



BYD BF1005 30V0.3A开关调光电源方案



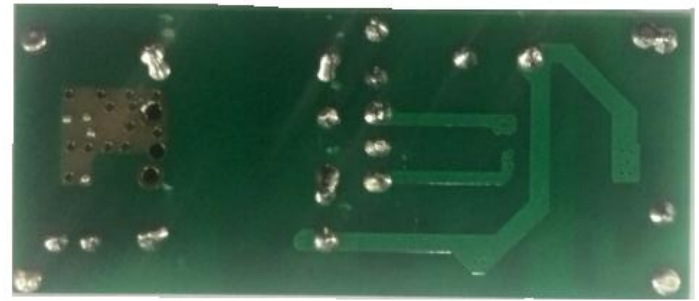
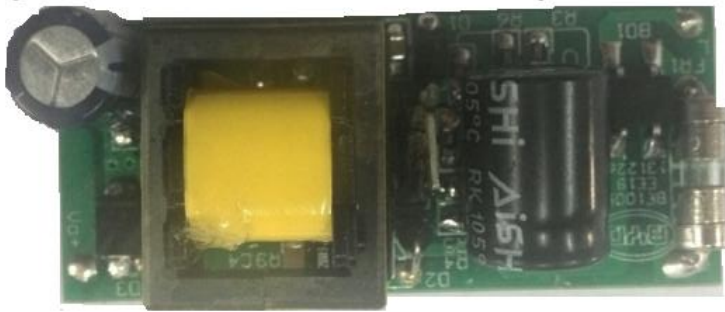
Build Your Dreams



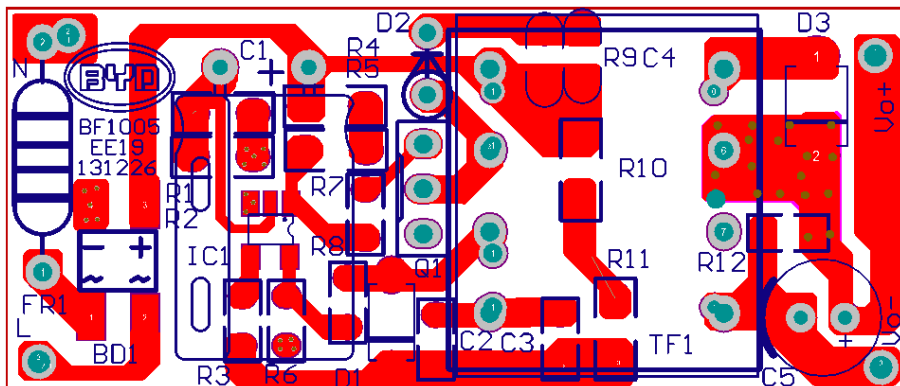
1. 基本特性



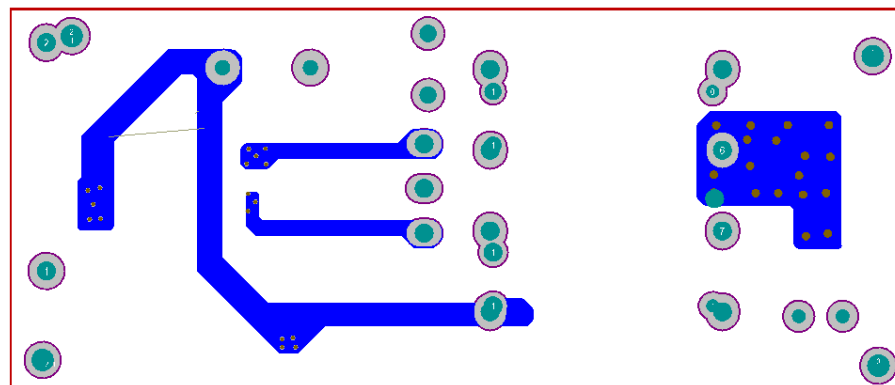
- 输入电压范围:180-264VAC
- 输出规格:30V 300mA
- 效率>80%
- 恒流精度:±5%



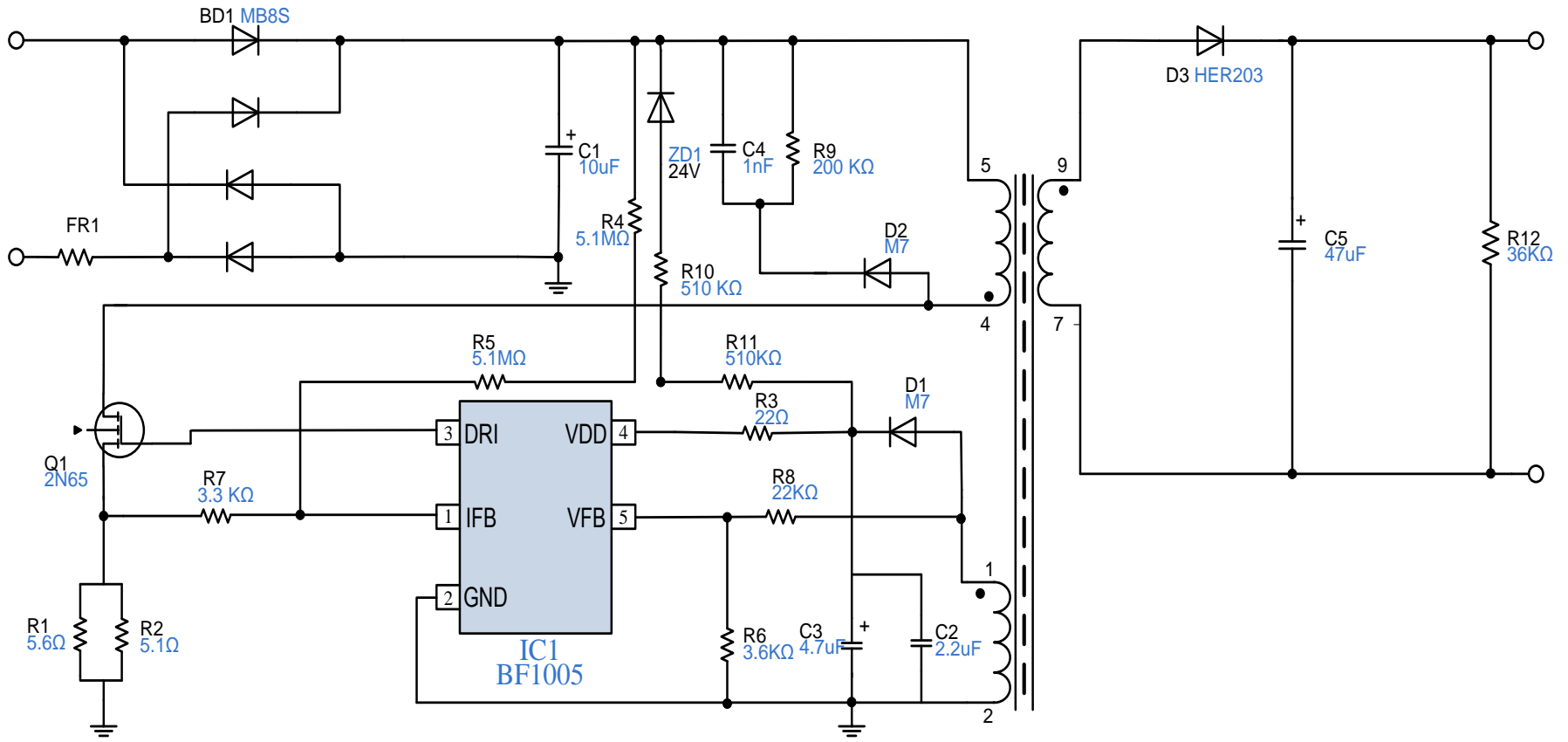
PCBA 长*宽*高:50.55mm*20.33mm*17.20mm



PCB 版图顶层



PCB 版图底层

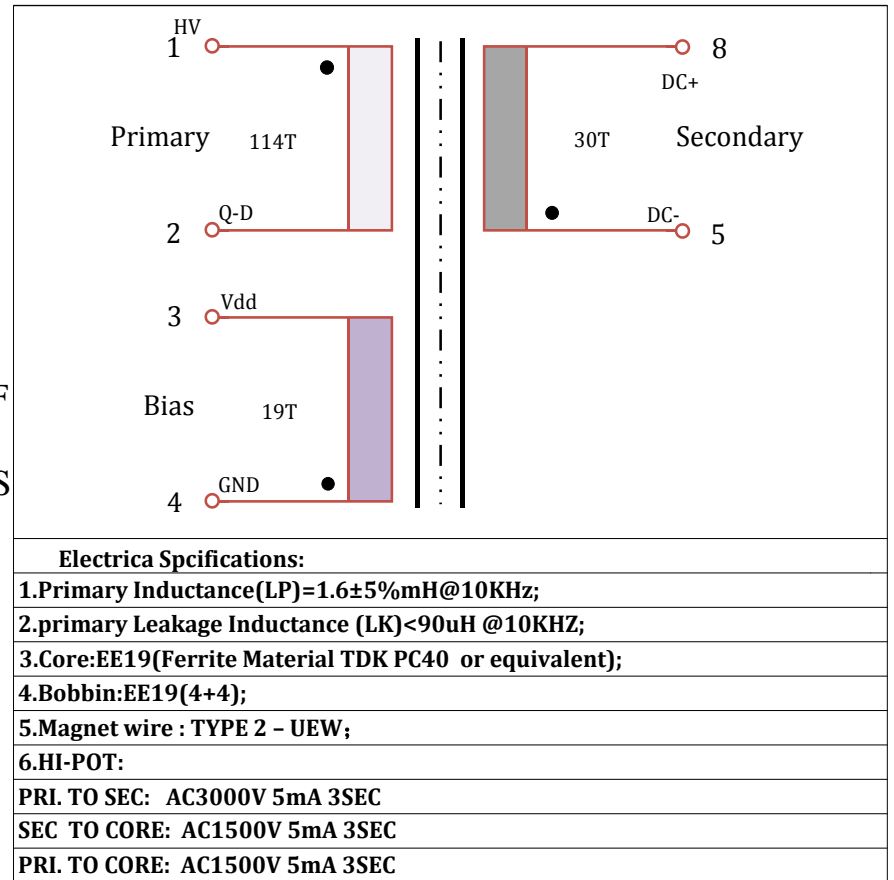
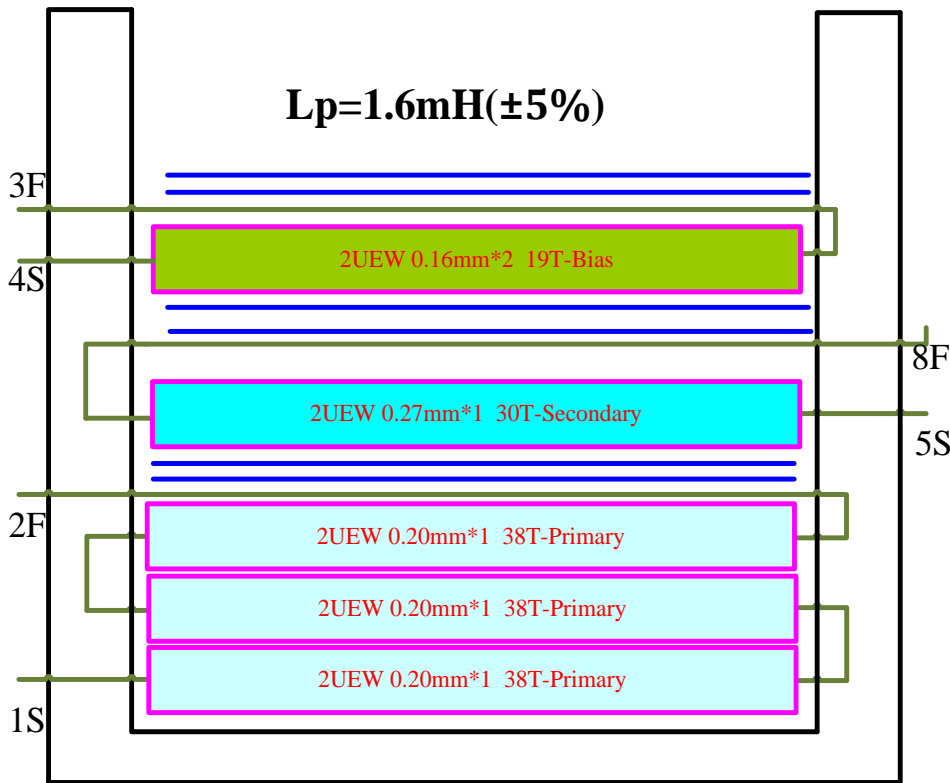




Item	Designator	Description	Qty
1	C1	E-Capacitor 10uF/400V 8*12mm 105 °C ±20%	1
2	C2	SMD Capacitor 0805 2.2uF/35V 105 °C ±20% X7R	1
3	C3	SMD Capacitor 0805 4.7uF/35V 105 °C ±20% X7R	1
4	C4	SMD Capacitor 1206 1nF/250V 105 °C ±20% X7R	1
5	C5	E-Capacitor 47uF/63V 8*12mm 105 °C ±20%	1
6	R1	SMD Resistor 1206 5.6R ±1%	1
7	R2	SMD Resistor 1206 5.1R ±1%	1
8	R3	SMD Resistor 0805 22R ±5%	1
9	R4 R5	SMD Resistor 1206 5.1M ±5%	2
10	R6	SMD Resistor 0805 3.6K ±1%	1
11	R7	SMD Resistor 0805 3.3K ±5%	1
12	R8	SMD Resistor 0805 22K ±1%	1
13	R9	SMD Resistor 1206 200K ±5%	1
14	R10 R11	SMD Resistor 1206 510K ±5%	2
15	R12	SMD Resistor 0805 36K ±5%	1
16	ZD1	SMD VR-Tube 24V/0.125W SOD123	1
17	BD1	SMD MB8S 1A 800V	1
18	D1 D2	SMD Diode M7 1A 1000V SMA	2
19	D3	SMD Diode HER203 2A 200V SMB	1
20	IC1	PWM Controller IC BF1005 SOT23-5	1
21	FR1	2A 250V FUSE	1
22	T1	Transformer EE19 Lp=1.6mH	1
23	Q1	2N65 TO-251 2A/650V	1
24	Total		26



$L_p=1.6mH(\pm 5\%)$



注:Hv:整流后高压端;Q-D:MOS D极;Vo+:输出正极;Vo-:输出负极;Gnd:原边地;Vdd:反馈二极管正极;



7.接灯珠测试



输出接9PCS 1W串联灯珠								
Vin	180Vac	230Vac						264Vac
	Io(mA)	Vo(V)	Io(mA)	Vdd(V)	f(KHz)	Tdimmer(S)	Tdelay(mS)	Io(mA)
第一档	302	29.14	302	18.55	58.14	1.97	64	302
第二档	175	27.2	175	17.19	40.51	1.97	80	175
第三档	78	25.37	79	15.87	43.1	1.97	96	79
第四档	33	24.31	34	15.12	30.3	1.96	104	35

可接入最少1W灯珠数--8PCS		
230Vac		
	Vo(V)	Vdd(V)
第一档	23.09	14.66
第二档	21.63	13.73
第三档	20.31	12.73
第四档	19.44	12.12

备注:Tdimmses(S):为关闭开关到再打开开关的间隔时间,小于该时间则能调到下一档,超过则档位回到第一档;



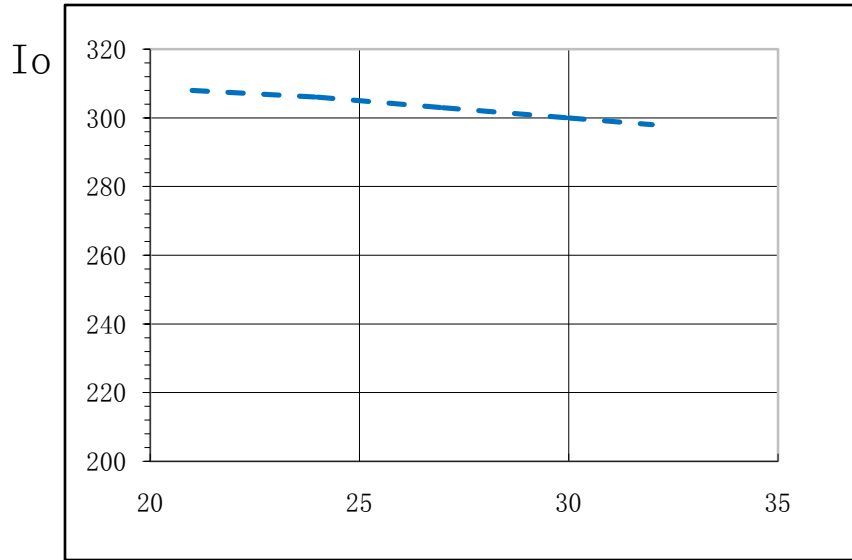
Vin (V)	Vo (V)	Pin (W)	Io (mA)	Po (W)	η (%)
230	24	0.15	0	0	/
		1.24	34.1	0.8184	66.00
		2.51	79.3	1.9032	75.82
		5.1	176.4	4.2336	83.01
		8.71	306.2	7.3488	84.37

Vin (V)	Vo (V)	Pin (W)	Io (mA)	Po (W)	η (%)
230	30	0.15	0	0	/
		1.41	30.9	0.927	65.74
		2.961	75	2.25	75.99
		6.198	173.4	5.202	83.93
		10.62	299	8.97	84.46

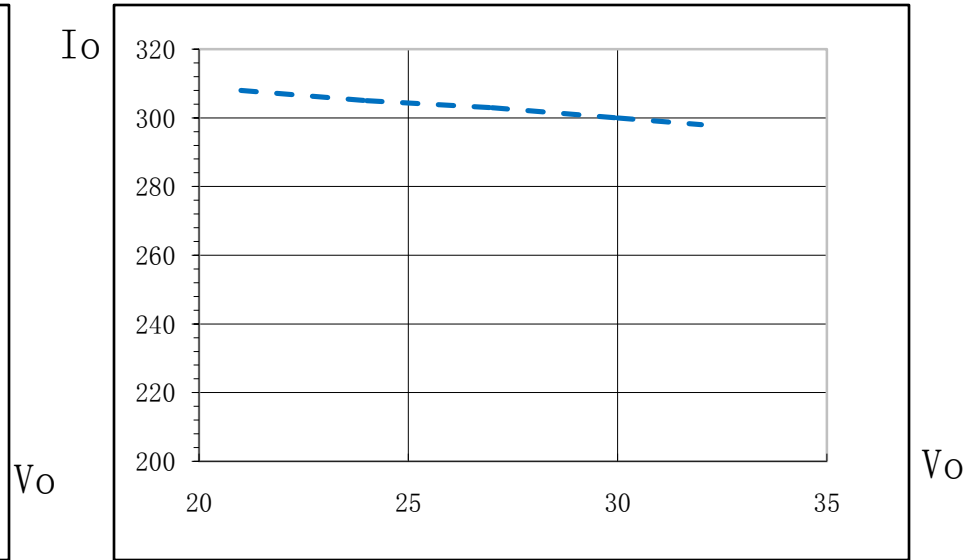
Vin (V)	Vo (V)	Pin (W)	Io (mA)	Po (W)	η (%)
230	32	0.15	0	0	/
		1.53	30.9	0.9888	64.63
		3.18	75	2.4	75.47
		6.6	173.4	5.5488	84.07
		11.16	299	9.568	85.73



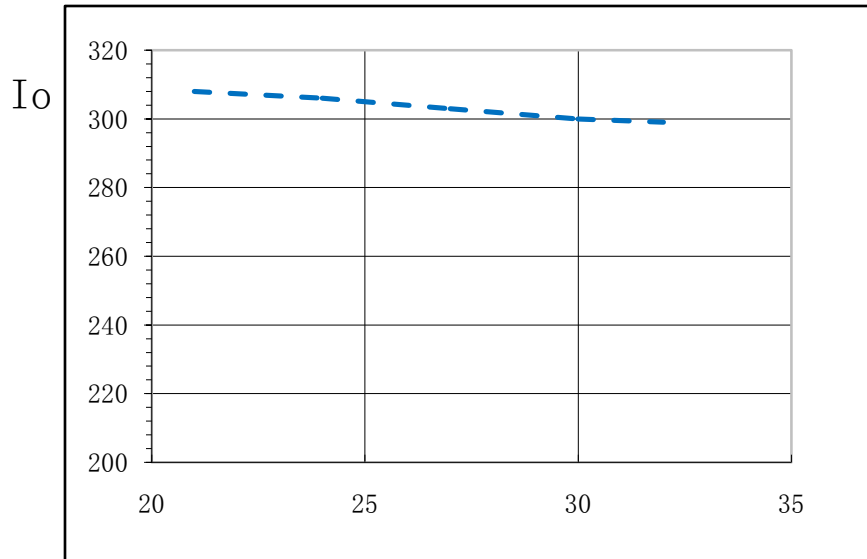
$V_{in}=180Vac$



$V_{in}=230Vac$



$V_{in}=264Vac$

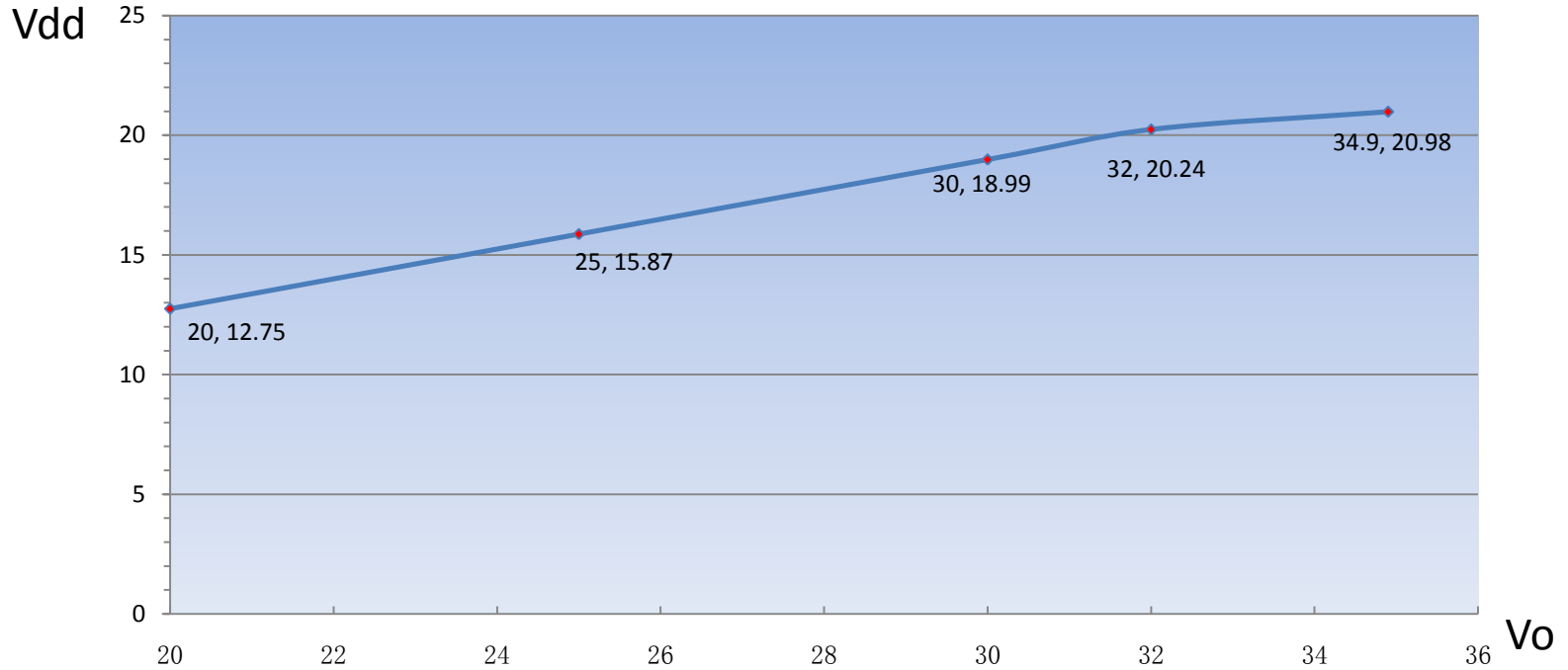




Vo=24V			
Io (mA)	180Vac	230Vac	264Vac
第一档	305.2	306.2	306
第二档	176.6	176.4	176.8
第三档	78.7	79.3	79.6
第四档	33.3	34.1	34.8

Vo=30V			
Io (mA)	180Vac	230Vac	264Vac
第一档	300	300	300
第二档	173.4	173	172.8
第三档	74.2	75.2	76.1
第四档	33.1	31.1	31.8

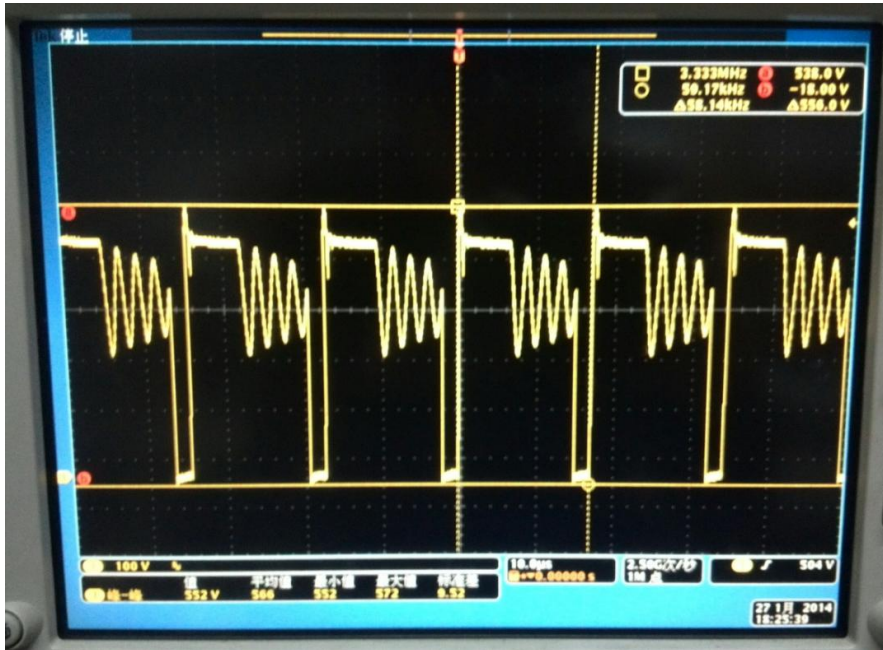
Vo=32V			
Io (mA)	180Vac	230Vac	264Vac
第一档	298	299	298
第二档	173.4	173.4	174.4
第三档	74.1	75.0	75.9
第四档	30.9	30.9	31.9



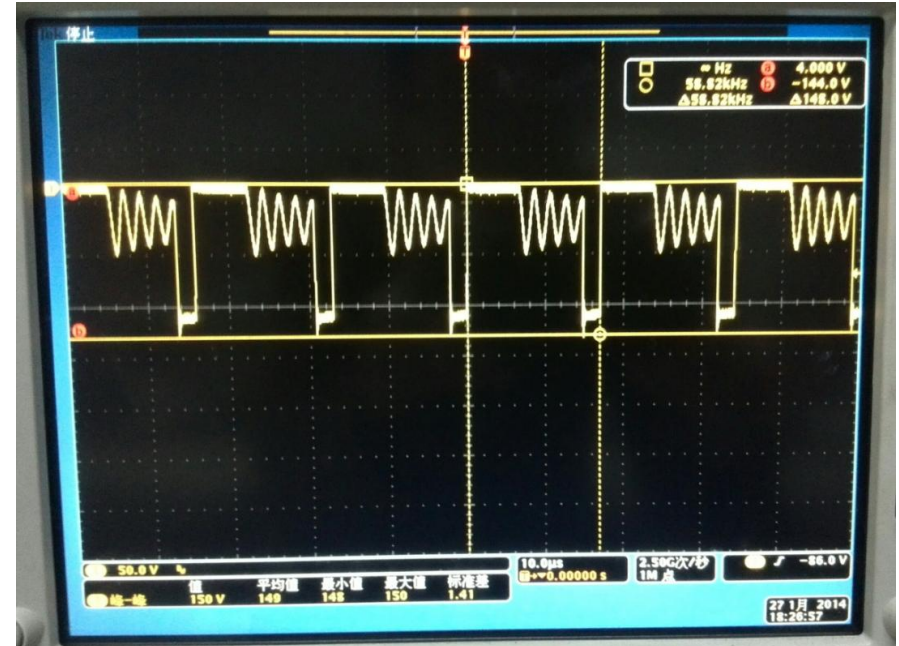
Vin=230	Vo (V)	34.9	32	30	25	20
	Vdd (V)	20.98	20.24	18.99	15.87	12.75



测试条件:Vin=264Vac;Vo=30V;Io=0.30A;



Vds=552V;



V_{D3}=150V;



Thank you !

广东省深圳市大鹏新区葵涌镇延安路1号比亚迪微电子

bydacdc@byd.com

0755-89888888-57193



Build Your Dreams