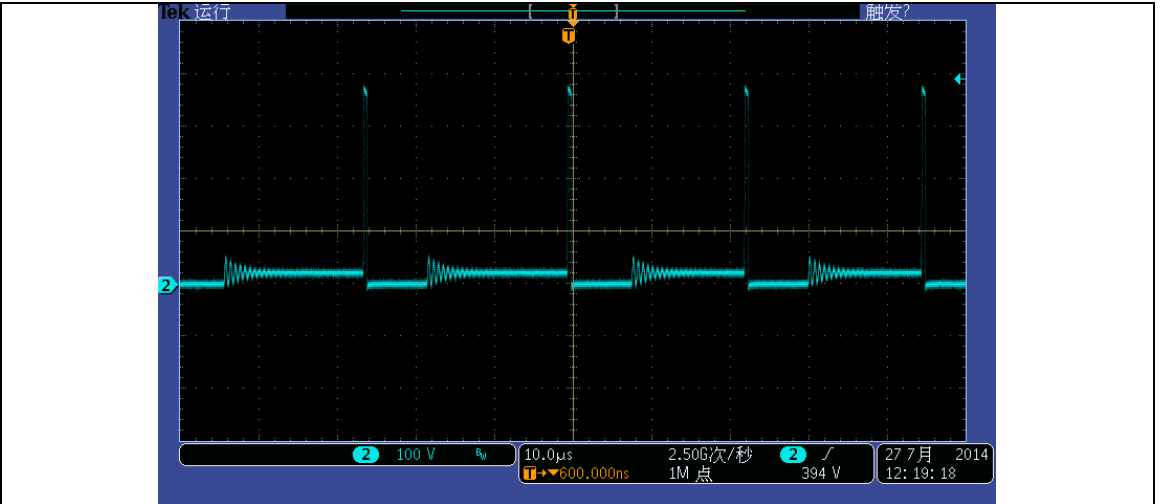
3.1 STARTUP AND OUTPUT VOLTAGE

Input voltage	Output current	Startup time	Pass/Fail
115Vac	75mA	92mS	
230Vac	75mA	64ms	



Vin:115Vac Io: 75mA
 Ch1: Input voltage, 200V/div
 Ch2: output voltage, 5V/div

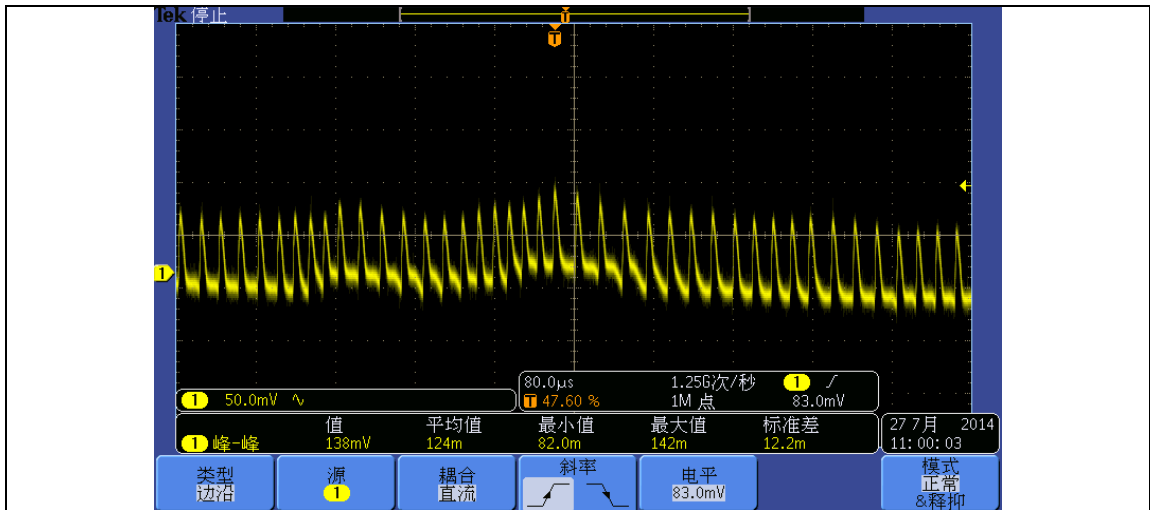
3.2 freewheel diode voltage waveform



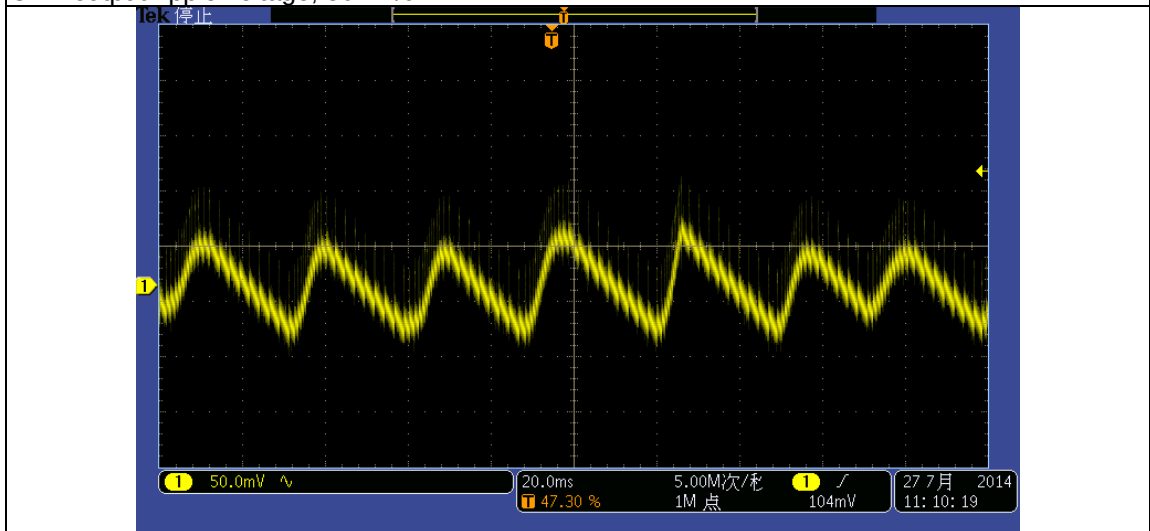
Vin:264Vac Io: 100mA
1.1 Ch2: freewheel diode voltage waveform, 100V/div

1.2 RIPPLE VOLTAGE

Input voltage	Output current	Ripple voltage	Pass/Fail
115Vac	100mA	138mV	
230Vac	0	90mV	



Vin:115Vac Io: 100mA
Ch2: output ripple voltage, 50mV/div



Vin:230Vac Io: 0mA
Ch2: output ripple voltage, 50mV/div

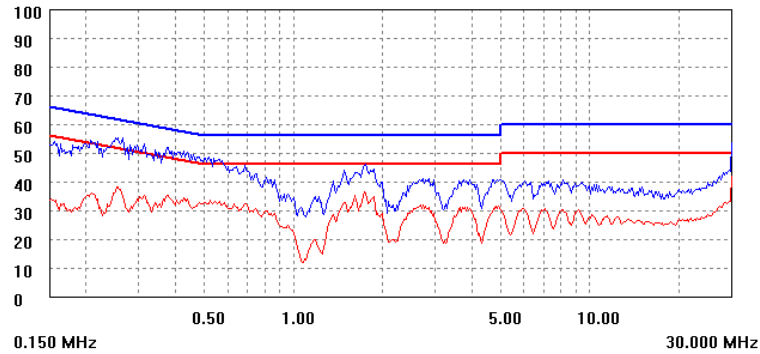
4 EMI Test CE

EMI TEST REPORT

Organization:	Operator:	EUT:
Place:	Time: 2014/8/26/20:13	Test equipment: KH3939
Detector: PK+AV	Test-time(ms): 30	SN: 1139203
Limit: EN55022B	Transductor(PK/AV): 10 / 10	
Remark:		

Start(MHz)	End(MHz)	Step(MHz)
0.150	2.000	0.002
2.000	10.000	0.010
10.000	30.000	0.025

dBuV



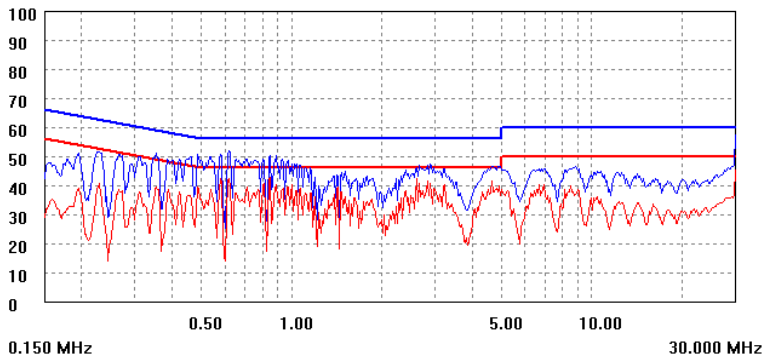
Vin: 115Vac, Line, Io: 100mA
Test condition: 200R load resistor

EMI TEST REPORT

Organization:	Operator:	EUT:
Place:	Time: 2014/8/26/20:19	Test equipment: KH3939
Detector: PK+AV	Test-time(ms): 30	SN: 1139203
Limit: EN55022B	Transductor(PK/AV): 10 / 10	
Remark:		

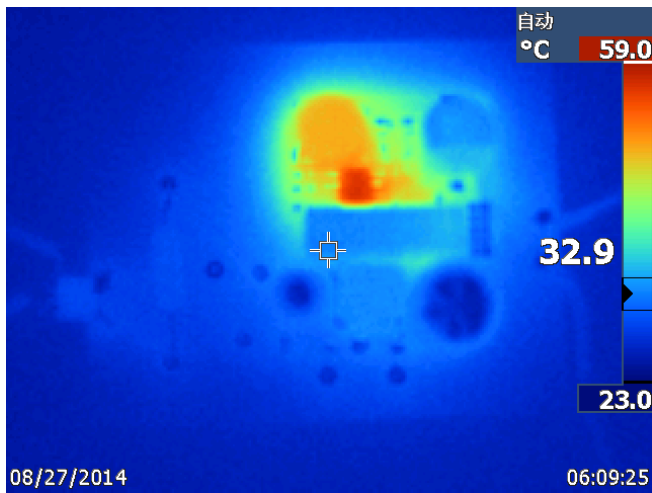
Start(MHz)	End(MHz)	Step(MHz)
0.150	2.000	0.002
2.000	10.000	0.010
10.000	30.000	0.025

dBuV

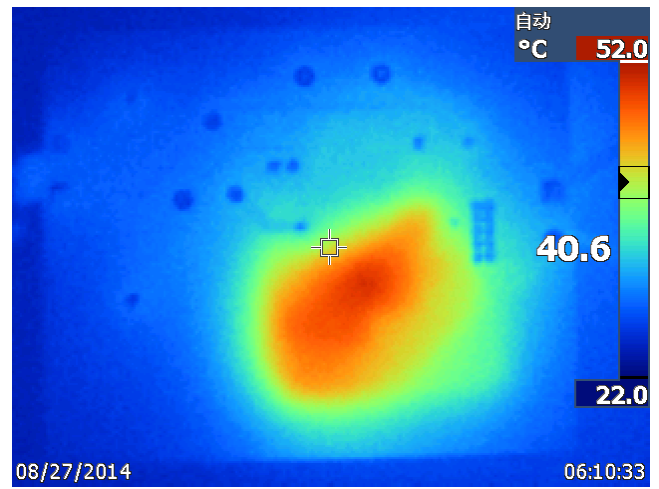


Vin: 230Vac, Line, Io: 100mA
Test condition: 200R load resistor

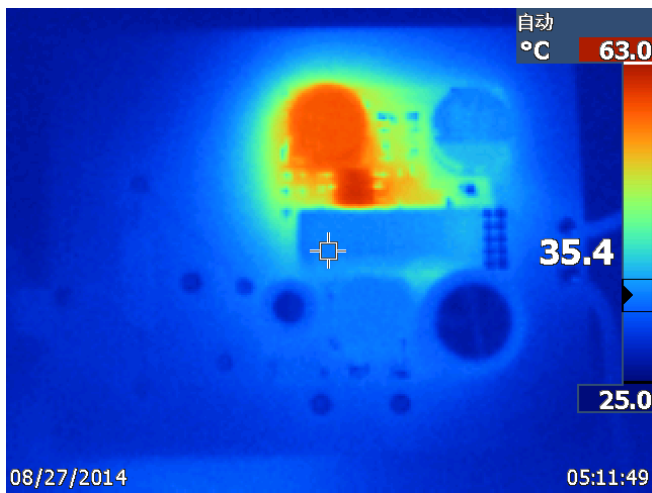
5 Thermal Test At 25°C Ta



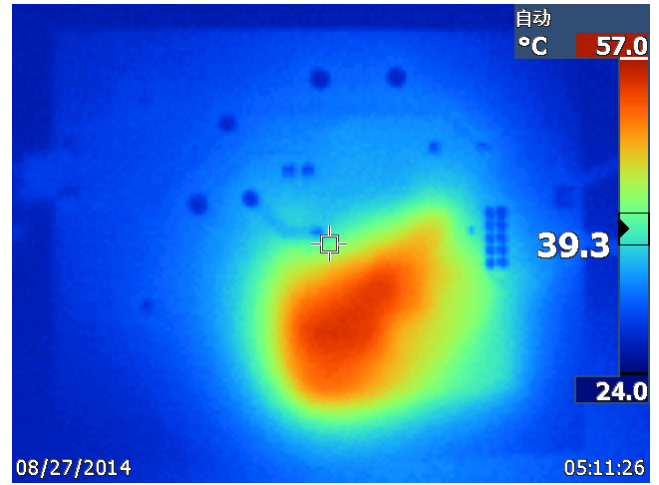
85Vac 100mA Top Side



85Vac 100mA Bottom Side



265Vac 100mA Top Side



265Vac 100mA Bottom Side

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