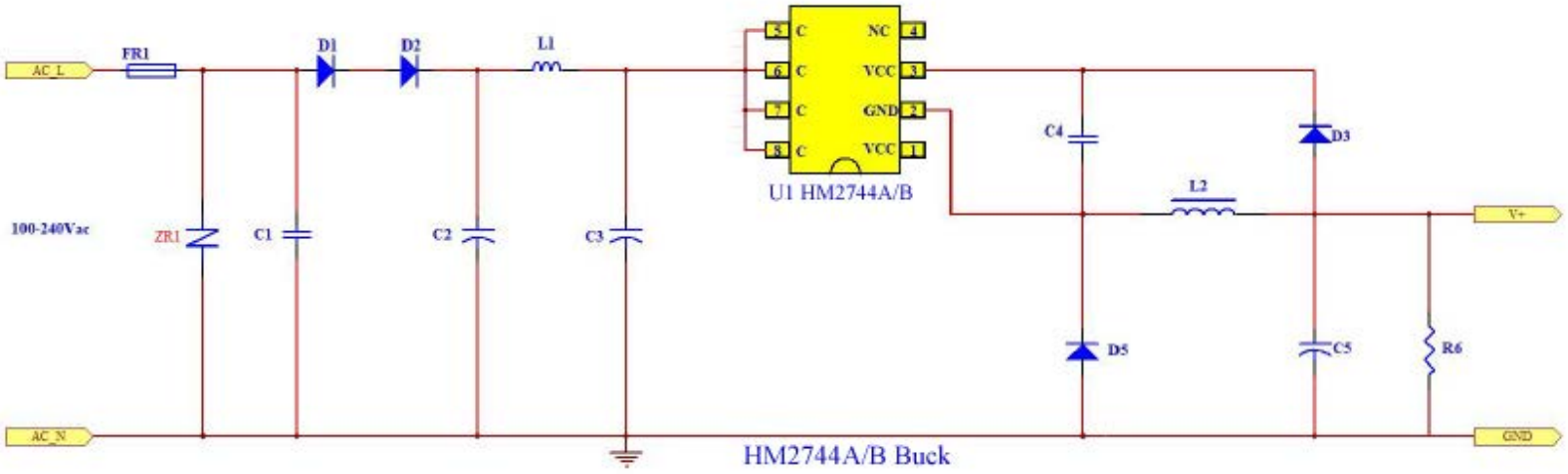
1. Specification

Description		Symbol	Min	Typ	Max	Units	Comment
Input							
Voltage		V_{IN}	**90**		**265**	**V_{AC}**	**2 Wire**
Frequency		f_{LINE}	**47**	**50/60**	**63**	**Hz**	
No-load Input Power (230V_{AC})					**100**	**mW**	
Output							
Const Voltage	**Output Voltage**	V_{OUT_CV}	**4.6**	**5**	**5.4**	**V**	**Measured at the end of PCB**
	Output Current	I_{OUT_CV}		**200**		**mA**	
Output Ripple Voltage		V_{RIPPLE}			**100**	**mV_{P_P}**	**Measured at the End of PCB With Rated Load @T_A = 25 ℃ 20 MHz Bandwidth**
Total Output Power							
Continuous Output Power		P_{OUT}		**1**		**W**	
Over Current Protection		I_{OUT_MAX}			**350**	**mA**	**Auto-restart**
Active Mode Efficiency		η	**55**			**%**	**Measured at PCB terminal, V_{IN} = 115VAC (T_{AMB} = 25 ℃).**
Environmental							
Conducted EMI			**Meets CISPR14/ EN55014B**				
Safety			**Meets IEC60335**				
Ambient Temperature		T_{AMB}	**0**		**75**	**° C**	**Free convection, sea level，PCBA**

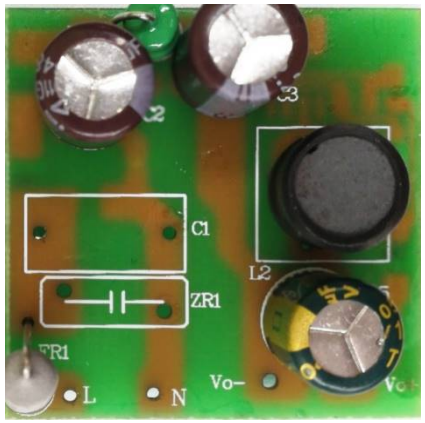
2. Evaluation Results

	Test Items	Spec	Remark
1	Standby Power	≤100mW	Pass
2	Efficieney	≧55%	Pass
3	Output Voltage	4.60-5.40V	Pass
4	Dynamic	4.50-5.50V	Pass
5	Over Current Protection & Recovery	≦350mA	Pass
6	Ripple & Noise	< 100mV	Pass
7	Ambient Temp PCBA	≦75℃	Pass

3. Schematic

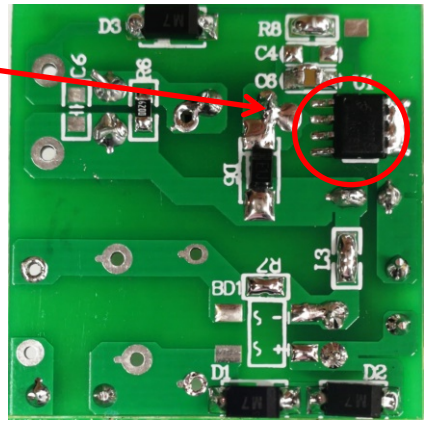

AC_L
FR1
D1
D2
L1
5 C
6 C
7 C
8 C
NC 4
VCC 3
GND 2
VCC 1
U1 HM2744A/B
C4
D3
L2
V+
100-240Vac
ZR1
C1
C2
C3
D5
C5
R6
AC_N
GND
HM2744A/B Buck

4. Circuit Board Photograph



Top side

HM2744A



Bottom side

5. Bill of Material

编号	材料名称	型号规格	单位	位置符号	用量
1	贴片电阻	620R/0805　5%	PCS	R6	1
2	贴片电容	1uF/16V/0805　X7R 10%	PCS	C4	1
3	集成贴片IC	HM2744A/SOP8	PCS	U1	1
4	贴片二极管	A7(1N4007) SOD-123	PCS	D1,D2,D3	3
5		ES1J(SF18) SOD-123	PCS	D5	1
6	保险丝电阻	线绕电阻 10R/1W	PCS	FR1	1
7	色环电感	1mH，1W	PCS	L1	1
8	工字电感	1mH，DR8*10mm	PCS	L2	1
9	电解电容	2.2uF/400V ¢8*12mm	PCS	C2,C3	2
10		220uF/16V ¢8*12mm 高频低阻	PCS	C5	1
	总计				13

说明：

雷击1.5KV以上需增加压敏电阻ZNR1,1.5KV可不选用。

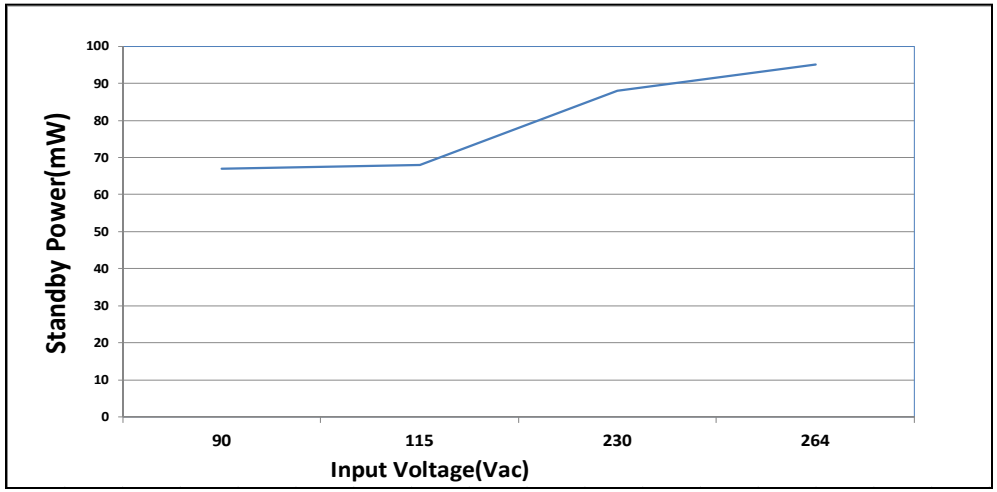
6. Rippel,Regulation and Efficiency

Item	Io(mA)	Vo(V)End of PCB	Pin(mW)	Eff(%)	Ripple(mV)	OCP(mA)
90V/60Hz	0	5.06	67		62.0	271
	50	4.99	410	60.85	52.0	
	100	4.96	755	65.70	60.0	
	150	4.94	1120	66.16	64.0	
	200	4.93	1520	64.87	70.0	
115V/60Hz	0	5.03	68		48.0	275
	50	4.98	409	60.88	52.0	
	100	4.94	750	65.87	60.0	
	150	4.93	1110	66.62	56.0	
	200	4.92	1510	65.17	40.0	
230V/50Hz	0	4.95	88		28.0	306
	50	4.95	444	55.74	52.0	
	100	4.92	787	62.52	64.0	
	150	4.91	1180	62.42	58.0	
	200	4.90	1590	61.64	40.0	
264V/50Hz	0	4.93	95		44.0	312
	50	4.93	462	53.35	59.0	
	100	4.92	810	60.74	65.0	
	150	4.90	1210	60.74	60.0	
	200	4.90	1620	60.49	62.0	

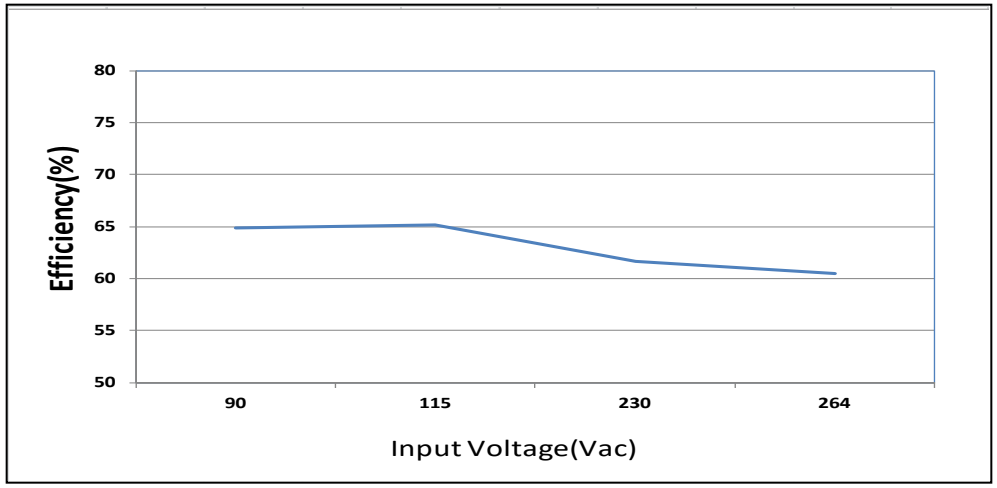
* Note: Vout is measured at end of PCB.

7. Standby power and Efficiency

Standby power

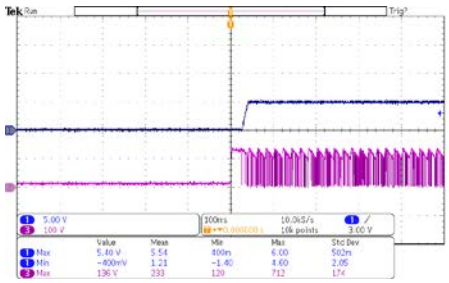


Efficiency



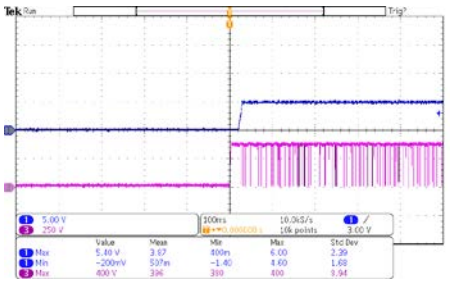
8. VCE Waveform

Vin=90Vac/50Hz, start up at full Load



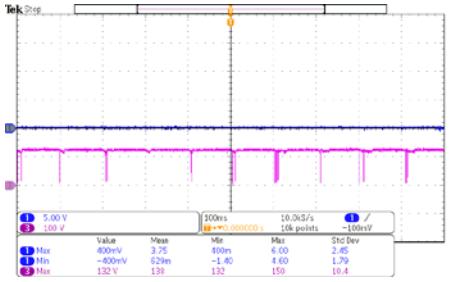
VCe Max=136V

Vin=264Vac/50Hz, start up at full Load



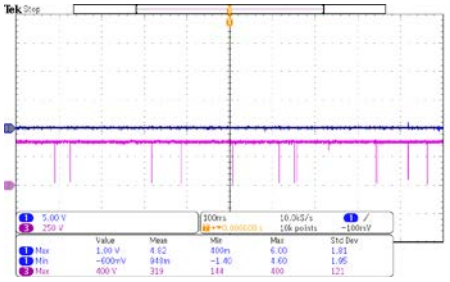
VCe Max=400V

Vin=90Vac/50Hz, output short



VCe Max=132V

Vin=264Vac/50Hz, output short

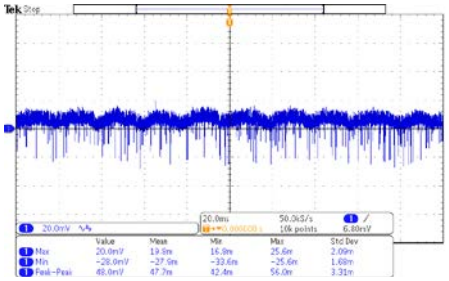


VCe Max=400V

*** Note: Vce < 800V*90%=720V**

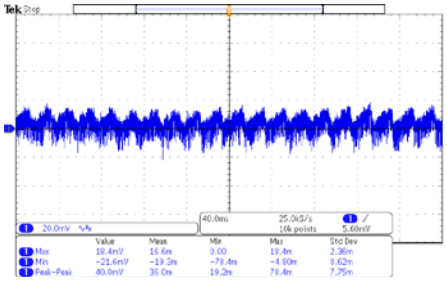
9. Ripple and Noise

Vin=115Vac/50Hz, No Load



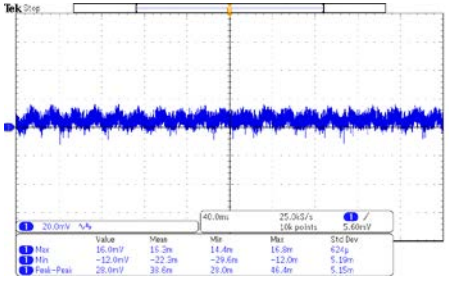
Vripple=48mV

Vin=115Vac/50Hz, Full Load



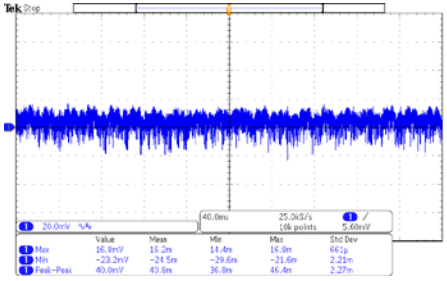
Vripple=40mV

Vin=230Vac/50Hz, No load



Vripple=28mV

Vin=230Vac/50Hz, Full load

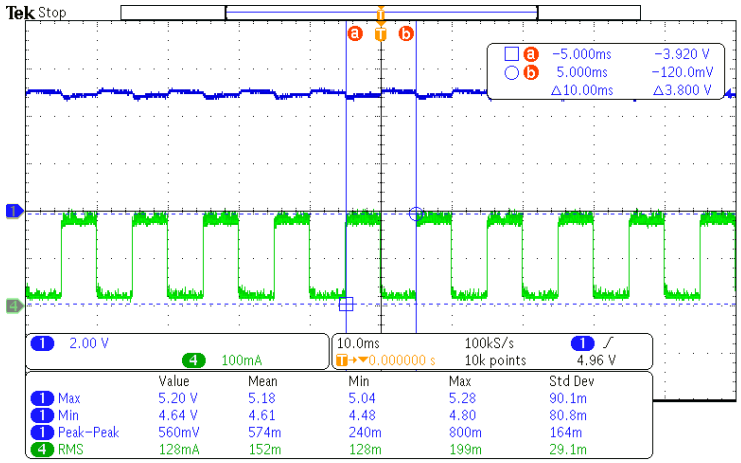


Vripple=40mV

*** Note: V_{RIPPLE} < 100mV**

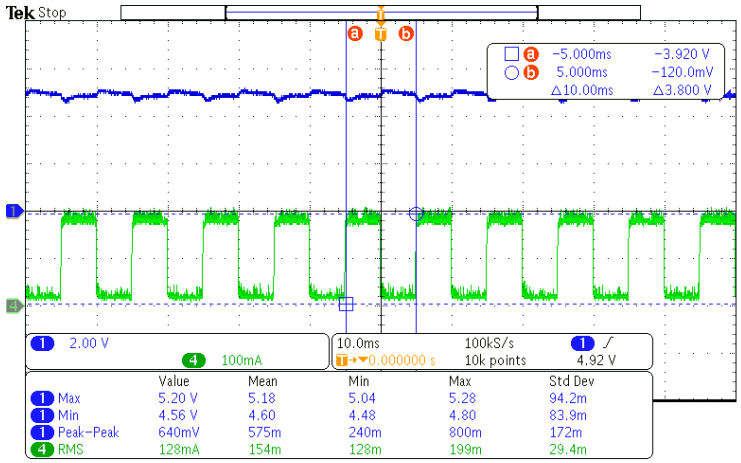
10. Dynamic Load

Vin=90Vac/60Hz, Io from10% to 90%
Slew rate:255mA/uS, F=100Hz



Vout=4.64-5.20V

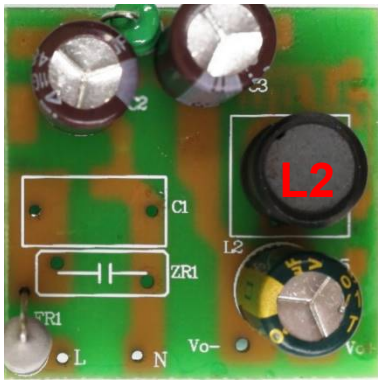
Vin=264Vac/50Hz, Io from 10% to 90%
Slew rate:255mA/uS, F=100Hz

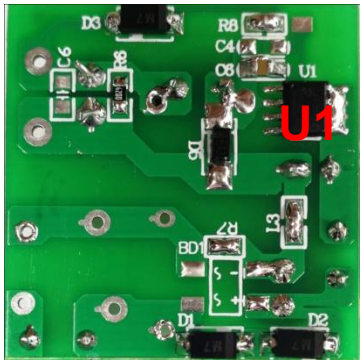


Vout=4.56-5.20V

- **Note: 4.50V < Vout < 5.50V,Vout measured at end of PCB.**

11. Component Thermal





Item	Thermal (℃)					
	90Vac/Full Load		230Vac/Full Load		265Vac/Full Load	
	T	△T	T	△T	T	△T
U1-HM2744A	94	19	101	26	110	35
D5-ES1J	94	19	96.5	21.5	100	25
L2-DR8*10	90	15	91.5	16.5	90.5	15.5
Ambient Temp	75℃					

*** Note: $T_{L2\&U1}$ < 120℃ , Others are within the specification.**