

方案调试与验证报告

AE&FAE Department

Version:1.0

Reactor-micro

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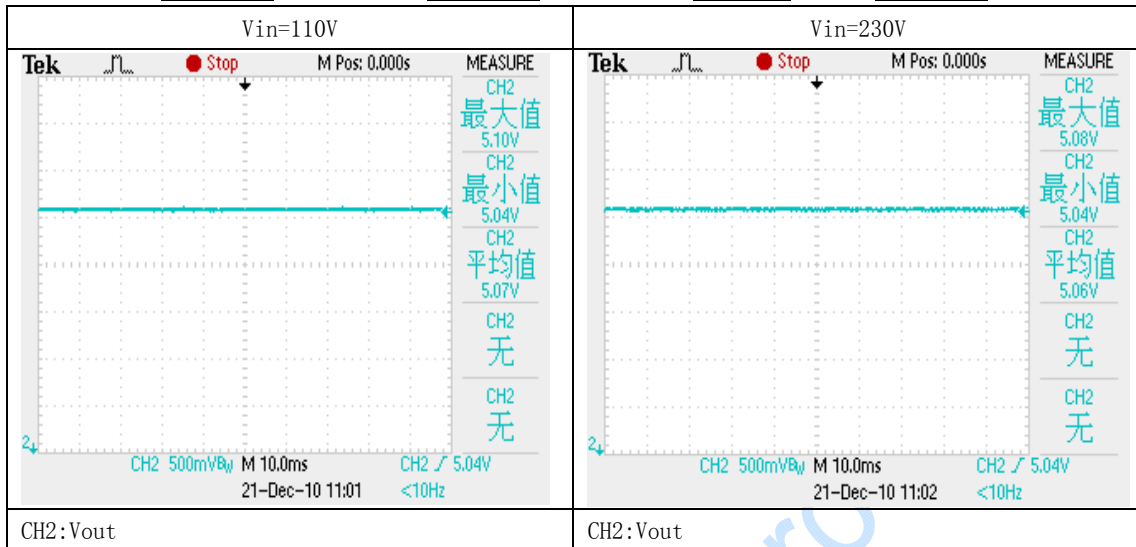
Test Item:

- 1: Load Regulation;
- 2: Line Regulation;
- 3: Output Ripple Voltage;
- 4: Efficiency;
- 5: OCP;
- 6: Diode Drop Voltage;

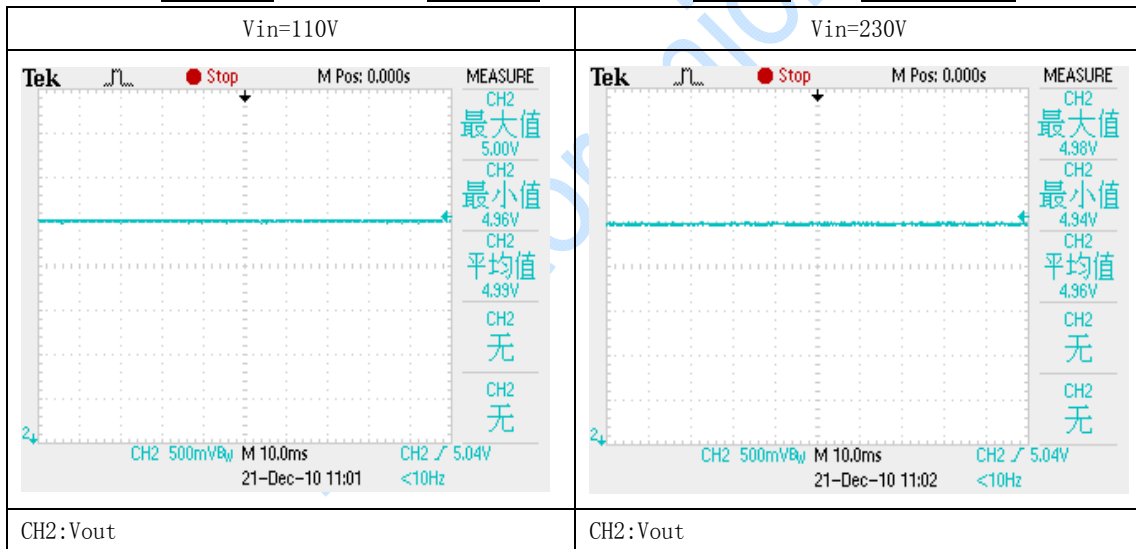
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1: Load Regulation;

Vout(max)= 5.15V ; Vout(min)= 4.85V ; Vout(avg)= 5.0V ; Iload= 0A ;



Vout(max)= 5.15V ; Vout(min)= 4.85 ; Vout(avg)= 5.0 ; Iout= Iout(max) ;



$$\text{Load Regulation} = \frac{V_0 - V_1}{V_0} = \underline{2.0\%} ;$$

2: Line Regulation:

Test Condition: Vin=90V-265V, Iload=0A

Vin(V)	90	115	185	220	235	265
Vout(V)	5.05	5.05	5.04	5.04	5.04	5.04

Line regulation: 0.2% ; LG (MAX): ±2% ; Result: PASS ;

Test Condition: Vin=85V-265V, Iload=Iout(max)

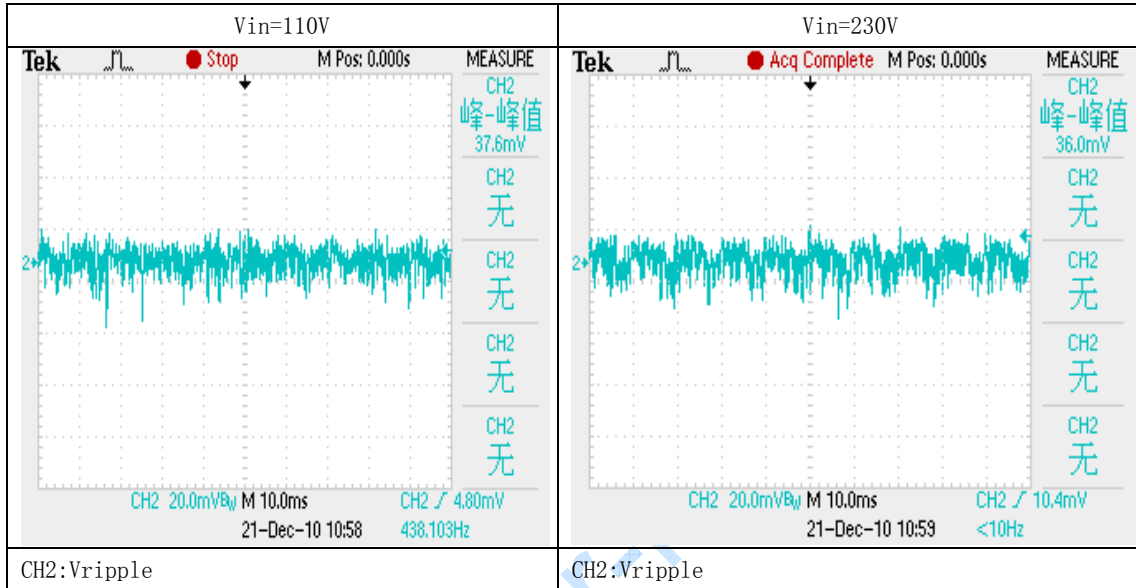
Vin(V)	90	115	185	220	235	265
Vout(V)	4.99	4.98	4.95	4.95	4.95	4.96

Line regulation: 0.8% ; LG (MAX): ±2% ; Result: PASS ;

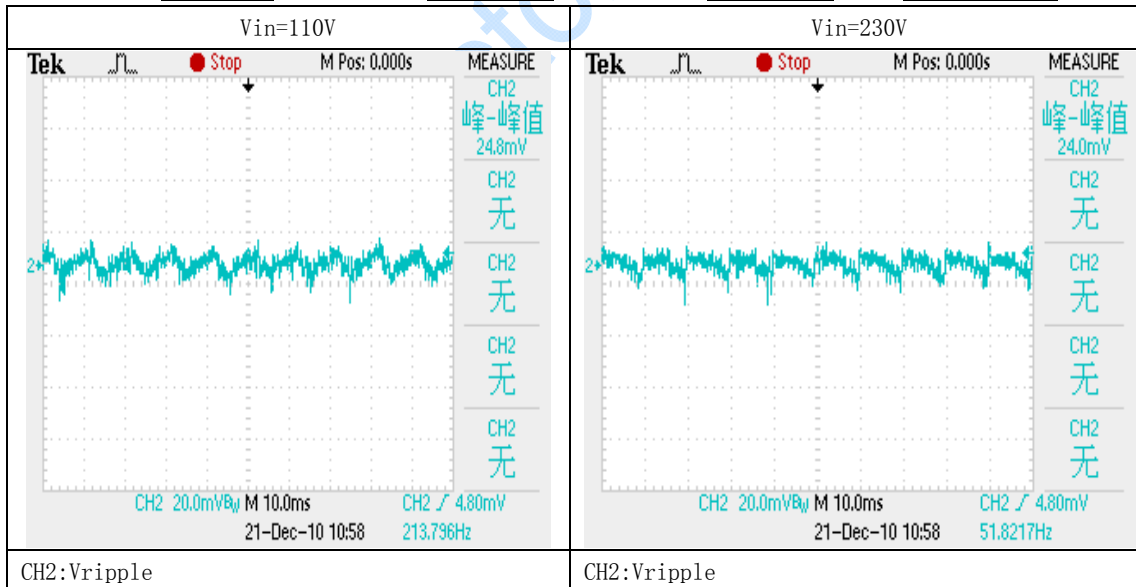
$$\text{Load Regulation} = \frac{V_{90} - V_{265}}{V_{90}} = \underline{0.8\%} ;$$

3: Output Ripple Voltage:

Vout (max)= 5.15V ; Vout (min)= 4.85V ; Vout (avg)= 5.00V; Iout= 1/2Iout (max) ;



Vout (max)= 5.15V ; Vout (min)= 4.85V ; Vout (avg)= 5.00V ; Iout= Iout (max) ;



4: Efficiency:

Vin(V)	Iin(A)	Vout(V)	Iout(A)	Pin(W)	Pout(W)	η (%)	Result (Pass/fail)
90V	20%Iout(max)	5.00	0.1	0.90	0.500	55.6	PASS
	40%Iout(max)	4.99	0.2	1.58	0.998	63.2	PASS
	60%Iout(max)	4.99	0.3	2.26	1.497	66.2	PASS
	80%Iout(max)	4.99	0.4	2.94	1.996	67.9	PASS
	100%Iout(max)	5.00	0.5	3.63	2.500	68.9	PASS
Vin(V)	Iin(A)	Vout(V)	Iout(A)	Pin(W)	Pout(W)	η (%)	Result (Pass/fail)
110V	20%Iout(max)	5.00	0.1	0.90	0.500	55.6	PASS
	40%Iout(max)	4.99	0.2	1.56	0.998	64.0	PASS
	60%Iout(max)	4.98	0.3	2.22	1.494	67.3	PASS
	80%Iout(max)	4.98	0.4	2.90	1.992	68.7	PASS
	100%Iout(max)	4.99	0.5	3.58	2.495	69.7	PASS
Vin(V)	Iin(A)	Vout(V)	Iout(A)	Pin(W)	Pout(W)	η (%)	Result (Pass/fail)
230V	20%Iout(max)	4.98	0.1	0.98	0.498	50.8	PASS
	40%Iout(max)	4.97	0.2	1.62	0.994	61.4	PASS
	60%Iout(max)	4.97	0.3	2.27	1.491	65.7	PASS
	80%Iout(max)	4.97	0.4	2.92	1.988	68.1	PASS
	100%Iout(max)	4.97	0.5	3.56	2.485	69.8	PASS
Vin(V)	Iin(A)	Vout(V)	Iout(A)	Pin(W)	Pout(W)	η (%)	Result (Pass/fail)
265V	20%Iout(max)	5.00	0.1	1.03	0.500	48.5	PASS
	40%Iout(max)	4.98	0.2	1.69	0.996	58.9	PASS
	60%Iout(max)	4.98	0.3	2.36	1.494	63.3	PASS
	80%Iout(max)	4.98	0.4	3.00	1.992	66.4	PASS
	100%Iout(max)	4.97	0.5	3.64	2.485	68.3	PASS

5: OCP

Vin(V)	90	115	185	220
OCP(A)	0.87	0.88	0.84	0.79
Result	PASS	PASS	PASS	PASS

Notice: $I_{ocp} = (1.3-1.8) I_{out(max)}$;

6: Diode drop Voltage: (Iload=Iout(max));

Vin(V)	90V	115V	230V	265V
Vdrop(V)	18.4	21.6	37.6	42.4
Voc(V)	228	264	404	448
Result	PASS	PASS	PASS	PASS

Vdrop:输出级整流管（SR360）两端压降最大差值；

Voc:开关管集电极对地最大压降。

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