Panther 100W

AFB Converter Test Simple Report

(320Vdc~420Vdc, 12V Output, 0~7A Load)

Test conditions

If it is not specified express, the Nominal Testing Conditions suppose:
-Ambient Temperature: 25℃

List of the main test equipment

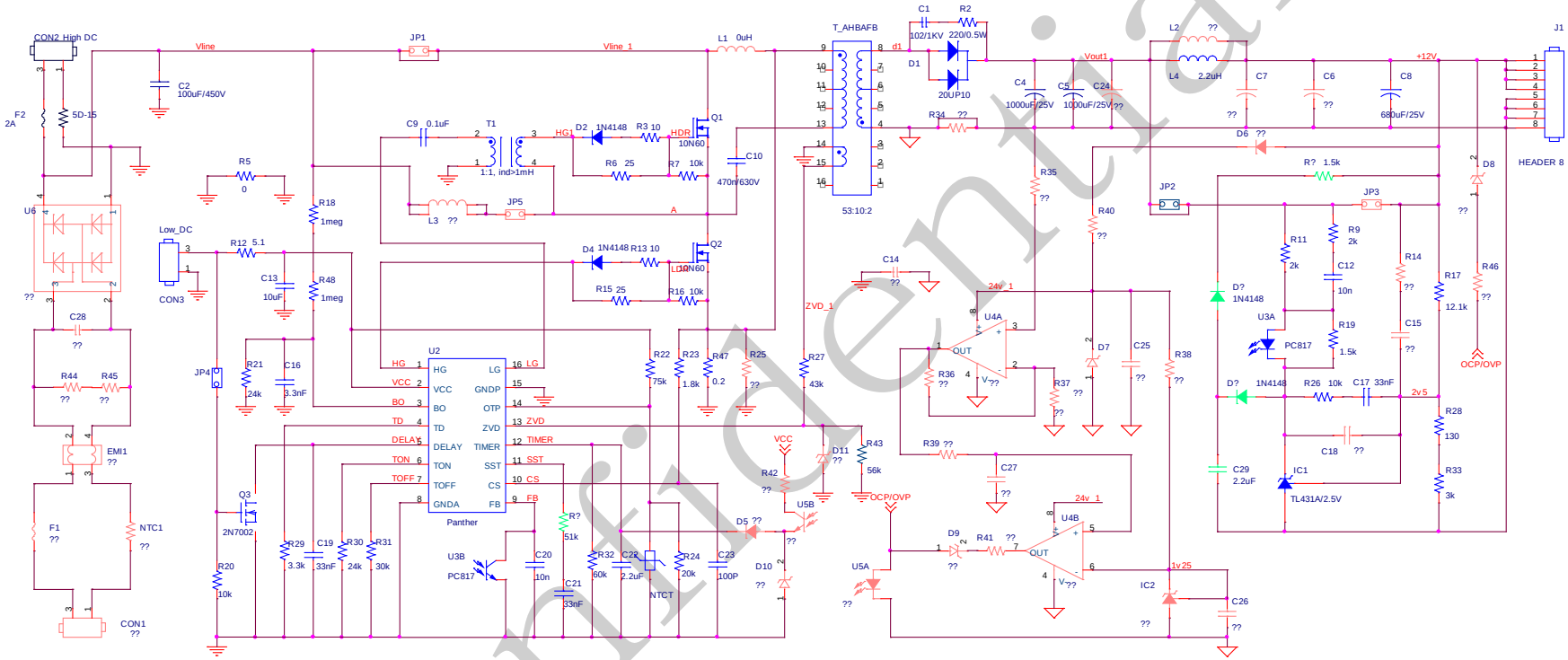
Item	Test equipment	Main Features	Recommended
1	High voltage DC Source	Adjustable, 0 to 300Vac, 50Hz, 1000W	Chroma 61602
2	Low voltage DC Source	Adjustable, 0 to 30Vdc	Topward 6306D
3	Electronic Load	16V/100W	Chroma 63010
4	Multimeter		Fluke 189
5	Oscilloscope	4 channel, 300MHz 4 channel, 350MHz	Tektronix, TDS 3034B

0. Summary

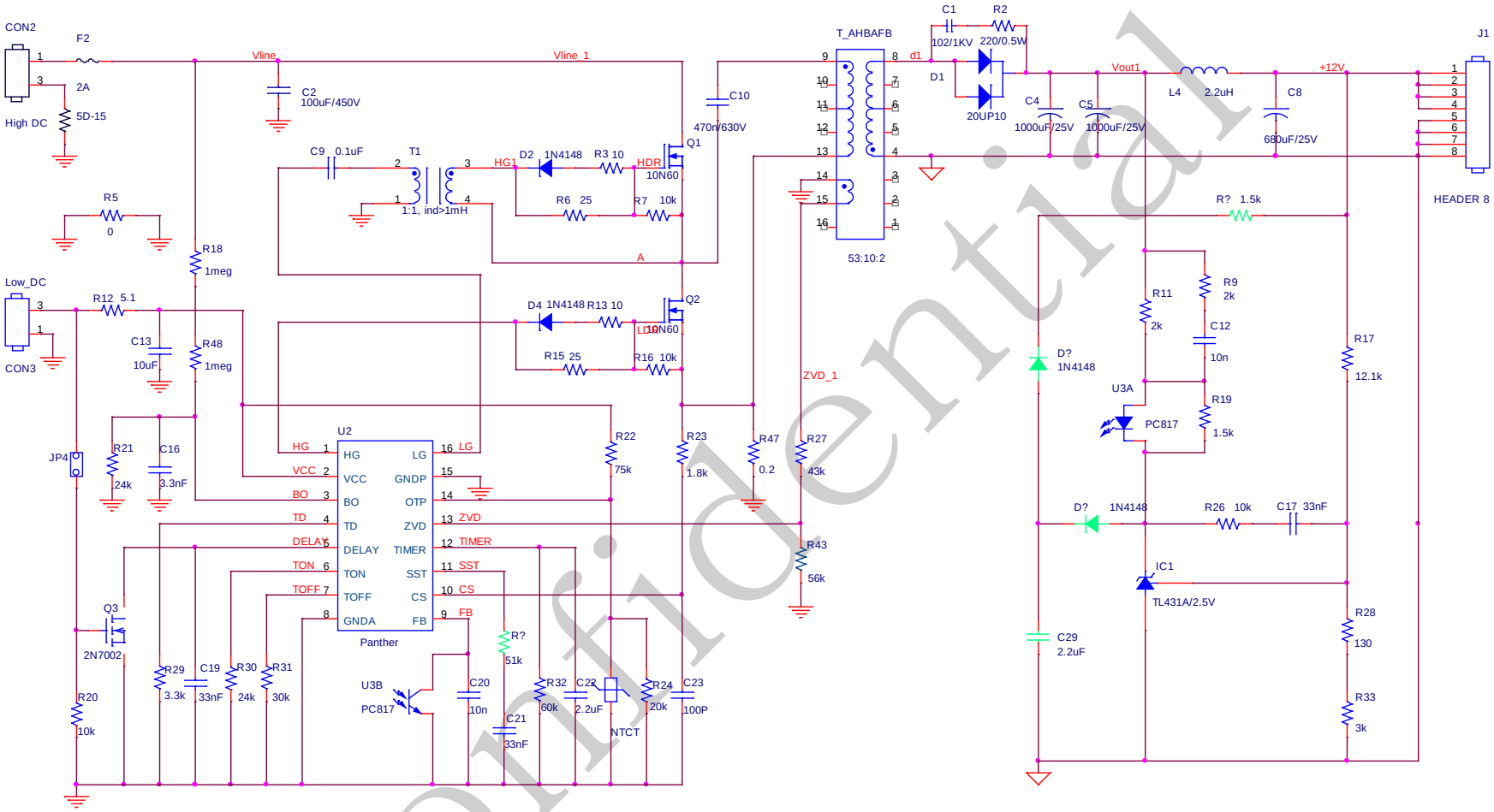
0.1 Results Summary

Test Item	Specification	Test Result
1. VCC Turn-on and Turn-off Thresholds		
Turn-on Threshold	12V	11.65V
Turn-off Threshold	10V	10.17V
2. VBO Turn-on and Turn-off Thresholds (1V/15uA hysteresis)		
Turn-on Threshold		372Vdc
Turn-off Threshold		317Vdc
3. Efficiency Vs Vin		
Vin=420Vdc	Vcc=15V 7A Load	88.9%
Vin=380Vdc		89.6%
Vin=320Vdc		89.2%
4. Dynamic response Peak to Peak value		
Vin=420Vac	30% Imax to 80% Imax	<±0.15
Vin=380Vac		<±0.15
Vin=320Vac		<±0.15
5. Operation frequency (0~100W)		
Vin=420Vdc	Rton=24K Rtoff=30K	101KHz~105KHz
Vin=380Vdc		97KHz~101KHz
Vin=320Vdc		89KHz~94KHz
6. Cycle by cycle OCP Function		
In soft start up	All condition	OK
Works well then output short circuit	All condition	Ok
7. OVP Function		
Feedback loop open	All condition	Ok
8. OTP Function		
Votp below 1/8.5Vcc	All condition	Ok

0.2 Schematic

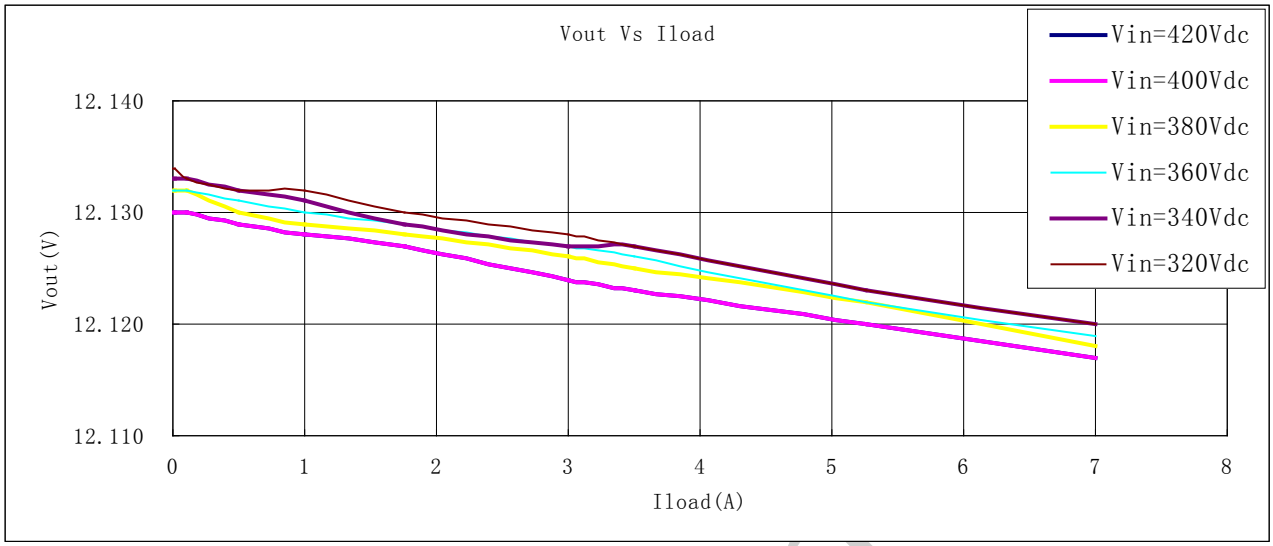


Demo board circuit
Red components means the parts have not welded in this application circuit.
Green components means the parts have been added in this application circuit.

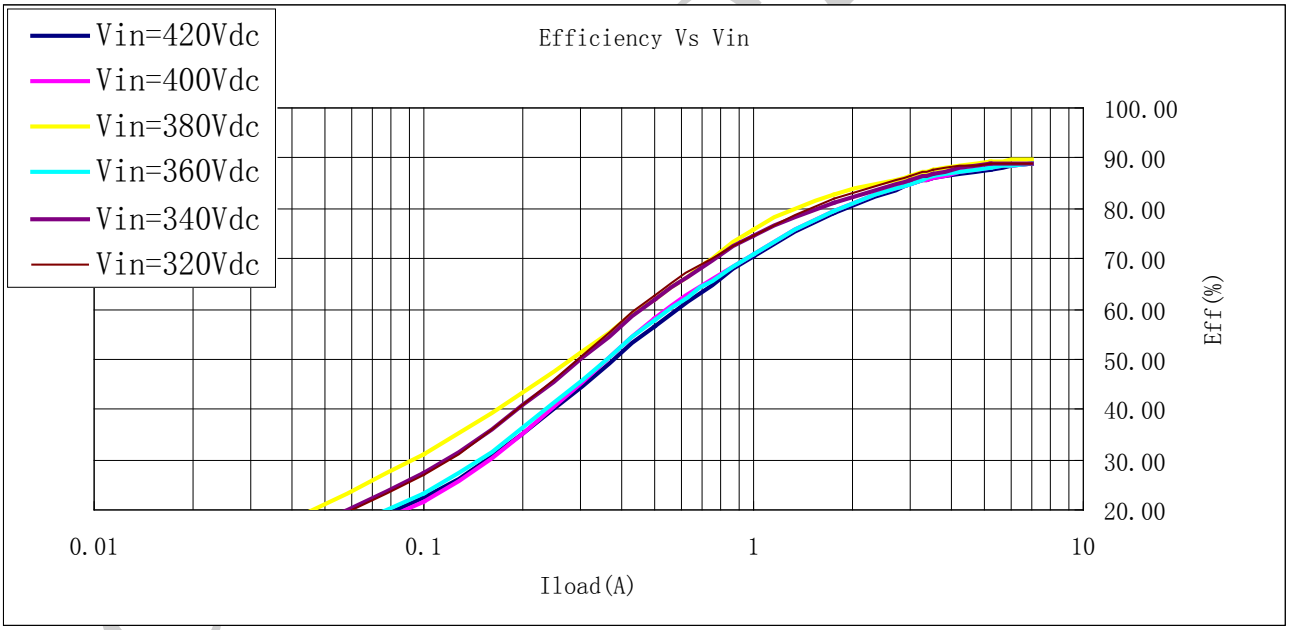


Simple test circuit

0.3 Test Data



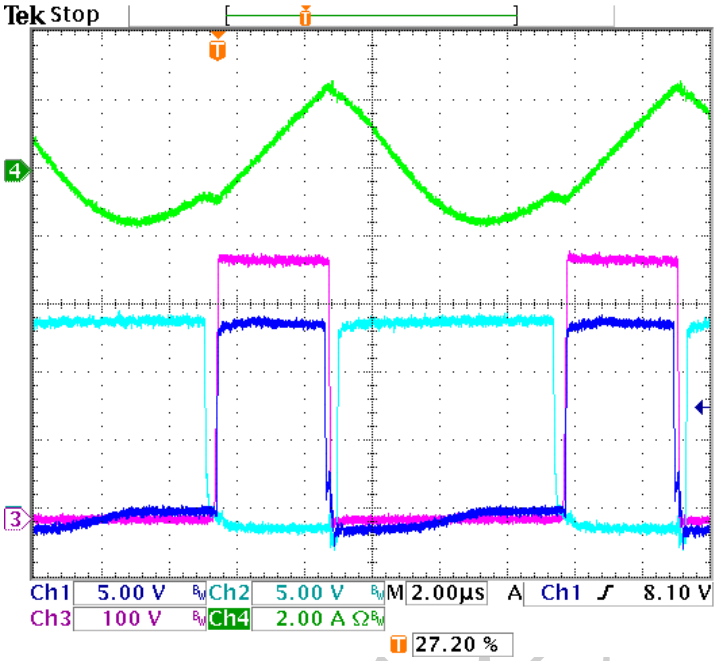
Load Regulation



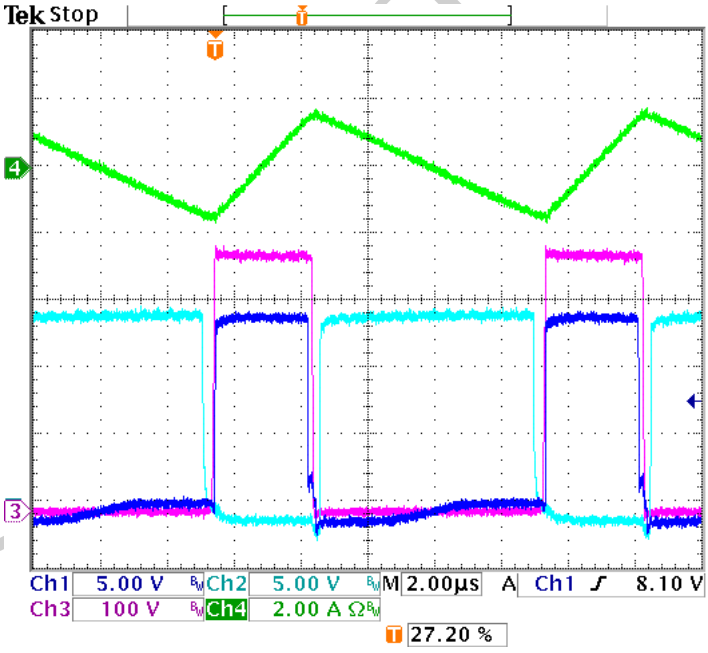
Efficiency

0.4 Key Waveform

Primary side MOSFET ZVS:

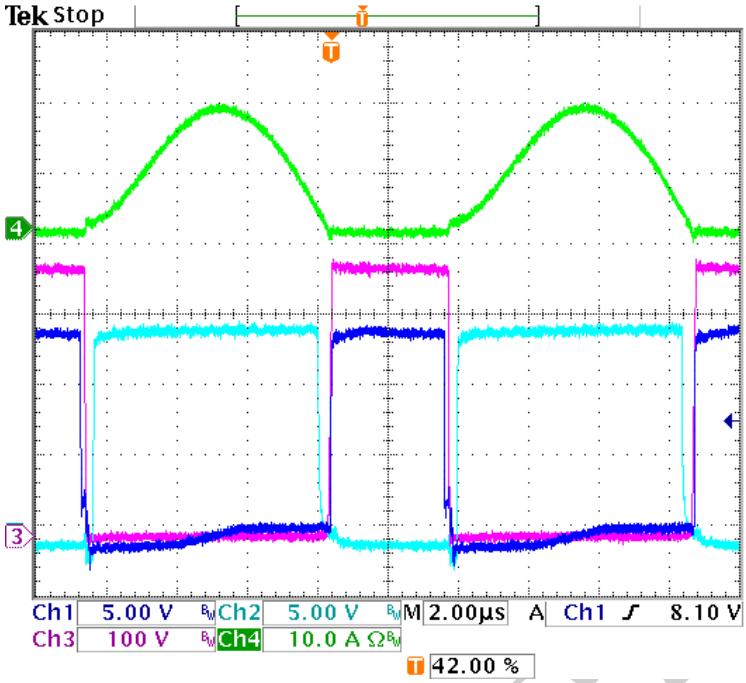


Test condition: Vin=380V, Vcc=15V, Iload=7A
Ch1-LG, Ch2-HG, Ch3-Va, Ch4-Iintransformer

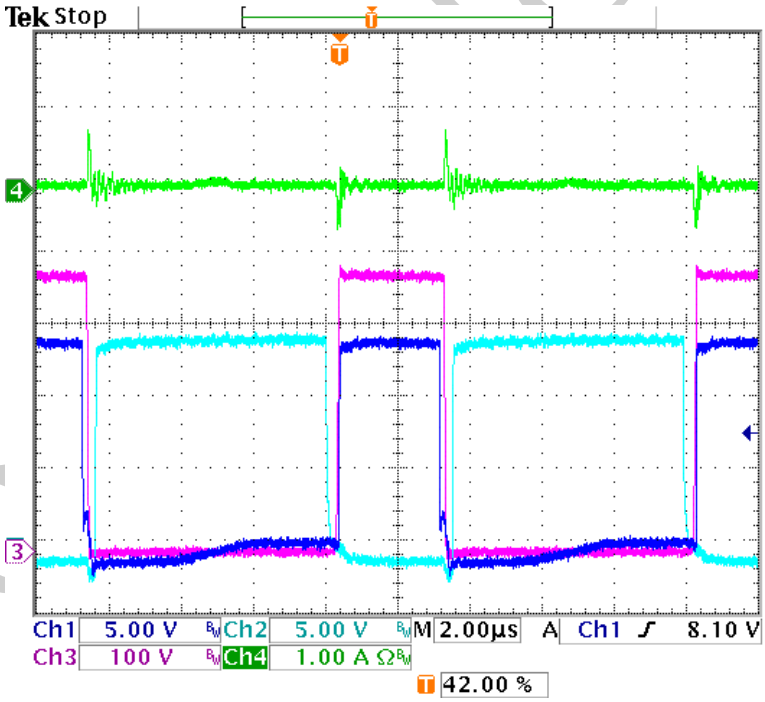


Test condition: Vin=380V, Vcc=15V, Iload=0A
Ch1-LG, Ch2-HG, Ch3-Va, Ch4-Iintransformer

Secondary side Diode ZCS:



Test condition: Vin=380V, Vcc=15V, Iload=7A
Ch1-LG, Ch2-HG, Ch3-Va, Ch4-Iin secondary side Diode



Test condition: Vin=380V, Vcc=15V, Iload=0A
Ch1-LG, Ch2-HG, Ch3-Va, Ch4-Iin secondary side Diode

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