NE1118 12V/3A

COC V5.0 Tier2 &DOE V6.0

Design

Power Boost and Green Mode PWM Controller with HV Start

The NE1118 is a highly integrated PWM controller. It is built-in with several features to enhance the performance of off-line power supply in SOP-8 package. With the adjustable OPP function integrated in HV pin, it is easy to design the over power protection well under high/low line condition

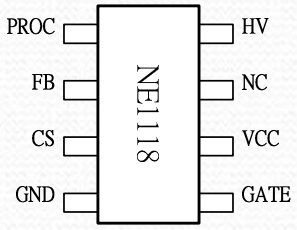
Features

- *Turbo boost technology during over load or peak load condition*
- *HV startup with low leakage current, Brown out function.*
- *Safety Protection: Vcc-GND short test, LPS limitation.*
- *Supplementary bias charging during load transient*
- *Low power consumption through x-cap discharge switch*
- *System Open Loop Protection*
- *Output Short Circuit Protection*
- *Internal 8mS Soft Start Time Period*
- *Internal 240nS Leading Edge Blanking+500mA/-800mA Gate Drive Capability*
- *Frequency Jittering for EMI Reduction*
- *Internal Slope Compensation with Self Detection*
- *Peak power with Frequency Double to prevent from Tr. Saturation*
- *Meet Pb-Free, Halogen Free and RoHS compliant*

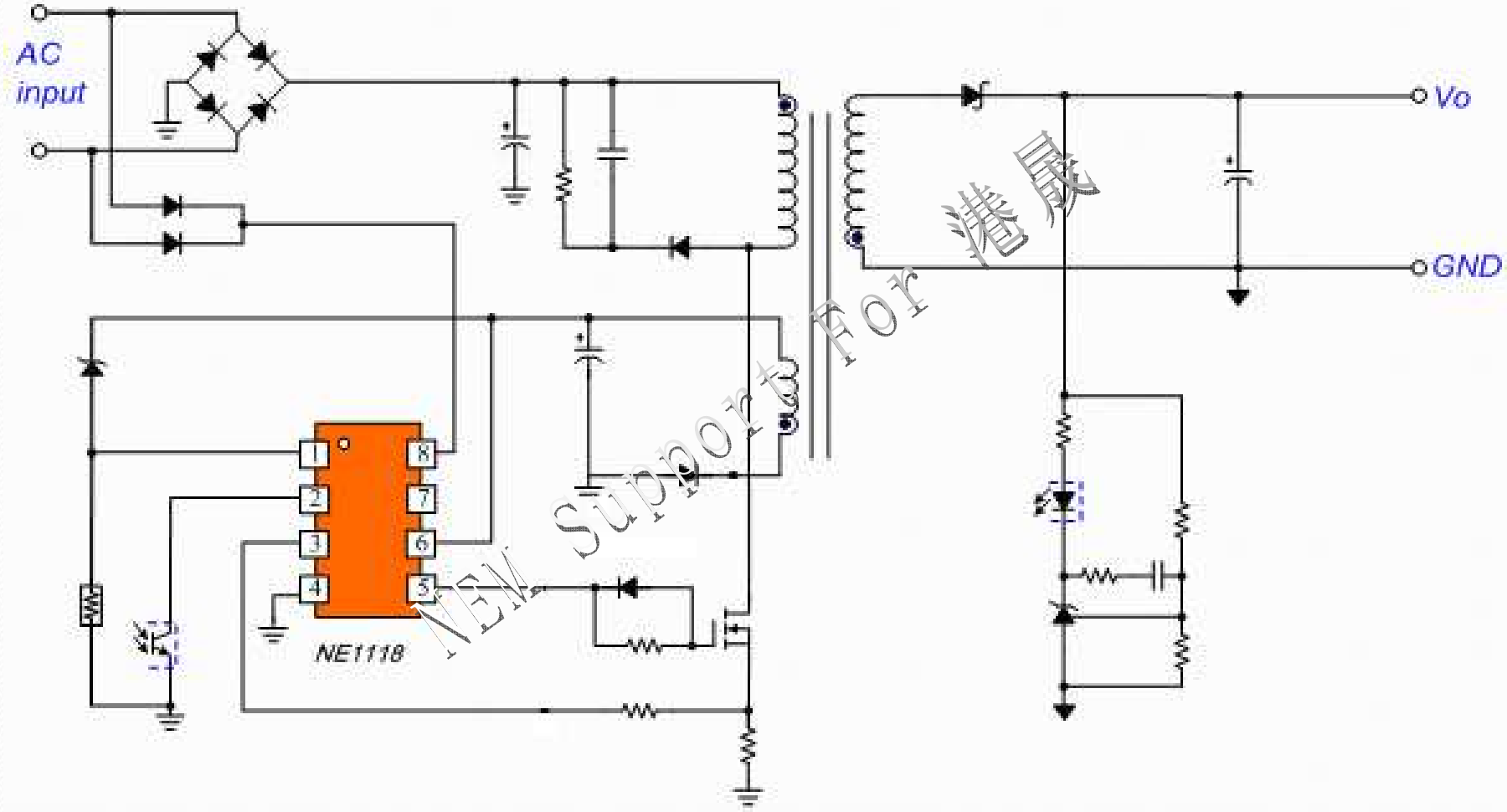
Advantages

- ✓ *Power boost in a specific period*
- ✓ *Increased frequency during peak load operation to avoid transformer saturation.*
- ✓ *Various functions on HV pin*
  - *Supplemental bias charging from HV pin*
  - *HV start-up circuit for lower power consumption.*
  - *Internal Brown-in/ out.*
  - *X-cap discharge.*
- ✓ *Protection for LPS.*

Package



Typical Application



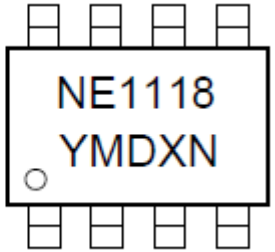
引腳分配及封裝

Pin Assignment

Pin Name	Pin no.	Function Description
Pro	**1**	保護腳
FB	**2**	電壓回饋腳，連接一個光耦控制輸出電壓
CS	**3**	電流檢測
GND	**4**	地
GATE	**5**	驅動腳
VCC	**6**	供電腳
NC	**7**	懸空腳
HV	**8**	帶X Cap 放電功能的高壓啟動腳

Package : SOT-26

NE1118= Device
Y=YEAR
M=Month
D=Date
X=Assembly Info.
N=Serial No.



PSU Specifications

Input Characteristics

Rated Input Voltage: 90~264Vac

- ■Frequency Range: 47~63Hz:
- ■Efficiency: Eff.> 87.4% @115V/230Vac, Po=36W
- ■BI/Bo:85Vac/75Vac;BO Delay time:<30mS
- ■X-Discharge:<1Sec

Output Characteristics

Operating Voltage : 12V

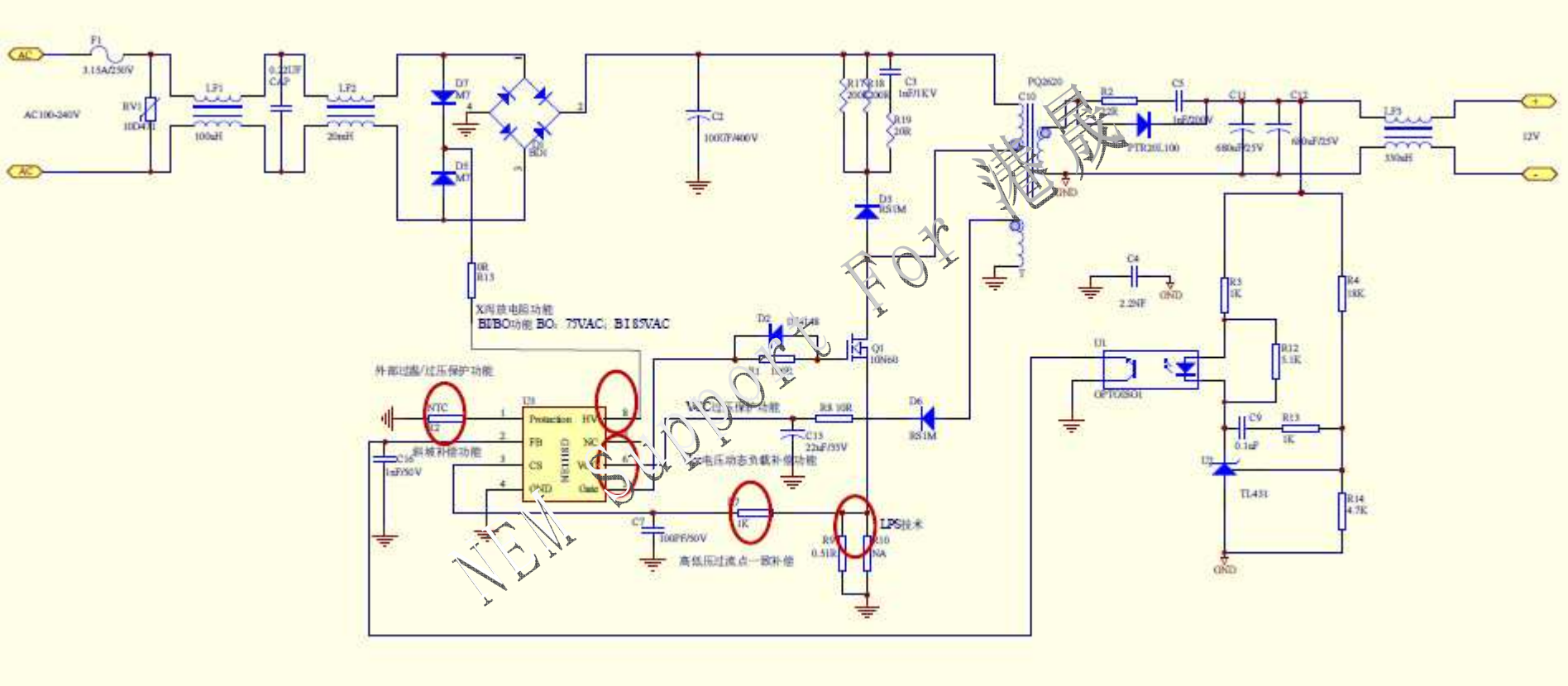
- ■Normal Current: 3A
- ■Rated Power: 36W
- ■Minimum Output Voltage: 11.75V@ Io=3A, Vin=264Vac/47Hz
- ■Dynamic loading Response:Vout+-0.6V
- ■Output over/under shoot:<5%Vout
- ■Turn On Delay/Turn off Delay/DC Rise/Fall Time:
  Turn on time(<1Sec)@115VAac
  Turn off time(<30mS)@115Vac/230Vac
  Rise/fall time(<40mS)
- ■Over Current Protection: 3.5-3.75A;
- ■Over Current Protection delay time<20mS

CoC V5.0 tier 2 and DOE V6

COC V5.0 tier 2 : Standby <75mW,Eff>87.4%;
DOE V6.0:Standby<100mW,Eff>87.4%;

12V3A Demo Board Picture

NE1118 Schematic



12V3A Demo Board Performance

Efficiency:

Output voltage is measured at the end of 18# 1.5m Wire（Burn-in 10 Minutes);

Input	Pi (W)	Vo (V)	Io (A)	Po (W)	EFF.	AVG. EFF.
115V 60Hz	41.26	11.985	3.000	35.954	87.14%	87.96%
	30.86	12.058	2.250	27.131	87.92%	
	20.6	12.132	1.500	18.197	88.34%	
	10.348	12.205	0.750	9.154	88.46%	
230V 50Hz	41.14	11.984	3.000	35.951	87.39%	87.87%
	30.77	12.059	2.250	27.133	88.18%	
	20.54	12.132	1.500	18.198	88.60%	
	10.48	12.203	0.750	9.153	87.33%	

12V3A Demo Board Performance

No load and light load consumption

Input	Pi (W)	Vo (V)	Io (A)	Po (W)	EFF.
90V 60Hz	0.029	12.283	0.000	0.000	N/A
	0.348	12.285	0.021	0.258	74.13%
	0.481	12.285	0.030	0.372	77.38%
	4.177	12.259	0.295	3.610	86.43%
115V 60Hz	0.031	12.285	0.000	0.000	N/A
	0.349	12.285	0.021	0.258	73.92%
	0.483	12.246	0.030	0.371	76.82%
	4.184	12.258	0.295	3.610	86.28%
230V 50Hz	0.045	12.286	0.000	0.000	N/A
	0.379	12.285	0.021	0.258	68.07%
	0.518	12.284	0.030	0.372	71.86%
	4.359	12.256	0.295	3.610	82.81%
264V 50Hz	0.048	12.286	0.000	0.000	N/A
	0.391	12.285	0.021	0.262	66.92%
	0.536	12.284	0.030	0.372	69.44%
	4.463	12.256	0.295	3.609	80.87%

12V3A Demo Board Performance

Brown out Delay time:

Vin(Vac)	Freq(Hz)	Loading (A)	Spec Max. (mS)	Spec Min. (mS)	Reading (ms)	Result
90	60	3.00	30.00		20.02	PASS
115	60	3.00	30.00		20.22	PASS
230	50	3.00	30.00		20.20	PASS
264	50	3.00	30.00		20.42	PASS

Over Current Delay time:

Vin(Vac)	Freq(Hz)	Loading (A)	Spec Max. (mS)	Spec Min. (mS)	Reading (ms)	Result
90	60	3.00	20.00		16.72	PASS
115	60	3.00	20.00		16.56	PASS
230	50	3.00	20.00		16.80	PASS
264	50	3.00	20.00		16.48	PASS

12V3A Demo Board Performance

Regulation Measurement:

Vin (Vac)	Fin (Hz)	Power (W)	Loading (A)	Vout (V)	Result
90	47	0.16	0.013	12.283	PASS
90	47	35.76	3.000	11.983	PASS
115	60	0.16	0.013	12.285	PASS
115	60	35.76	3.000	11.984	PASS
230	50	0.16	0.013	12.286	PASS
230	50	35.76	3.000	11.985	PASS
264	63	0.16	0.013	12.286	PASS
264	63	35.76	3.000	11.985	PASS

Ripple reading:

Vin (Vac)	Fin (Hz)	Initial Load(A)	Vpp max (mV)	Vpp Reading (mV)	Result
90	60	0.000	250	26.0	PASS
90	60	3.000	250	64.0	PASS
115	60	0.000	250	26.8	PASS
115	60	3.000	250	56.0	PASS
230	50	0.000	250	28.0	PASS
230	50	3.000	250	56.8	PASS
265	50	0.000	250	28.0	PASS
265	50	3.000	250	56.4	PASS

12V3A Demo Board Performance

X-cap Discharge Measurement:

Vin(Vac)	Freq(Hz)	Loading (A)	Spec Max. (mS)	Spec Min. (mS)	Reading (ms)	Result
90	60	3.00	1000.00		45.23	PASS
115	60	3.00	1000.00		49.23	PASS
230	50	3.00	1000.00		203.2	PASS
264	50	3.00	1000.00		345.2	PASS

OCP Measurement:

Vac (V)	f (Hz)	OCP Reading (A)	%
90	**47**	3.550	**118.33%**
115	**60**	3.780	**126.00%**
230	**50**	3.730	**124.33%**
264	**63**	3.700	**123.33%**

Sales and Technical supports

- Design-in documents:
  - Reference design schematics
  - PCB layout Gerber files
  - BOM
  - Mathcad external component calculation tool
- **一级代理商 深圳港晟电子 郭先生 QQ:403920015 glf680409@163.com**
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