

# ZETTLER MAGNETICS

厦门赛特勒磁电有限公司

# ZETTLER MAGNETICS

电源模块 | POWER MODULES



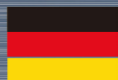
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## 公司介绍 COMPANY PROFILE

赛特勒磁电公司作为专业从事电子变压器研发和生产的行业专家，我们始终以市场需求为导向，提供密封变压器、开关电源模块、高频变压器、低频变压器、电流互感器、环形变压器和工字型电感器等一系列产品，并着重于开发环保，高效，轻便，安全，经济的电源产品。我们的客户覆盖了许多全球知名家电、通讯、工业电子设备等领域的品牌。

实力雄厚、经验丰富的研发设计队伍使我们可以最短的时间内完成对各种类型和规格的产品的设计和开发，并在性能符合各国认证要求的前提下满足不同客户的独特要求。公司绝大部分产品取得VDE、UL、CUL、CQC认证，符合EN61558、EN60950和UL1585、UL506标准。

同时，我们拥有特制的自动化设备、成功的生产运营管理经验、ISO9001质量管理体系认证等完善的质量控制模式和大型综合实验室以及ISO14001环境管理体系认证，能最大程度地保证我们产品生产工艺的稳定性和品质的可靠性。

As an dynamic and market-oriented industrial enterprise, Zettler Magnetics specializes in the development, engineering and production of environmentally friendly, safe, portable, highly efficient and economic power solutions - providing a wide range of transformer products including Encapsulated Power Transformers, Switch-Mode Power Supply Modules, Ferrite Switching Transformers, Laminated Transformers, Current Sensor Transformers, Toroidal Transformers, Drum Core Choke. We serve customers across the globe in many industries and application segments (such as Home Appliance, Communication, Industrial Electronic Products), including many well-known global brands.

Our experienced engineering team will complete even demanding custom product designs on short notice to meet customer specific requirements and comply with all pertinent safety standards. Most of our products carry the required VDE/UL/CUL/CQC approvals and are fully compliant with EN61558, EN60950, UL1585 and UL506.

Our production facilities are equipped with special-design automatic production lines, operated by a management team and staff with deep manufacturing experience, sophisticated quality assurance processes, ISO 9001 compliance, a comprehensive testing lab and in compliance with ISO14001.

## 典型应用 APPLICATION



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技术信息 **TECHNICAL INFORMATION**

● 电源调整率 **Line Regulation**

电源模块在输入电压变化时, 提供稳定输出电压的能力, 用来验证电源模块在最恶劣的电源电压环境下, 输出电压的稳定度是否满足需求。  
The power module provides the ability to stabilize the output voltage when the input voltage changes, which is used to verify whether the stability of the output power supply is able to meet in the worst power supply voltage environment.

● 负载调整率 **Load Regulation**

开关电源在输出负载电流变化时, 提供稳定输出电压的能力, 用来验证电源在最恶劣的负载环境下, 输出电压的稳定度是否满足需求。  
Switching power supply provides the ability to stabilize the output voltage when the output load current changes, which is used to verify the power supply in the worst load environment, the stability of the output power supply to meet the demand.

● 输出纹波及噪音 **Output Ripple & Noise**

输出纹波指在输入电压与输出负载电流均不变的情况下, 其平均直流输出电压上的周期性随机性偏差量的电压值。输出噪音是表示在经过稳压及滤波后的直流输出电压上所有不需要的噪音部分(包括低频之50/60HZ)电源倍频信号, 高于20KHZ之高频切换信号及其谐波, 再与其随机性信号所组成), 通常以MVP-P峰值电压为单位来表示)

PARD (Periodic And Random Deviations) refers to periodicity of average DC voltage and the voltage value of random deviation under the condition of unchanged input voltage and output-load current. Output noise is all unnecessary noise in the DC output voltage which is through voltage stabilization and filtration, including low frequency 50/60HZ power supply frequency-doubled signal, high frequency switching signal (higher than 20KHZ ) and its harmonic, and other random signals. Generally it is expressed in MVP-P peak voltage.

● 电源的输入功率 **Input Power**

True Power =  $P_{av}(\text{watt}) = V_1 I_1 \text{ dt} = V_{rms} \times I_{rms} \times \text{Power Factor}$   
对一周期内其输入电压与电流乘积之积分值

● 电源的效率 **Efficiency**

$\Sigma V_{out} \times I_{out} / \text{True Power (watts)}$   
输出直流功率之总和与输入功率之比值

● 保护动作 **Protections**

过电压保护 (OVP, Over Voltage Protection)

当电源供应器的输出电压超过其最大的限定电压时, 会将其输出关闭以避免损坏负载电路元件。  
When the output voltage of the power supply exceeds the maximum limit voltage, the output of the power supply Shut down to avoid damaging the load circuit element.

短路保护 (Short-Circuit Protection)

当电源供应器的输出短路时, 则电源供应器应该限制其输出电流或关闭其输出, 以避免损坏。  
When the output current of power supply exceeds rated current, the power supply should limit its output current or shut down its output to avoid damage by overloaded current.

过流保护 (OCP, Over Current Protection)

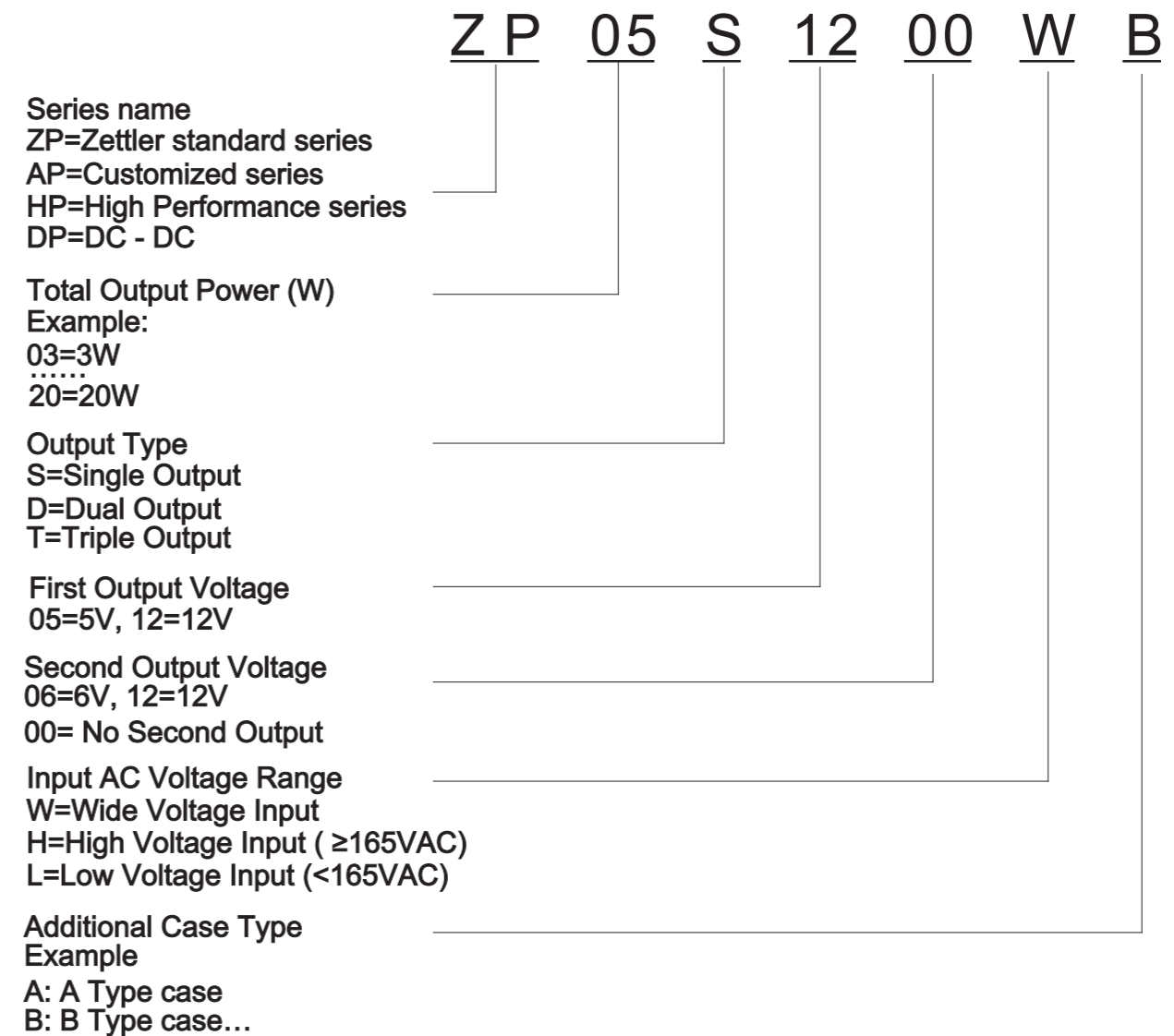
当电源供应器的输出电流超过额定值时, 则电源供应器应该限制其输出电流或关闭其输出, 以避免负载电流过大而损坏。  
When the output of the power supply is short, the power supply should limit its output current or shut down its output to avoid damage.

过功率保护 (OPP, Over Power Protection)

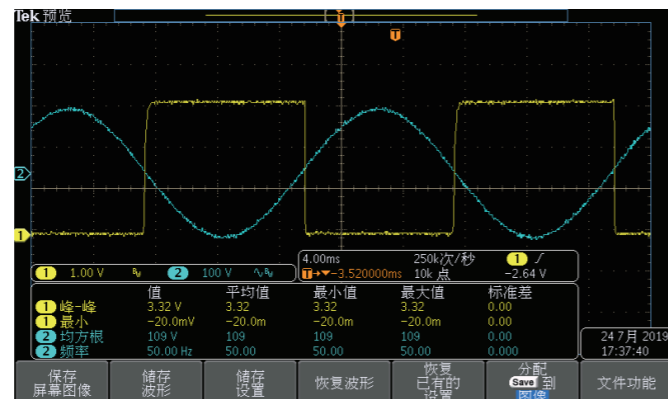
当电源的输出功率(可为单一输出或多组输出)超过额定值时, 则电源应该限制其输出功率或关闭其输出, 以避免负载功率过大而损坏或发生危险。  
When the output power (single output or multi outputs ) exceeds rated power, power supply should limit output power or shut down output to avoid damages by overload power.



命名规则 **ORDERING CODE**



## HP-X SERIES:[ 1-3W ]



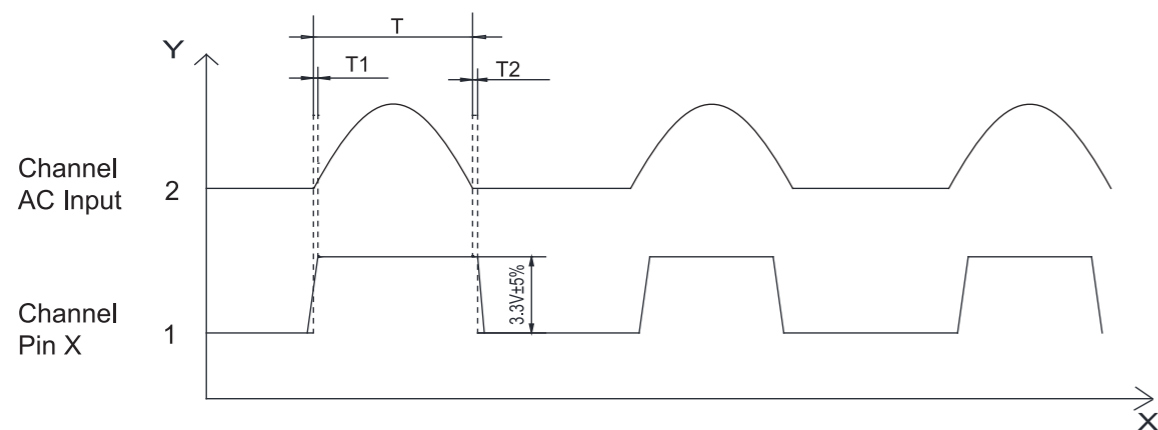
### 过零信号 ZERO CROSS SIGNAL

定义：交流电的电压大小是随时间的变化而不断变化的，在各种控制电路中为了实现调压、调速或导通时间的目的，需要一个基准点作为起点，这个起点就是交流电源电压为0时的瞬间。过零检测就是要在交流电压为0时向控制电路发出一个信号，称为过零信号。

Definition: The AC voltage is synchronized by the changing of time, to achieve the regulation of voltage, speed and start time in various of circuits, It requires a baseline as a starting point which is the moment when the AC voltage at 0V. The Zero cross detection is to send out a signal to the control circuit when the AC voltage is 0V.

### TEST SCHEMATIC

### 测试原理:



T: Half of AC input voltage frequency period  
T1: Pulse rising phase shift  
T2: Pulse dropping phase shift

### 过零信号检测的作用 ZERO CROSS FUNCTION

- 可以通过检测过零信号，产生脉冲，来控制导通时间，以达到控制启动时输出功率的大小，以减少启动时的功率损耗，延长功率器件的寿命。  
Sending pulsing by receiving zero cross signal is to manage the start time, so as to control the output power and reduce the power loss at start-up, which can prolong the lifespan of power devices.
- 可以通过过零信号改变控制角或导通角，改变负载上脉冲直流电压的平均值，实现可控整流。  
Controlling the control angles and conduction angles by receiving zero cross signal is to change the average value of pulse DC voltage, so as to achieve a controlled rectification.
- 可以广泛应用于控制电机的转速，LED的调光，继电器的吸合时间等自动控制产品上。  
It can be widely applied in products which use automatic control such as motor speed, LED dimming, the pick-up time of relay and so on.

## HP01-X SERIES:[ 1W ]



Pending till 2020

### FEATURES

- PCB mounted switching power module
- AC input voltage range: 85VAC~305VAC
- DC input voltage range: 100VDC~430VDC
- Operating temperature range: -25°C ~ 70°C
- Storage temperature range: -25°C ~ 85°C
- Leakage current(input:305VAC): <0.25mA
- Isolation voltage: Input-Output ≥3000Vac 60S
- Insulation Resistance:Input-Output 500VDC ≥100M Ohms
- MTBF(at 25°C 70%RH environment): >300000hrs
- Easy installation compact size
- High efficiency, low standby power consumption, green environmental protection
- Built-in output over current protection, over-voltage protection, short circuit protection function.
- Built-in EMI filter components, comply with the EN55032 Class B standard.
- Insulation: Class II

### 产品特点:

- 可用在PCB上插装的电源模块
- 交流输入电压范围: 85VAC~305VAC
- 直流输入电压范围: 100VDC~430VDC
- 工作环境温度范围: -25°C ~ 70°C
- 储存温度范围: -25°C ~ 85°C
- 漏电流(输入电压:305VAC): <0.25mA
- 绝缘电压: 输入-输出 ≥3000Vac 60S
- 绝缘电阻: 输入-输出 500VDC ≥100M Ohms
- MTBF(25°C 70%RH): >300000hrs
- 体积小 便于安装
- 高效率, 低待机功耗, 绿色环保
- 内置输出过流保护, 过压保护, 短路保护功能。
- 内置EMI滤波元器件, 裸机可以满足EN55032 Class B
- 安全等级: Class II

### 应用 APPLICATIONS

该系列产品在LED、灯光控制，仪表、通讯、智能家居及民用等多个领域都有重要的应用，当应用于电磁兼容比较恶劣的环境时必须参考应用电路。

This series could be widely applied in the LED, lighting control, instrument, smart home and other home appliance. If necessary, please refer to application circuit to improve EMC performance.

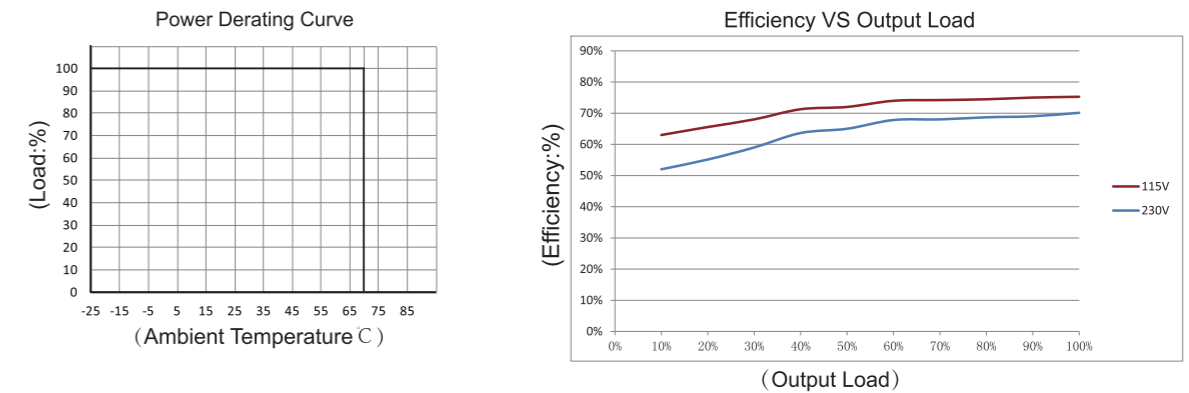
### 型号列表 MODEL LIST

Part No.	Output Power	DC Voltage	Rated Current	Efficiency 230VAC, % Typ.	Ripple&Noise (max)	Ambient TEMP(°C)	Weight	UL
HP01S0500WI-X	1W	5Vdc	200mA	55%	300mVp-p	70	20g	●
HP01S0700WI-X	1W	7.5Vdc	133mA	55%	300mVp-p	70	20g	●
HP01S0900WI-X	1W	9Vdc	111mA	55%	300mVp-p	70	20g	●
HP01S1000WI-X	1W	10Vdc	100mA	55%	400mVp-p	70	20g	●
HP01S1200WI-X	1W	12Vdc	83mA	55%	400mVp-p	70	20g	●
HP01S1500WI-X	1W	15Vdc	67mA	55%	400mVp-p	70	20g	●
HP01S1800WI-X	1W	18Vdc	55mA	55%	400mVp-p	70	20g	●

电性能 **ELECTRONIC SPECIFICATION**

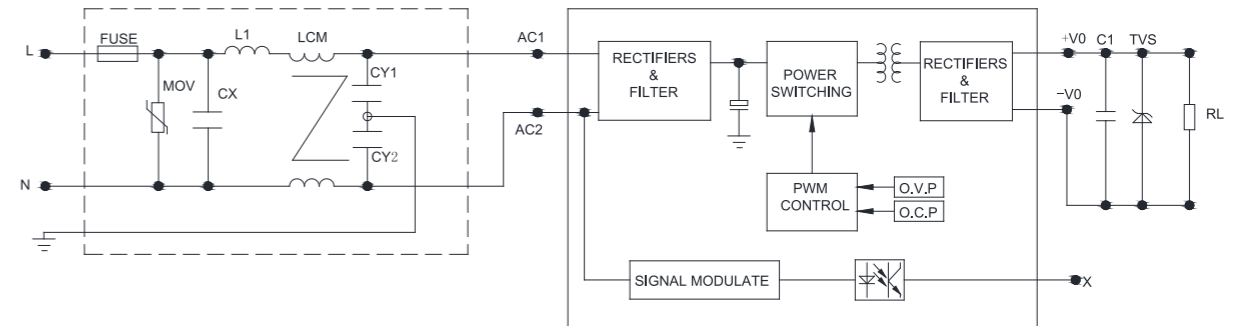
项目 Item		规格 Specification		
输入 Input	输入电压范围 Input Voltage Range	85~305Vac or 100~430Vdc		
	输入频率范围 AC Input Frequency Range	47~63Hz		
	输入电流 Input Current	115Vac	230Vac	277Vac
		25mA	18mA	15mA
	冲击电流 Inrush Current	115Vac	230Vac	
		6A	10A	
	待机功耗 Stand-by Power Consumption	0.1W Max		
外接保险管推荐值 Recommended External Input Fuse	2A/350V 慢断(slow fusing)			
热插拔 Hot Plug	不支持(Unavailable)			
输出 Output	输出电压精度 Output Voltage Accuracy	±5%		
	线性调节率 Line Regulation	±0.5%		
	负载调节率 Load Regulation	±0.5%		
	温度漂移系数 Temperature Drift Factor	±0.03%/°C (0-85°C)		
	最小负载 Min. Load	0		
	开机上升时间 Set-Up time	≤50ms/230Vac, ≤30ms/115Vac		
	掉电保持时间(典型值) Hold-up Time	≤40ms/230Vac, ≤12ms/115Vac		
保护特性 Protection Characteristics	过流保护 Over-Circuit Protection	≥120%Io 自恢复 Self-recovery		
	短路保护 Short Circuit Protection	打隔式,可长期短路,自恢复 Hiccup,continuous,self-recovery		
环境 Ambient	工作温度 Operation Temperature	-25°C ~ 70°C		
	工作湿度 Operation Humidity	10~90% RH (无冷凝 No Condensing) @full load		
	存储温度 Storage Temperature	-25°C ~ 85 °C		
	存储湿度 Storage Humidity	5%~95%		
安全&EMC Safety&EMC requirement	绝缘强度 Dielectric Strength	Input-Output ≥3000Vac 1mA 60S		
	设计参考标准 Design base on Safety Standards	IEC/UL 62368 IEC/UL60950 IEC/EN 61558		
	内置 EMI filter	传导骚扰 CE	Meet EN55032 CLASS B	
辐射骚扰 RE		Meet EN55032 CLASS B		
可靠性 Reliability Requirement	MTBF(MIL-HDBK-217-F2)	300Khrs Min @230VAC input 25°C		
	老化测试 Burn-In Test	输入 264Vac, 常温满载老化 2~5 小时 The unit shall be burned in for 2~5 hours under 264Vac input and DC with full load at normal temperature		

产品特性曲线 **PRODUCT CHARACTERISTIC CURVE**



典型应用电路 **TYPICAL APPLICATION SCHEMATICS**

HP01SXXXXWI-X

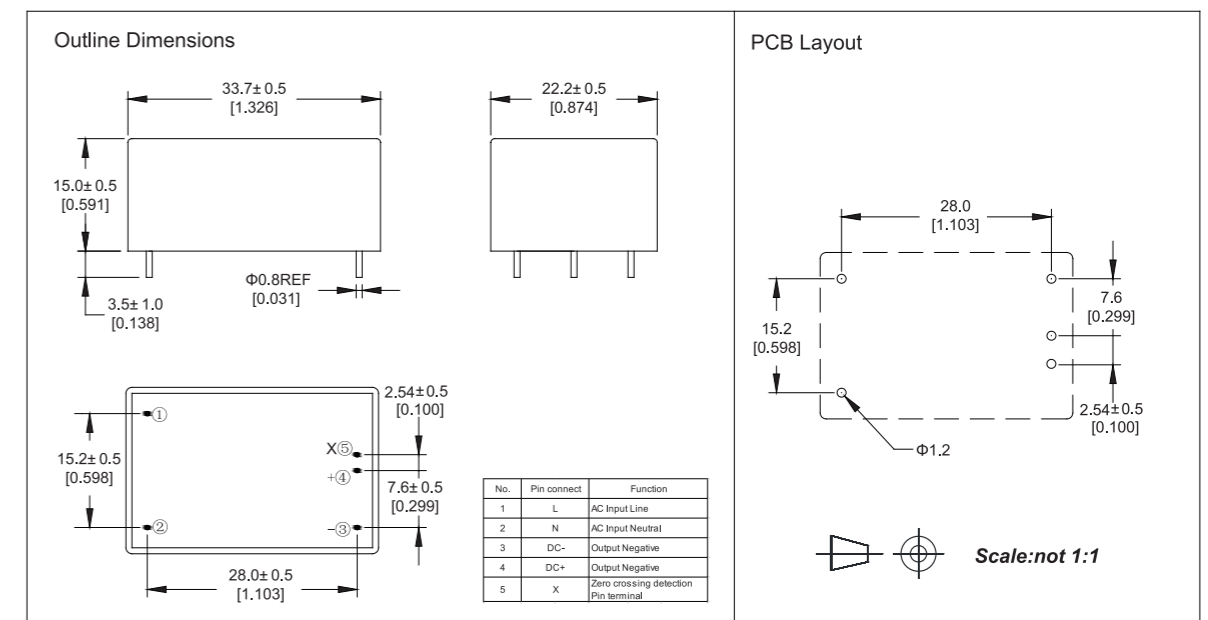


**Note:** The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

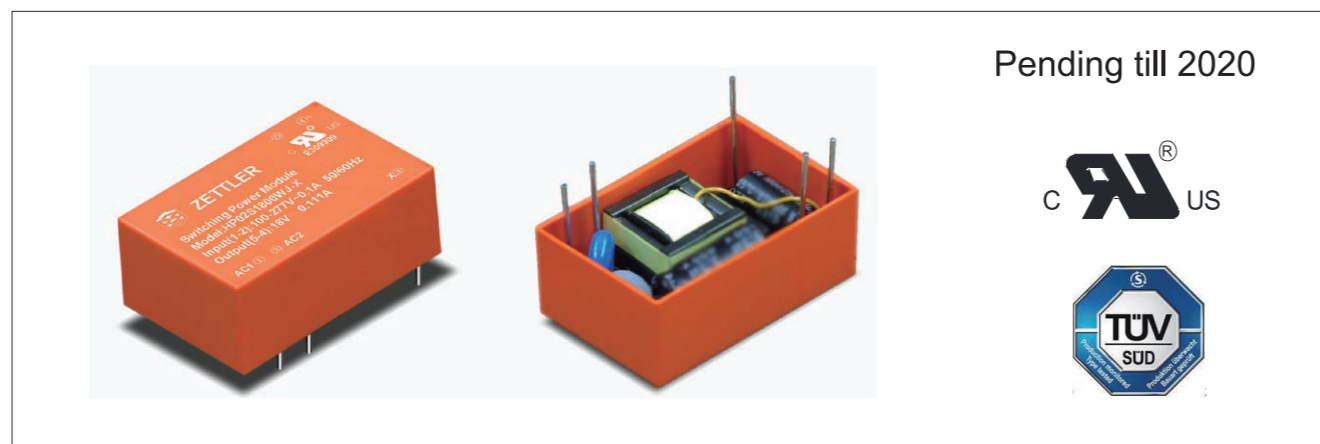
**Optional recommendations on external components:**

- C1 from output filter is electrolytic capacitor, High frequency low resistance capacitance is recommended; withstand voltage derating over 80%.
- C2 from output filter is ceramic capacitor, to remove high frequency noise.
- TVS from output filter is to protect the rear circuit.
- Fuse from input filter is to meet safety requirement. Type:1A/310V Slow-Blow.

尺寸图 **MECHANICAL SPECIFICATION**



## HP02-X SERIES: [ 2W ]



### FEATURES

- PCB mounted switching power module
- AC input voltage range: 85VAC~305VAC
- DC input voltage range: 100VDC~430VDC
- Operating temperature range: -25°C ~ 70°C
- Storage temperature range: -25°C ~ 85°C
- Leakage current(input:305VAC): <0.25mA
- Isolation voltage: Input-Output ≥3000Vac 60S
- Insulation Resistance:Input-Output 500VDC ≥100M Ohms
- MTBF(at 25°C environment): >300000hrs
- Easy installation compact size
- High efficiency, low standby power consumption, green environmental protection
- Built-in output over current protection, over-voltage protection, short circuit protection.
- Built-in EMI filter , comply with the EN55032 Class B standard.
- Insulation: Class II

### 产品特点:

- 可用在PCB上插装的电源模块
- 交流输入电压范围: 85VAC~305VAC
- 直流输入电压范围: 100VDC~430VDC
- 工作环境温度范围: -25°C ~ 70°C
- 储存温度范围: -25°C ~ 85°C
- 漏电流(输入电压:305VAC): <0.25mA
- 绝缘电压: 输入-输出 ≥3000Vac 60S
- 绝缘电阻: 输入-输出 500VDC ≥100M Ohms
- MTBF(25°C 70%RH): >300000hrs
- 体积小 便于安装
- 高效率, 低待机功耗, 绿色环保
- 内置输出过流保护, 过压保护, 短路保护功能。
- 内置EMI滤波元器件, 裸机可以满足EN55032 Class B
- 安全等级: Class II

### 应用 APPLICATIONS

该系列产品在LED、灯光控制, 仪表、通讯、智能家居及民用等多个领域都有重要的应用, 当应用于电磁兼容比较恶劣的环境时必须参考应用电路。

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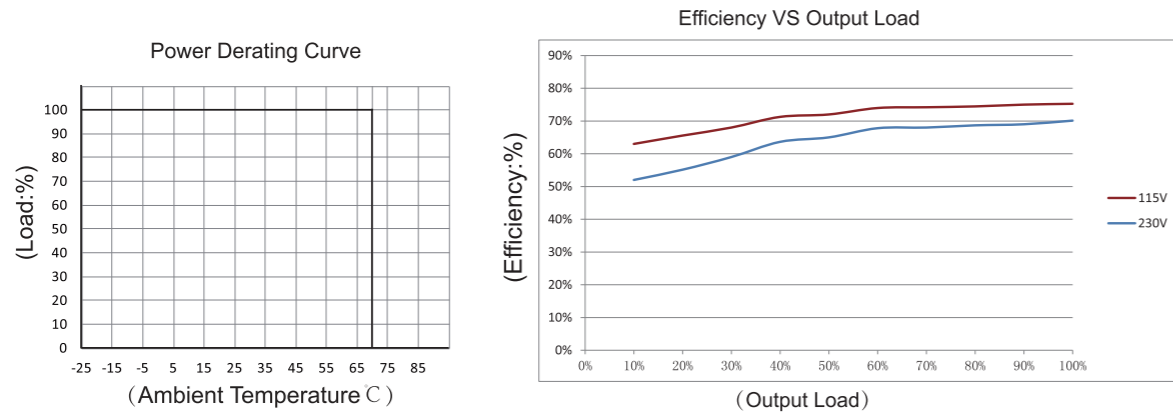
### 型号列表 MODEL LIST

Part No.	Output Power	DC Voltage	Rated Current	Efficiency 230VAC, % Typ.	Ripple&Noise (max)	Ambient TEMP(°C)	Weight	UL
HP02S0500WJ-X	1W	5Vdc	400mA	70%	300mVp-p	70	30g	
HP02S0900WJ-X	1W	9Vdc	222mA	70%	300mVp-p	70	30g	
HP02S1200WJ-X	1W	12Vdc	166mA	70%	400mVp-p	70	30g	
HP02S1500WJ-X	1W	15Vdc	133mA	69%	400mVp-p	70	30g	●
HP02S1800WJ-X	1W	18Vdc	111mA	70%	400mVp-p	70	30g	●
HP02S2400WJ-X	1W	24Vdc	83mA	70%	400mVp-p	70	30g	

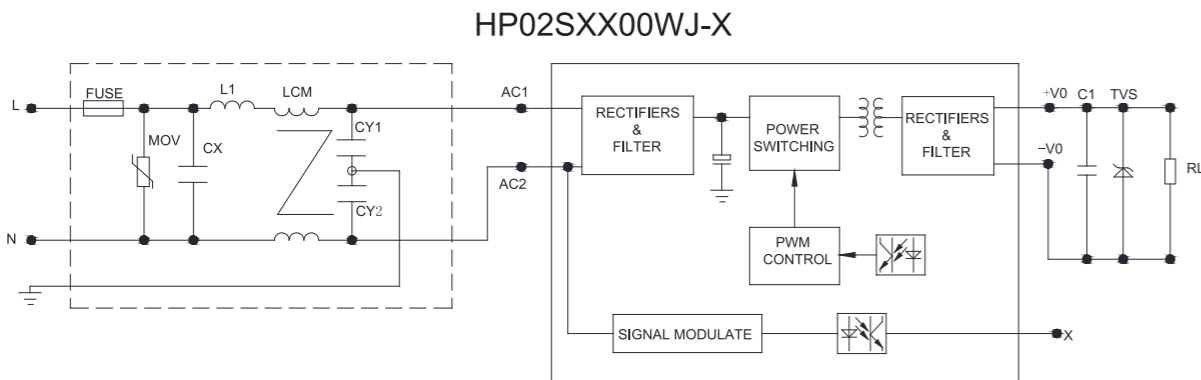
### 电性能 ELECTRONIC SPECIFICATION

项目 Item		规格 Specification		
输入 Input	输入电压范围 Input Voltage Range	85~305Vac or 100~430Vdc		
	输入频率范围 AC Input Frequency Range	47~63Hz		
	输入电流 Input Current	115Vac	230Vac	277Vac
		25mA	18mA	15mA
	冲击电流 Inrush Current	115Vac	230Vac	
		6A		10A
	待机功耗 Stand-by Power Consumption	0.1W Max		
外接保险管推荐值 Recommended External Input Fuse	2A/350V 慢断(slow fusing)			
热插拔 Hot Plug	不支持(Unavailable)			
输出 Output	输出电压精度 Output Voltage Accuracy	±3%		
	线性调节率 Line Regulation	±0.5%		
	负载调节率 Load Regulation	±0.5%		
	温度漂移系数 Temperature Drift Factor	±0.03%/°C ( 0-85°C )		
	最小负载 Min. Load	0		
	开机上升时间 Set-Up time	≤50ms/230Vac , ≤30ms /115Vac		
	掉电保持时间(典型值) Hold-up Time	≤40ms/230Vac , ≤12ms /115Vac		
保护特性 Protection Characteristics	过流保护 Over-Circuit Protection	≥120%Io 自恢复 Self-recovery		
	短路保护 Short Circuit Protection	打隔式,可长期短路,自恢复 Hiccup,continuous,self-recovery		
环境 Ambient	工作温度 Operation Temperature	-25°C ~ 70°C		
	工作湿度 Operation Humidity	10~90% RH (无冷凝 No Condensing) @full load		
	存储温度 Storage Temperature	-25°C ~ 85 °C		
	存储湿度 Storage Humidity	5%~95%		
安全&EMC Safety&EMC requirement	绝缘强度 Dielectric Strength	Input-Output ≥3000Vac 1mA 60S		
	设计参考标准 Design base on Safety Standards	IEC/UL 62368 IEC/UL60950 IEC/EN 61558		
	内置 EMI Built-in EMI filter	传导骚扰 CE	Meet EN55032 CLASS B	
辐射骚扰 RE		Meet EN55024 CLASS B		
可靠性 Reliability Requirement	MTBF(MIL-HDBK-217-F2)	300Khrs Min @230VAC input 25°C		
	老化测试 Burn-In Test	输入 264Vac ,常温满载老化 2~5 小时 The unit shall be burned in for 2~5 hours under 264Vac input and DC with full load at normal temperature		

产品特性曲线 **PRODUCT CHARACTERISTIC CURVE**



典型应用电路 **TYPICAL APPLICATION SCHEMATICS**

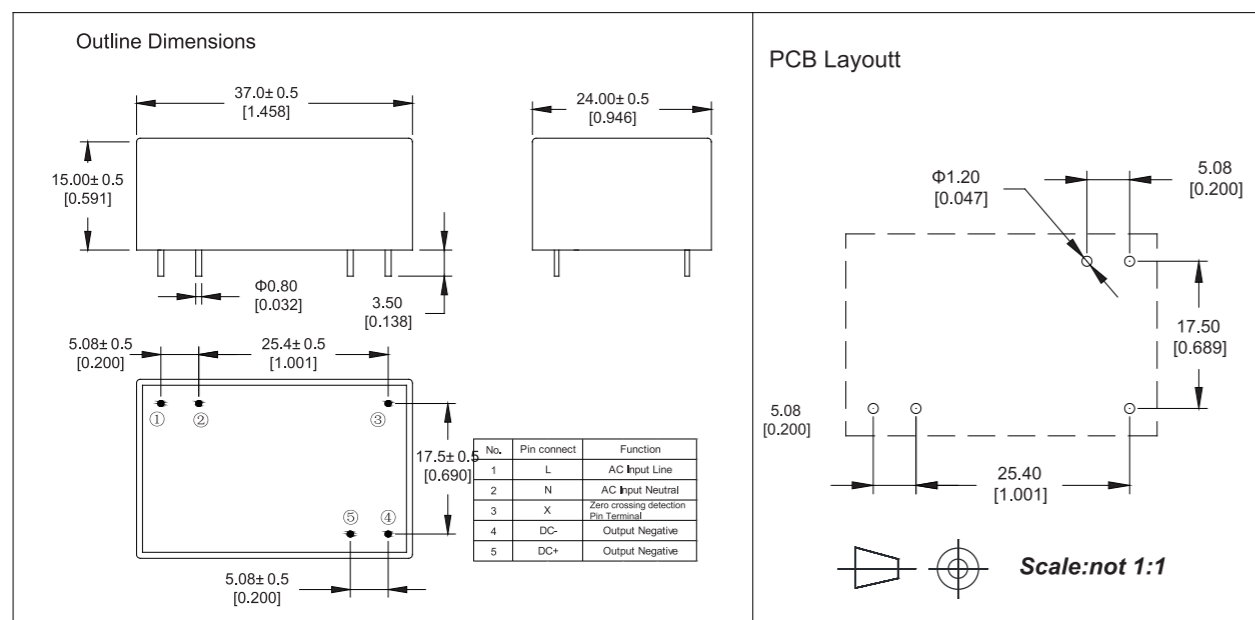


**Note:** The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

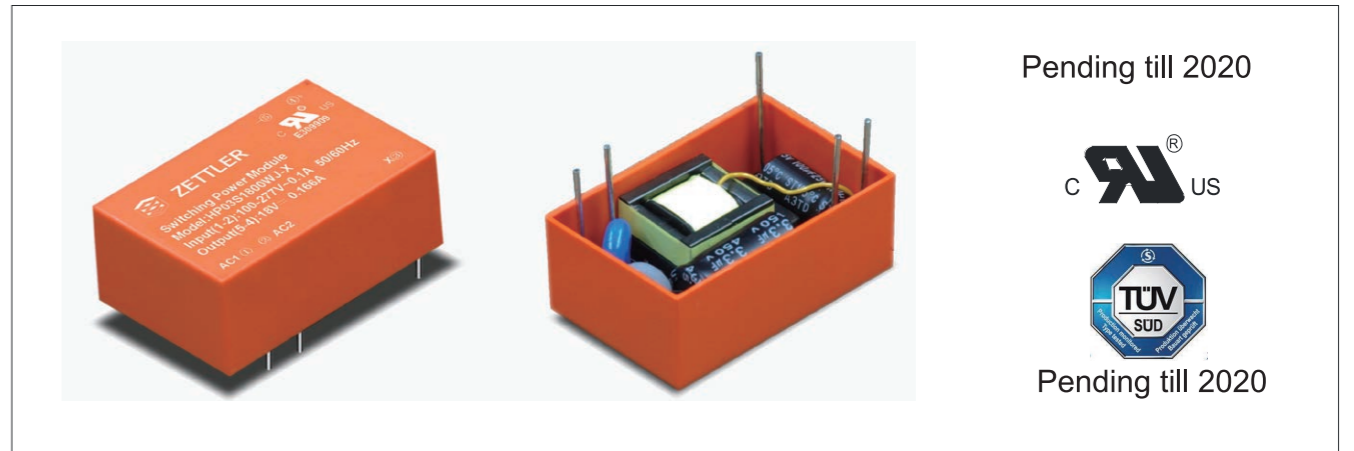
**Optional recommendations on external components:**

- C1 from output filter is electrolytic capacitor, High frequency low resistance capacitance is recommended; withstand voltage derating over 80%.
- C2 from output filter is ceramic capacitor, to remove high frequency noise.
- TVS from output filter is to protect the rear circuit.
- Fuse from input filter is to meet safety requirement. Type:1A/310V Slow-Blow.

尺寸图 **MECHANICAL SPECIFICATION**



**HP03-X SERIES: [ 3W ]**



Pending till 2020



Pending till 2020

**FEATURES**

- PCB mounted switching power module
- AC input voltage range: 85VAC~305VAC
- DC input voltage range: 100VDC~430VDC
- Operating temperature range: -25°C ~ 70°C
- Storage temperature range: -25°C ~ 85°C
- Leakage current(input:305VAC): <0.25mA
- Isolation voltage: Input-Output ≥3000Vac 60S
- Insulation Resistance:Input-Output 500VDC ≥100M Ohms
- MTBF(at 25°C environment): >300000hrs
- Easy installation compact size
- High efficiency, low standby power consumption, green environmental protection
- Built-in output over current protection, over-voltage protection, short circuit protection.
- Built-in EMI filter, comply with the EN55032 Class B standard.
- Insulation: Class II

**产品特点:**

- 可用在PCB上插装的电源模块
- 交流输入电压范围: 85VAC~305VAC
- 直流输入电压范围: 100VDC~430VDC
- 工作环境温度范围: -25°C ~ 70°C
- 储存温度范围: -25°C ~ 85°C
- 漏电流(输入电压:305VAC): <0.25mA
- 绝缘电压: 输入-输出 ≥3000Vac 60S
- 绝缘电阻: 输入-输出 500VDC ≥100M Ohms
- MTBF(25°C 70%RH): >300000hrs
- 体积小 便于安装
- 高效率, 低待机功耗, 绿色环保
- 内置输出过流保护, 过压保护, 短路保护功能。
- 内置EMI滤波元器件, 裸机可以满足EN55032 Class B
- 安全等级: Class II

**应用 APPLICATIONS**

该系列产品在LED、灯光控制, 仪表、通讯、智能家居及民用等多个领域都有重要的应用, 当应用于电磁兼容比较恶劣的环境时必须参考应用电路。

This series could be widely applied in the LED, lighting control, instrument, smart home and other home appliance. If necessary, please refer to application circuit to improve EMC performance.

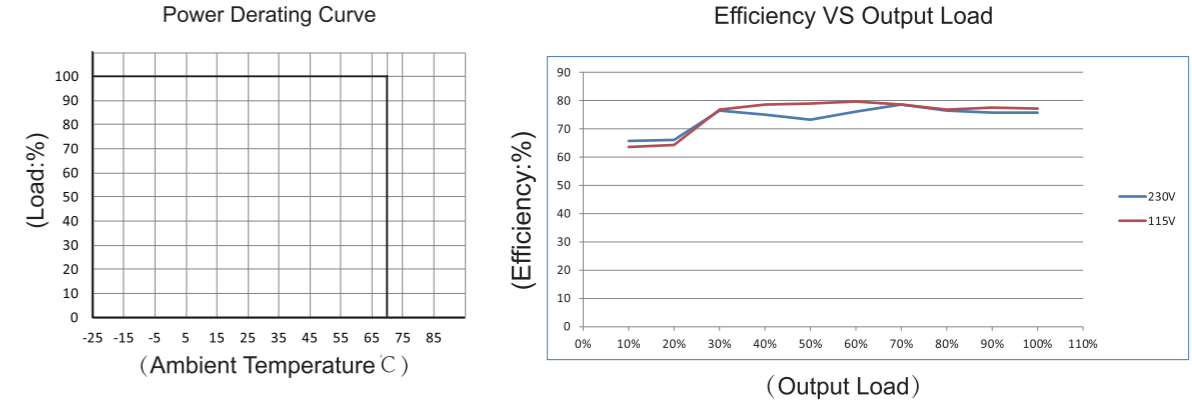
**型号列表 MODEL LIST**

Part No.	Output Power	DC Voltage	Rated Current	Efficiency 230VAC, % Typ.	Ripple&Noise (max)	Ambient TEMP(°C)	Weight	UL
HP03S0500WJ-X	1W	5Vdc	600mA	70%	300mVp-p	70	30g	
HP03S0900WJ-X	1W	9Vdc	333mA	70%	300mVp-p	70	30g	
HP03S1200WJ-X	1W	12Vdc	250mA	70%	400mVp-p	70	30g	
HP03S1500WJ-X	1W	15Vdc	200mA	70%	400mVp-p	70	30g	●
HP03S1800WJ-X	1W	18Vdc	167mA	70%	400mVp-p	70	30g	●
HP03S2400WJ-X	1W	24Vdc	125mA	70%	400mVp-p	70	30g	

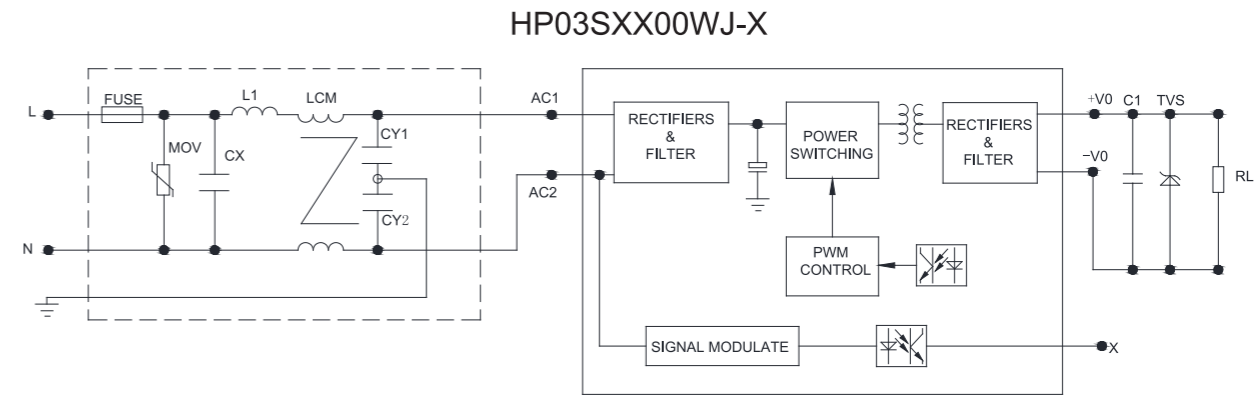
电性能 **ELECTRONIC SPECIFICATION**

项目 Item		规格 Specification		
输入 Input	输入电压范围 Input Voltage Range	85~305Vac or 100~430Vdc		
	输入频率范围 AC Input Frequency Range	47~63Hz		
	输入电流 Input Current	115Vac	230Vac	277Vac
		25mA	18mA	15mA
	冲击电流 Inrush Current	115Vac	230Vac	
		6A	10A	
	待机功耗 Stand-by Power Consumption	0.1W Max		
外接保险管推荐值 Recommended External Input Fuse	2A/350V 慢断(slow fusing)			
热插拔 Hot Plug	不支持(Unavailable)			
输出 Output	输出电压精度 Output Voltage Accuracy	±3%		
	线性调节率 Line Regulation	±0.5%		
	负载调节率 Load Regulation	±0.5%		
	温度漂移系数 Temperature Drift Factor	±0.03%/°C ( 0-85°C )		
	最小负载 Min. Load	0		
	开机上升时间 Set-Up time	≤50ms/230Vac , ≤30ms /115Vac		
保护特性 Protection Characteristics	过流保护 Over-Circuit Protection	≥120%Io 自恢复 Self-recovery		
	短路保护 Short Circuit Protection	打隔式,可长期短路,自恢复 Hiccup,continuous,self-recovery		
环境 Ambient	工作温度 Operation Temperature	- 25°C ~ 70°C		
	工作湿度 Operation Humidity	10~90% RH (无冷凝 No Condensing) @full load		
	存储温度 Storage Temperature	- 25°C ~ 85 °C		
	存储湿度 Storage Humidity	5%~95%		
安全&EMC Safety&EMC requirement	绝缘强度 Dielectric Strength	Input-Output ≥3000Vac 1mA 60S		
	设计参考标准 Design base on Safety Standards	IEC/UL 62368 IEC/UL60950 IEC/EN 61558		
	内置 EMI filter	传导骚扰 CE	Meet EN55032 CLASS B	
辐射骚扰 RE		Meet EN55032 CLASS B		
可靠性 Reliability Requirement	MTBF(MIL-HDBK-217-F2)	300Khrs Min @230VAC input 25 °C		
	老化测试 Burn-In Test	输入 264Vac ,常温满载老化 2~5 小时 The unit shall be burned in for 2~5 hours under 264Vac input and DC with full load at normal temperature		

产品特性曲线 **PRODUCT CHARACTERISTIC CURVE**



典型应用电路 **TYPICAL APPLICATION SCHEMATICS**

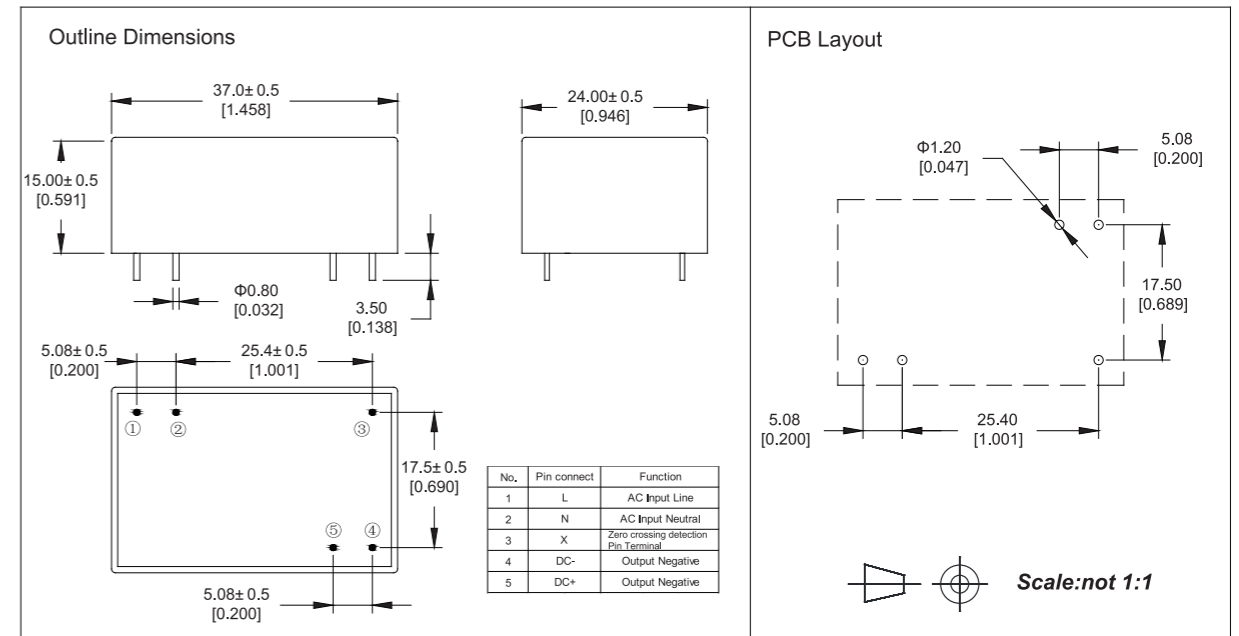


**Note:** The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

**Optional recommendations on external components:**

- C1 from output filter is electrolytic capacitor, High frequency low resistance capacitance is recommended; withstand voltage derating over 80%.
- C2 from output filter is ceramic capacitor, to remove high frequency noise.
- TVS from output filter is to protect the rear circuit.
- Fuse from input filter is to meet safety requirement. Type:1A/310V Slow-Blow.

尺寸图 **MECHANICAL SPECIFICATION**





## HP01 SERIES:[ 1W ]



### FEATURES

- PCB mounted switching power module
- AC input voltage range: 85VAC ~ 305VAC
- DC input voltage range: 100VDC – 430VDC
- Operating temperature range: - 25°C ~ 85°C
- Storage temperature range: - 25°C ~ 85°C
- Leakage current(input:305VAC): <0.25mA
- Isolation voltage: Input-Output ≥3000Vac 60S
- Insulation Resistance:Input-Output 500VDC ≥100M Ohms
- MTBF(at 25°C 70%RH environment): >1000000hrs
- Compact size, easy installation
- High efficiency, low standby power consumption<0.1W, environmental-friendly
- Built-in output over current protection, over-voltage protection, short circuit protection
- Built-in EMI filter components, comply with the EN55032 Class B standard
- Insulation: Class II

### 产品特点

- 可用在PCB上插装的电源模块
- 交流输入电压范围: 85VAC ~ 305VAC
- 直流输入电压范围: 100VDC – 430VDC
- 工作环境温度范围: - 25°C ~ 85°C
- 储存温度范围: - 25°C ~ 85°C
- 漏电流(输入电压:305VAC): <0.25mA
- 绝缘电压: 输入-输出 ≥3000Vac 60S
- 绝缘电阻: 输入-输出 500VDC ≥100M Ohms
- MTBF(25°C 70%RH): >1000000hrs
- 体积小, 便于安装
- 高效率, 低待机功耗<0.1W, 绿色环保
- 内置输出过流保护, 过压保护, 短路保护功能
- 内置EMI滤波元器件, 裸机可以满足EN55032 Class B
- 安全等级: Class II

### 应用 APPLICATIONS

该系列产品在LED、灯光控制, 仪表、通讯、智能家具及民用等多个领域都有重要的应用。  
This series could be widely applied in the LED, lighting control, instrument, smart home and other home appliances.

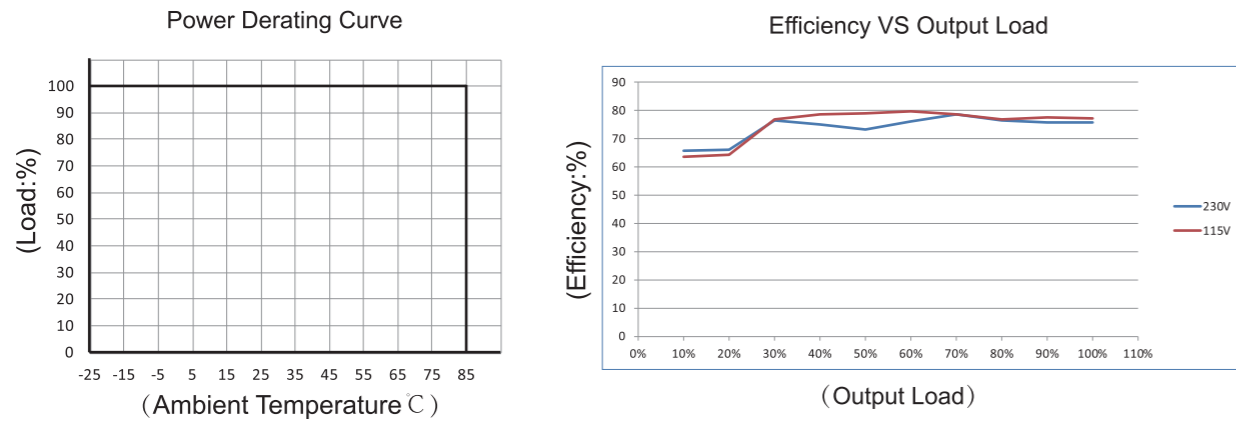
### 型号列表 MODEL LIST

Part No.	Output Power	DC Voltage	Rated Current	Efficiency 230VAC, % Typ.	Ripple&Noise (max)	Ambient TEMP(°C)	Weight	TUV	UL
HP01S0300WI	1W	3.3Vdc	300mA	66%	150mVp-p	85	20g	●	●
HP01S0500WI	1W	5Vdc	200mA	70%	150mVp-p	85	20g	●	●
HP01S0900WI	1W	9Vdc	111mA	72%	150mVp-p	85	20g	●	●
HP01S1200WI	1W	12Vdc	83mA	74%	150mVp-p	85	20g	●	●
HP01S1500WI	1W	15Vdc	67mA	75%	200mVp-p	85	20g	●	●
HP01S2400WI	1W	24Vdc	42mA	77%	200mVp-p	85	20g	●	●

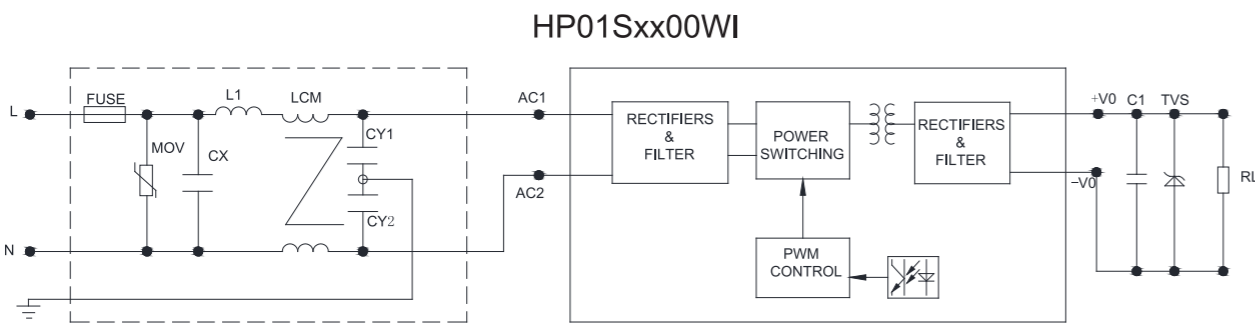
### 电性能 ELECTRICAL SPECIFICATION

项目 Item	规格 Specification			
输入 Input	输入电压范围 Input Voltage Range	85~305Vac or 100~430Vdc		
	输入频率范围 AC Input Frequency Range	47~63Hz		
	输入电流 Input Current	115Vac	230Vac	277Vac
		25mA	18mA	15mA
	冲击电流 (500us) Inrush Current	115Vac	230Vac	
		6A	10A	
	待机功耗 Stand-by Power Consumption	0.1W Max		
外接保险管推荐值 Recommended External Input Fuse	1A/300Vac 慢断(Time lag)			
热插拔 Hot Plug	不支持(Unavailable)			
输出 Output	输出电压精度 Output Voltage Accuracy	±3%		
	线性调节率 Line Regulation	±0.5%		
	负载调节率 Load Regulation	±0.5%		
	温度漂移系数 Temperature Drift Factor	±0.03%/°C ( 0-85°C )		
	最小负载 Min. Load	0		
	满载开机上升时间 Set-Up Time At Full Load	≤50ms/230Vac , ≤30ms /115Vac		
满载掉电保持时间(典型值) Hold-up Time At Full Load	> 40ms/230Vac , > 12ms/115Vac			
保护特性 Protection Characteristics	过流保护 Over-Current Protection	≥120%Io 自恢复 Self-recovery		
	短路保护 Short Circuit Protection	打隔式,可长期短路,自恢复 Hiccup,Continuous short capable,Self-recovery		
环境 Ambient	工作环境温度 Operating Temperature	- 25°C ~ 85°C (Refer to derating curve)		
	工作环境湿度 Operating Humidity	10~90% RH (无冷凝 No Condensing) at full load		
	存储温度 Storage Temperature	- 25°C ~ 85°C		
	存储湿度 Storage Humidity	5%~95%		
安全&EMC Safety&EMC requirement	绝缘强度 Dielectric Strength	Input-Output ≥3000Vac 5mA 60S		
	设计参考标准 Reference Safety Standards	IEC/UL 62368 IEC/EN60950 IEC/EN61558-2-16		
	内置 EMI Built-in EMI filter	传导骚扰 CE	Meet EN55032 CLASS B	
辐射骚扰 RE		Meet EN55032 CLASS B		
可靠性 Reliability Requirement	MTBF(MIL-HDBK-217F)	1000Khrs Min @230VAC input 25°C		
	老化测试 Burn-In Test	输入 264Vac ,常温满载老化 2~5 小时 The unit shall be burned in for 2~5 hours under 264Vac input and DC with full load at normal temperature		

产品特性曲线 **PRODUCT CHARACTERISTIC CURVE**



典型应用电路 **TYPICAL APPLICATION SCHEMATIC**

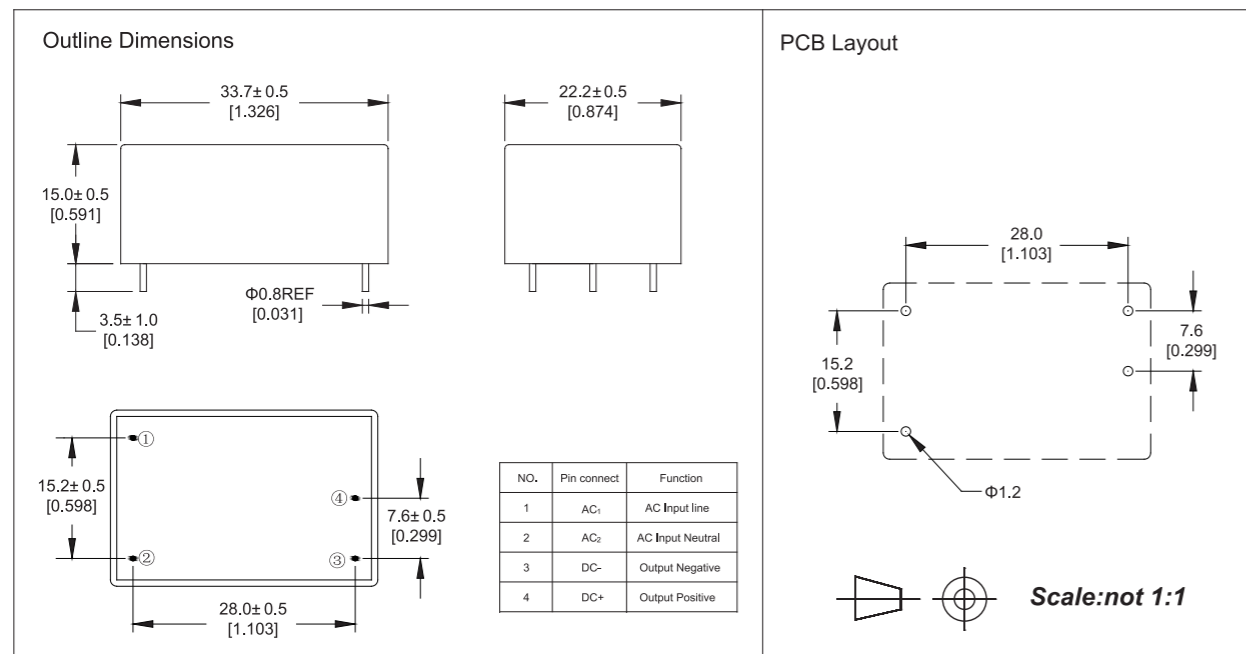


**Note:** The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

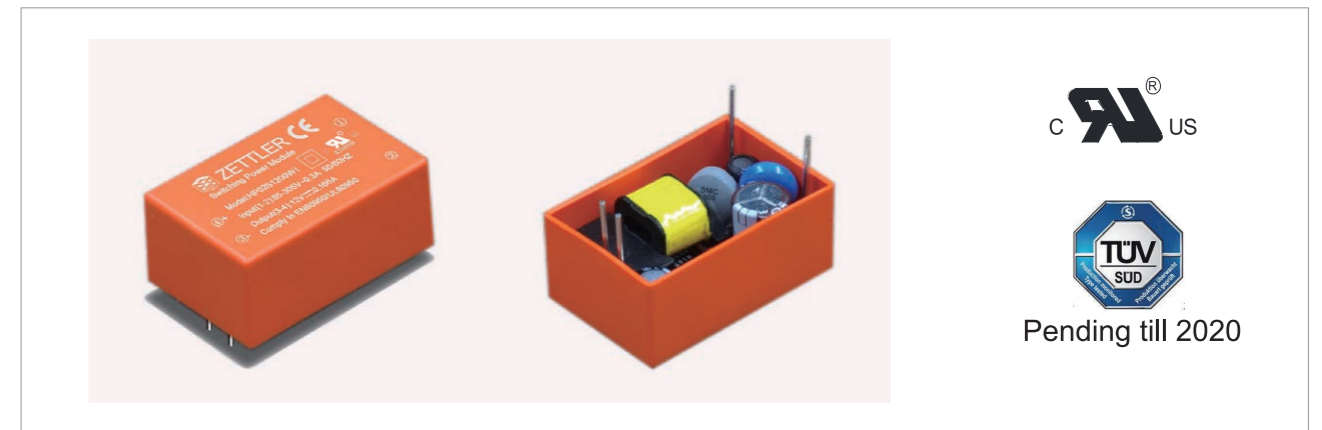
**Optional recommendations on external components:**

- C1 from output filter is electrolytic capacitor, High frequency low resistance capacitance is recommended; withstand voltage derating over 80%.
- C2 from output filter is ceramic capacitor, to remove high frequency noise.
- TVS from output filter is to protect the rear circuit.
- Fuse from input filter is to meet safety requirement. Type:1A/310V Slow-Blow.

尺寸图 **MECHANICAL SPECIFICATION**



**HP02 SERIES: [ 2W ]**



**FEATURES**

- PCB mounted switching power module
- AC input voltage range: 85VAC~305VAC
- DC input voltage range: 100VDC~430VDC
- Operating temperature range: -25°C ~ 85°C
- Storage temperature range: -25°C ~ 85°C
- Leakage current(input:305VAC): <0.25mA
- Isolation voltage: Input-Output ≥3000Vac 60S
- Insulation Resistance:Input-Output 500VDC ≥100M Ohms
- MTBF(at 25°C 70%RH environment): >1000000hrs
- Easy installation compact size
- High efficiency, low standby power consumption, green environmental protection function
- Built-in output over current protection, over-voltage protection, short circuit protection.
- Built-in EMI filter components, comply with the EN55032 Class B standard .
- Insulation: Class II

**产品特点:**

- 可用在PCB上插装的电源模块
- 交流输入电压范围: 85VAC~305VAC
- 直流输入电压范围: 100VDC~430VDC
- 工作环境温度范围: -25°C ~ 85°C
- 储存温度范围: -25°C ~ 85°C
- 漏电流(输入电压:305VAC): <0.25mA
- 绝缘电压: 输入-输出 ≥3000Vac 60S
- 绝缘电阻: 输入-输出 500VDC ≥100M Ohms
- MTBF(25°C 70%RH): >1000000hrs
- 体积小 便于安装
- 高效率, 低待机功耗, 绿色环保
- 内置输出过流保护, 过压保护, 短路保护功能。
- 内置EMI滤波元器件, 裸机可以满足EN55032 Class B
- 安全等级: Class II

**应用 APPLICATIONS**

该系列产品在LED、灯光控制, 仪表、通讯、智能家居及民用等多个领域都有重要的应用, 当应用于电磁兼容比较恶劣的环境时必须参考应用电路。

This series could be widely applied in the LED, lighting control, instrument, smart home and other home appliance. If necessary, please refer to application circuit to improve EMC performance.

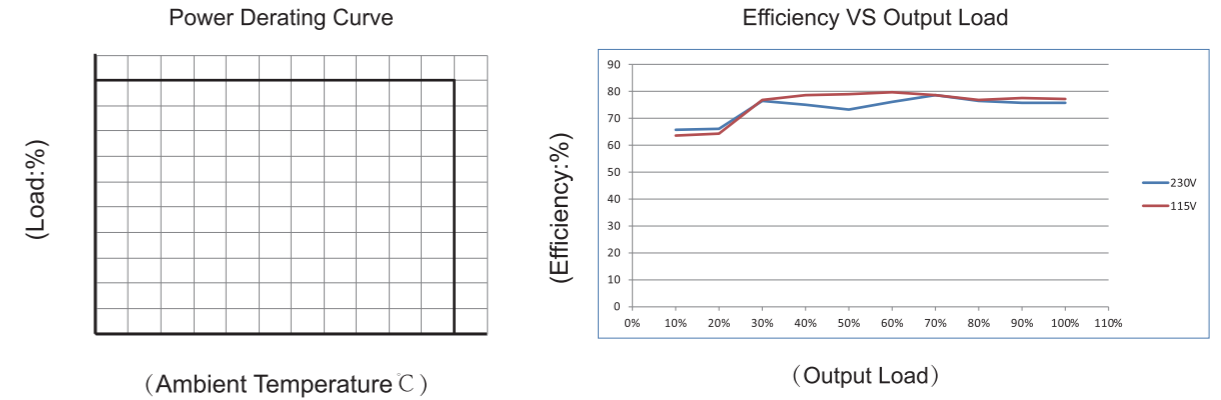
**型号列表 MODEL LIST**

Part No.	Output Power	DC Voltage	Rated Current	Efficiency 230VAC, % Typ.	Ripple&Noise (max)	Ambient TEMP(°C)	Weight	UL
HP02S0300WI	1W	3.3Vdc	300mA	65%	100mVp-p	85	20g	●
HP02S0500WI	1W	5Vdc	200mA	66%	100mVp-p	85	20g	●
HP02S0900WI	1W	9Vdc	111mA	68%	100mVp-p	85	20g	●
HP02S1200WI	1W	12Vdc	83mA	70%	120mVp-p	85	20g	●
HP02S1500WI	1W	15Vdc	67mA	72%	120mVp-p	85	20g	●
HP02S2400WI	1W	24Vdc	42mA	74%	150mVp-p	85	20g	●

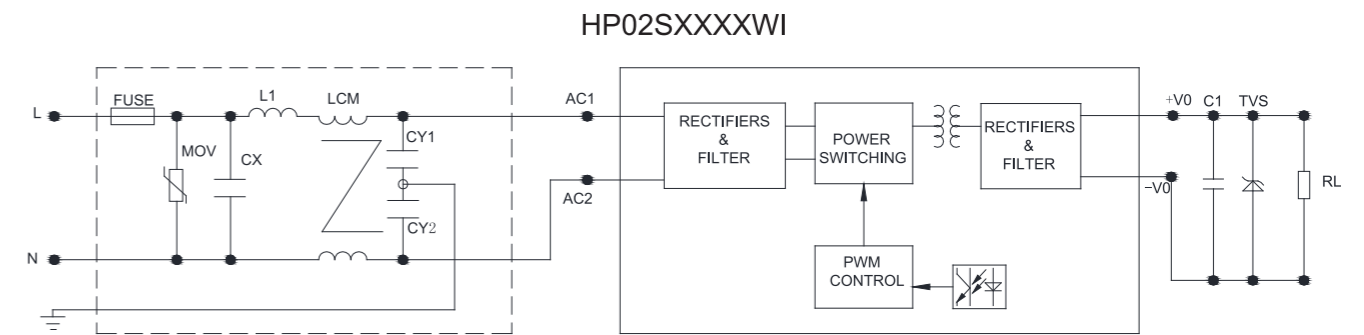
电性能 **ELECTRONIC SPECIFICATION**

项目 Item		规格 Specification		
输入 Input	输入电压范围 Input Voltage Range	85~305Vac or 100~430Vdc		
	输入频率范围 AC Input Frequency Range	47~63Hz		
	输入电流 Input Current	115Vac	230Vac	277Vac
		25mA	18mA	15mA
	冲击电流 Inrush Current	115Vac	230Vac	
		6A	10A	
待机功耗 Stand-by Power Consumption	0.1W Max			
外接保险管推荐值 Recommended External Input Fuse	1A/350V 慢断(Time lag)			
热插拔 Hot Plug	不支持(Unavailable)			
输出 Output	输出电压精度 Output Voltage Accuracy	±3.0%		
	线性调节率 Line Regulation	±0.5%		
	负载调节率 Load Regulation	±0.5%		
	温度漂移系数 Temperature Drift Factor	±0.03%/°C ( 0-85°C )		
	最小负载 Min. Load	0		
	满载开机上升时间 Set-Up Time At Full Load	≤50ms/230Vac , ≤30ms /115Vac		
满载掉电保持时间( 典型值 ) Hold-up Time At Full Load	> 40ms/230Vac , > 12ms/115Vac			
保护特性 Protection Characteristics	过流保护 Over-Current Protection	≥120%Io 自恢复 Self-recovery		
	短路保护 Short Circuit Protection	打隔式,可长期短路,自恢复 Hiccup,Continuous short capable,Self-recovery		
环境 Ambient	工作环境温度 Operating Temperature	- 25°C ~ 85°C (Refer to derating curve)		
	工作环境湿度 Operating Humidity	10~90% RH (无冷凝 No Condensing) at full load		
	存储温度 Storage Temperature	- 25°C ~ 85°C		
	存储湿度 Storage Humidity	5%~95%		
安全&EMC Safety&EMC requirement	绝缘强度 Dielectric Strength	Input-Output ≥3000Vac 5mA 60S		
	设计参考标准 Reference Safety Standards	IEC/UL 62368 IEC/EN60950 IEC/EN61558-2-16		
	内置 EMI Built-in EMI filter	传导骚扰 CE	Meet EN55032 CLASS B	
辐射骚扰 RE		Meet EN55032 CLASS B		
可靠性 Reliability Requirement	MTBF(MIL-HDBK-217F)	1000Khrs Min @230VAC input 25°C		
	老化测试 Burn-In Test	输入 264Vac ,常温满载老化 2~5 小时 The unit shall be burned in for 2~5 hours under 264Vac input and DC with full load at normal temperature		

产品特性曲线 **PRODUCT CHARACTERISTIC CURVE**



典型应用电路 **TYPICAL APPLICATION SCHEMATIC**

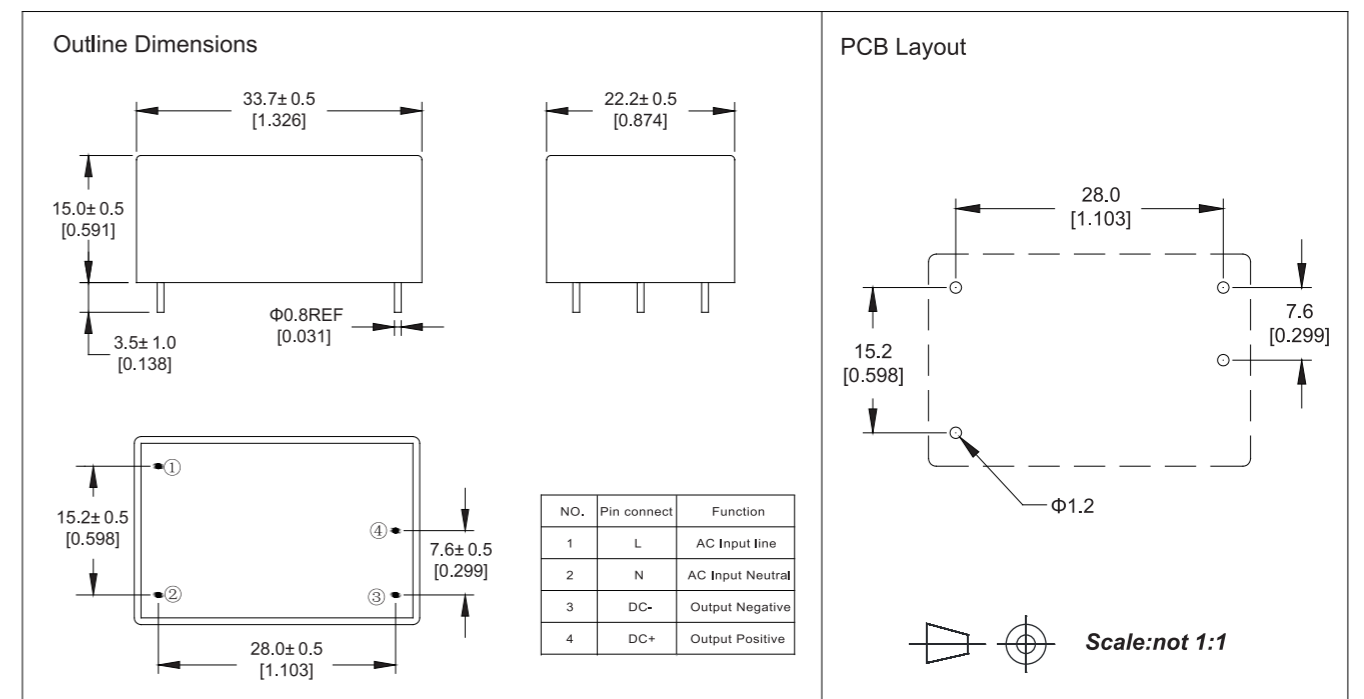


**Note:** The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

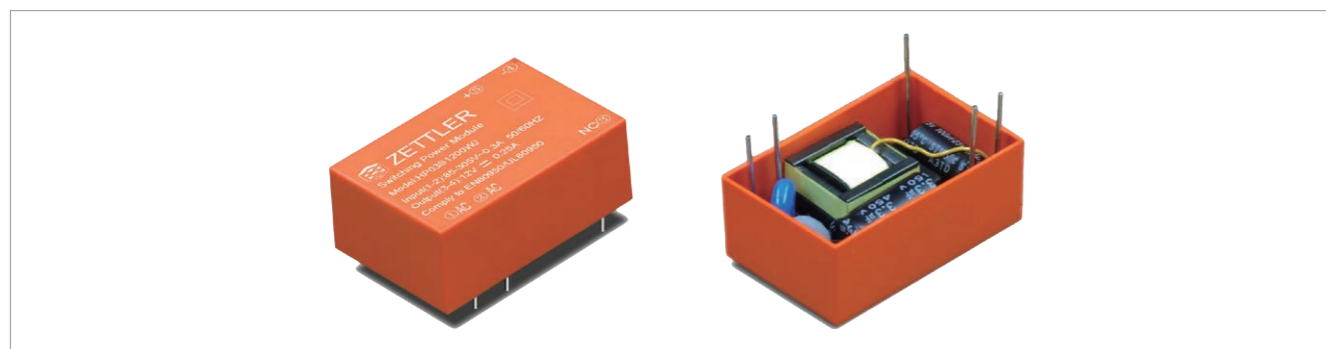
**Optional recommendations on external components:**

- C1 from output filter is electrolytic capacitor, High frequency low resistance capacitance is recommended; withstand voltage derating over 80%.
- C2 from output filter is ceramic capacitor, to remove high frequency noise.
- TVS from output filter is to protect the rear circuit.
- Fuse from input filter is to meet safety requirement. Type:1A/310V Slow-Blow.

尺寸图 **MECHANICAL SPECIFICATION**



## HP02-03 SERIES: [ 2-3W ]



### FEATURES

- PCB mounted switching power module
- AC input voltage range: 85VAC ~ 305VAC
- DC input voltage range: 100VDC - 430VDC
- Operating temperature range: -25°C ~ 85°C
- Storage temperature range: -25°C ~ 85°C
- Leakage current(input:305VAC): <0.25mA
- Isolation voltage: Input-Output ≥3000Vac 60S
- Insulation Resistance:Input-Output 500VDC ≥100M Ohms
- MTBF(at 25°C 70%RH environment): >1000000hrs
- Compact size, easy installation
- High efficiency, low standby power consumption<0.1W, environmental-friendly
- Built-in output over current protection, over-voltage protection, short circuit protection
- Built-in EMI filter components, comply with the EN55032 Class B standard
- Insulation: Class II

### 产品特点

- 可用在PCB上插装的电源模块
- 交流输入电压范围: 85VAC ~ 305VAC
- 直流输入电压范围: 100VDC - 430VDC
- 工作环境温度范围: -25°C ~ 85°C
- 储存温度范围: -25°C ~ 85°C
- 漏电流(输入电压:305VAC): <0.25mA
- 绝缘电压: 输入-输出 ≥3000Vac 60S
- 绝缘电阻: 输入-输出 500VDC ≥100M Ohms
- MTBF(25°C 70%RH): >1000000hrs
- 体积小, 便于安装
- 高效率, 低待机功耗<0.1W, 绿色环保
- 内置输出过流保护, 过压保护, 短路保护功能
- 内置EMI滤波元器件, 裸机可以满足EN55032 Class B
- 安全等级: Class II

### 应用 APPLICATIONS

该系列产品在LED、灯光控制, 仪表、通讯、智能家居及民用等多个领域都有重要的应用。

This series could be widely applied in the LED, lighting control, instrument, smart home and other home appliances.

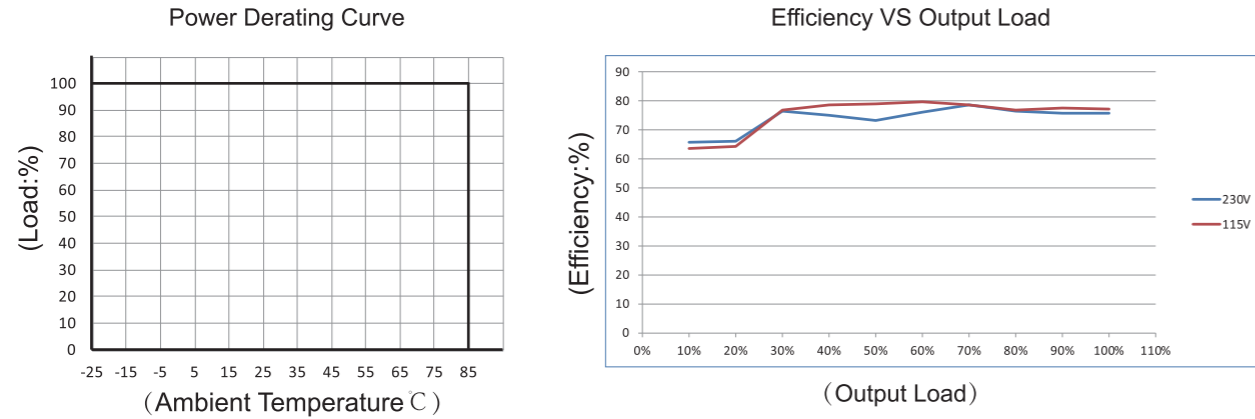
### 型号列表 MODEL LIST

Part No.	Output Power	DC Voltage	Rated Current	Efficiency 230VAC, % Typ.	Ripple&Noise (max)	Ambient TEMP(°C)	Weight	UL	TUV
HP02S0300WJ	2W	3.3Vdc	600mA	66%	100mVp-p	85	30g	●	●
HP02S0500WJ	2W	5Vdc	400mA	70%	100mVp-p	85	30g	●	●
HP02S0900WJ	2W	9Vdc	222mA	72%	100mVp-p	85	30g	●	●
HP02S1200WJ	2W	12Vdc	167mA	74%	150mVp-p	85	30g	●	●
HP02S1500WJ	2W	15Vdc	133mA	75%	200mVp-p	85	30g	●	●
HP02S2400WJ	2W	24Vdc	83mA	77%	240mVp-p	85	30g	●	●
HP03S0300WJ	3W	3.3Vdc	900mA	66%	100mVp-p	85	30g	●	●
HP03S0500WJ	3W	5Vdc	600mA	72%	100mVp-p	85	30g	●	●
HP03S0900WJ	3W	9Vdc	333mA	74%	100mVp-p	85	30g	●	●
HP03S1200WJ	3W	12Vdc	250mA	76%	150mVp-p	85	30g	●	●
HP03S1500WJ	3W	15Vdc	200mA	77%	200mVp-p	85	30g	●	●
HP03S2400WJ	3W	24Vdc	125mA	78%	240mVp-p	85	30g	●	●

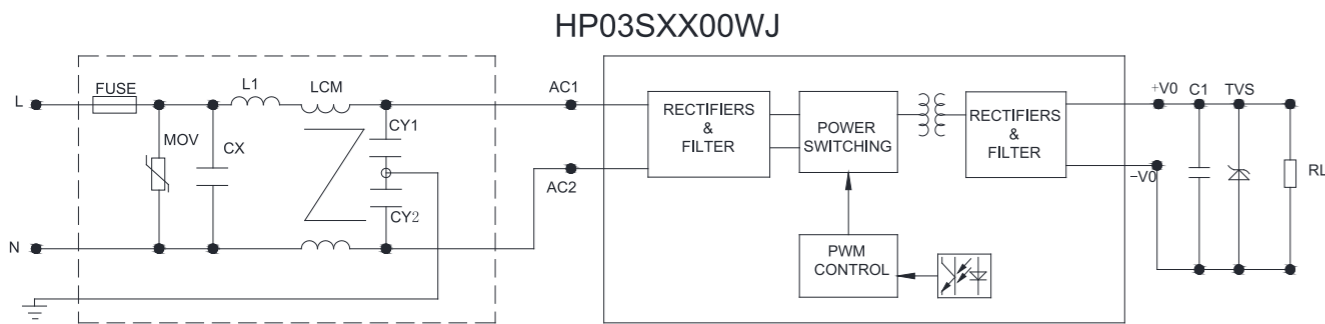
### 电性能 ELECTRICAL SPECIFICATION

项目 Item		规格 Specification		
输入 Input	输入电压范围 Input Voltage Range	85~305Vac or 100~430Vdc		
	输入频率范围 AC Input Frequency Range	47~63Hz		
	输入电流 Input Current	115Vac	230Vac	277Vac
		70mA	40mA	35mA
	冲击电流 Inrush Current	115Vac	230Vac	
		10A	20A	
	待机功耗 Stand-by Power Consumption	0.1W Max		
外接保险管推荐值 Recommended External Input Fuse	1A/300Vac 慢断(Time lag)			
热插拔 Hot Plug	不支持(Unavailable)			
输出 Output	输出电压精度 Output Voltage Accuracy	±3%		
	线性调节率 Line Regulation	±0.5%		
	负载调节率 Load Regulation	±0.5%		
	温度漂移系数 Temperature Drift Factor	±0.03%/°C ( 0-85°C )		
	最小负载 Min. Load	0		
	满载开机上升时间 Set-Up Time At Full Load	≤50ms/230Vac , ≤30ms /115Vac		
	满载掉电保持时间(典型值) Hold-up Time At Full Load	> 40ms/230Vac , > 12ms/115Vac		
保护特性 Protection Characteristics	过流保护 Over-Current Protection	≥120%Io 自恢复 Self-recovery		
	短路保护 Short Circuit Protection	打隔式,可长期短路,自恢复 Hiccup,Continuous short capable,Self-recovery		
环境 Ambient	工作环境温度 Operating Temperature	-25°C ~ 85°C (Refer to derating curve)		
	工作环境湿度 Operating Humidity	10~90% RH (无冷凝 No Condensing) at full load		
	存储温度 Storage Temperature	-25°C ~ 85°C		
	存储湿度 Storage Humidity	5%~95%		
安全&EMC Safety&EMC requirement	绝缘强度 Dielectric Strength	Input-Output ≥3000Vac 5mA 60S		
	设计参考标准 Reference Safety Standards	IEC/UL 62368 IEC/EN60950 IEC/EN61558-2-16		
	内置 EMI Built-in EMI filter	传导骚扰 CE	Meet EN55032 CLASS B	
辐射骚扰 RE		Meet EN55032 CLASS B		
可靠性 Reliability Requirement	MTBF(MIL-HDBK-217F)	1000Khrs Min @230VAC input 25°C		
	老化测试 Burn-In Test	输入 264Vac ,常温满载老化 2~5 小时 The unit shall be burned in for 2~5 hours under 264Vac input and DC with full load at normal temperature		

产品特性曲线 **PRODUCT CHARACTERISTIC CURVE**



典型应用电路 **TYPICAL APPLICATION SCHEMATIC**

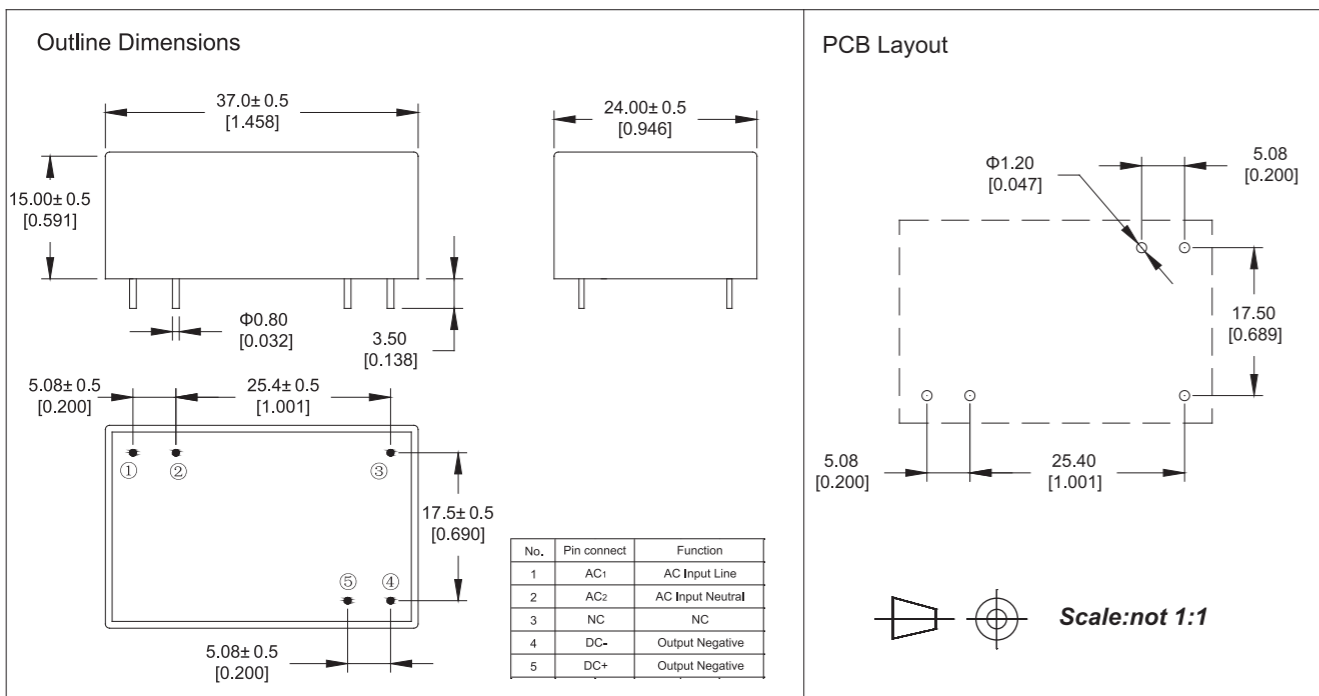


**Note:** The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

**Optional recommendations on external components:**

- C1 from output filter is electrolytic capacitor, High frequency low resistance capacitance is recommended; withstand voltage derating over 80%.
- C2 from output filter is ceramic capacitor, to remove high frequency noise.
- TVS from output filter is to protect the rear circuit.
- Fuse from input filter is to meet safety requirement. Type:1A/310V Slow-Blow.

尺寸图 **MECHANICAL SPECIFICATION**



**ZP01 STANDARD SERIES:[ 1W ]**



**FEATURES**

- PCB mounted switching power module
- AC input voltage range: 90VAC ~ 265VAC
- DC input voltage range: 100VDC – 370VDC
- Operating temperature range: - 25°C ~ 70°C (Refer to derating curve)
- Storage temperature range: - 25°C ~ 85°C
- Leakage current(input:265VAC): <0.1mA
- Isolation voltage: Input-Output ≥3000Vac 60S
- Insulation Resistance:Input-Output 500VDC ≥100M Ohms
- MTBF(at 25°C 70%RH environment): >300000hrs
- Compact size, easy installation
- High efficiency, low standby power consumption, environmental-friendly
- Built-in output over current protection, over-voltage protection, short circuit protection
- Built-in EMI filter components, comply with the EN55032 Class B standard
- Insulation: Class II

**产品特点**

- 可用在PCB上插装的电源模块
- 交流输入电压范围: 90VAC ~ 265VAC
- 直流输入电压范围: 100VDC – 370VDC
- 工作环境温度范围: - 25°C ~ 70°C (Refer to derating curve)
- 储存温度范围: - 25°C ~ 85°C
- 漏电流(输入电压:265VAC): <0.1mA
- 绝缘电压: 输入-输出 ≥3000Vac 60S
- 绝缘电阻: 输入-输出 500VDC ≥100M Ohms
- MTBF(25°C 70%RH): >300000hrs
- 体积小, 便于安装
- 高效率, 低待机功耗, 绿色环保
- 内置输出过流保护, 过压保护, 短路保护功能
- 内置EMI滤波元器件, 裸机可以满足EN55032 Class B
- 安全等级: Class II

**应用 APPLICATIONS**

该系列产品在LED、灯光控制, 仪表、通讯、智能家居及民用等多个领域都有重要的应用。  
This series could be widely applied in the LED, lighting control, instrument, smart home and other home appliances.

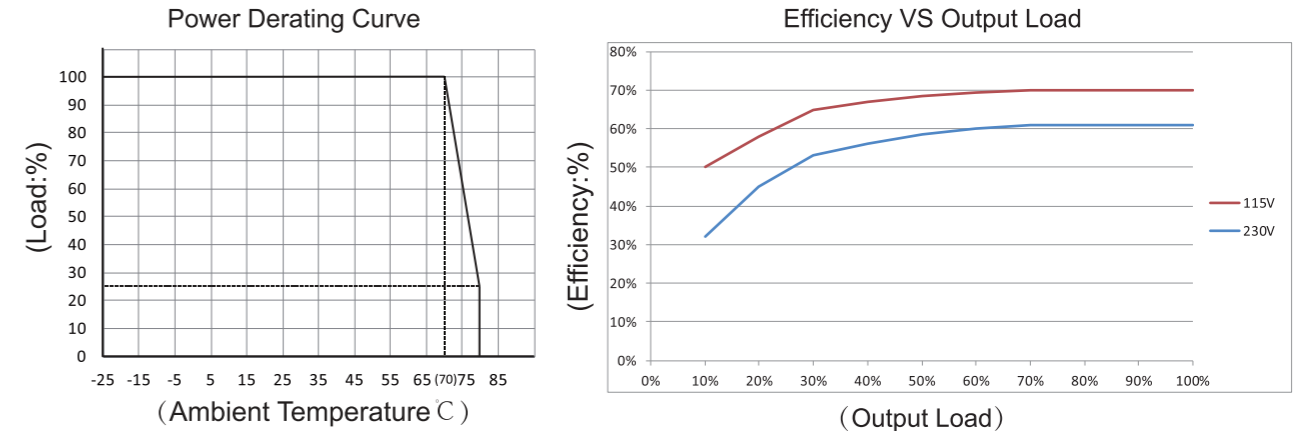
**型号列表 MODEL LIST**

Part No.	Output Power	DC Voltage	Rated Current	Efficiency 230VAC, % Typ.	Ripple& Noise(max)	Ambient TEMP(°C)	Weight
ZP01S0300WE	1W	3.3Vdc	300mA	65%	600mv	70	15g
ZP01S0500WE	1W	5Vdc	200mA	66%	600mv	70	15g
ZP01S0600WE	1W	6Vdc	167mA	68%	600mv	70	15g
ZP01S0700WE	1W	7.5Vdc	133mA	68%	600mv	70	15g
ZP01S0800WE	1W	8Vdc	125mA	70%	600mv	70	15g
ZP01S0900WE	1W	9Vdc	111mA	72%	600mv	70	15g
ZP01S1000WE	1W	10Vdc	100mA	72%	600mv	70	15g
ZP01S1200WE	1W	12Vdc	85mA	72%	600mv	70	15g
ZP01S1500WE	1W	15Vdc	67mA	74%	600mv	70	15g
ZP01S1800WE	1W	18Vdc	55mA	74%	600mv	70	15g
ZP01S2400WE	1W	24Vdc	42mA	74%	600mv	70	15g

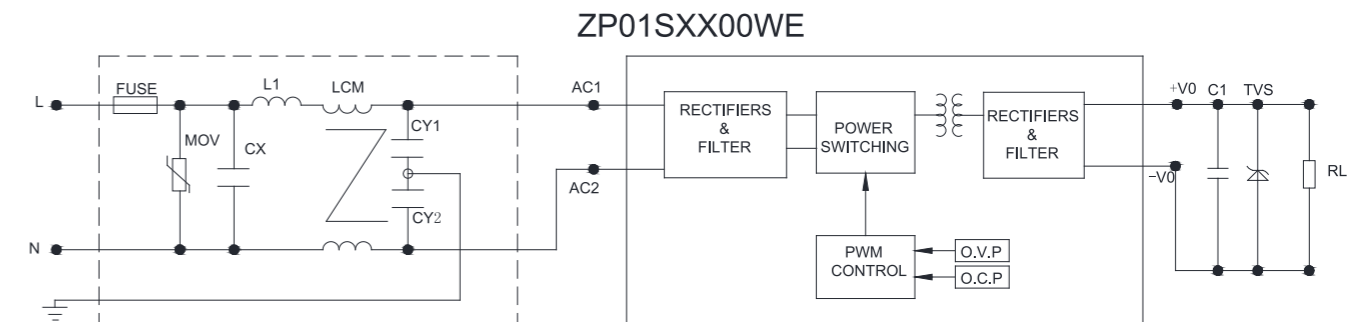
电性能 **ELECTRICAL SPECIFICATION**

项目 Item		规格 Specification	
输入 Input	输入电压范围 Input Voltage Range	90~265Vac or 100~370Vdc	
	输入频率范围 AC Input Frequency Range	47~63Hz	
	输入电流 Input Current	115Vac	230Vac
		25mA	18mA
	冲击电流 Inrush Current	115Vac	230Vac
		6A	10A
	待机功耗 Stand-by Power Consumption	0.3W Max	
外接保险管推荐值 Recommended External Input Fuse	1A/250V 慢断(Time lag)		
热插拔 Hot Plug	不支持(Unavailable)		
输出 Output	输出电压精度 Output Voltage Accuracy	±5% (>20% load) ±7% (≤20% load)	
	线性调节率 Line Regulation	±2%	
	负载调节率 Load Regulation	±3%	
	温度漂移系数 Temperature Drift Factor	±0.05%/°C (0-85°C)	
	最小负载 Min. Load	0	
	满载开机上升时间 Set-Up Time At Full Load	17.2ms/230Vac	27.7ms/115Vac
满载掉电保持时间(典型值) Hold-up Time At Full Load	168ms/230Vac 59ms/115Vac		
保护特性 Protection Characteristics	过流保护 Over-Current Protection	≥120%Io 自恢复 Self-recovery	
	短路保护 Short Circuit Protection	打隔式,可长期短路,自恢复 Hiccup,Continuous short capable,Self-recovery	
环境 Ambient	工作环境温度 Operating Temperature	-25°C ~ 70°C (Refer to derating curve)	
	工作环境湿度 Operating Humidity	10~90% RH (无冷凝 No Condensing) at full load	
	存储温度 Storage Temperature	-25°C ~85°C	
	存储湿度 Storage Humidity	5%~95%	
安全&EMC Safety&EMC requirement	绝缘强度 Dielectric Strength	Input-Output ≥3000Vac 5mA 60S	
	设计参考标准 Reference Safety Standards	IEC/UL 62368 IEC/EN60950 IEC/EN61558-2-16	
	需要增加外置EMC器件 Need to add external EMC Component	传导骚扰 CE	Meet EN55032 CLASS B
		辐射骚扰 RE	Meet EN55032 CLASS B
可靠性 Reliability Requirement	MTBF(MIL-HDBK-217F)	300Khrs Min @230VAC input 25°C	
	老化测试 Burn-In Test	输入 264Vac, 常温满载老化 2~5 小时 The unit shall be burned in for 2~5 hours under 264Vac input and DC with full load at normal temperature	

产品特性曲线 **PRODUCT CHARACTERISTIC CURVE**



典型应用电路 **TYPICAL APPLICATION SCHEMATIC**

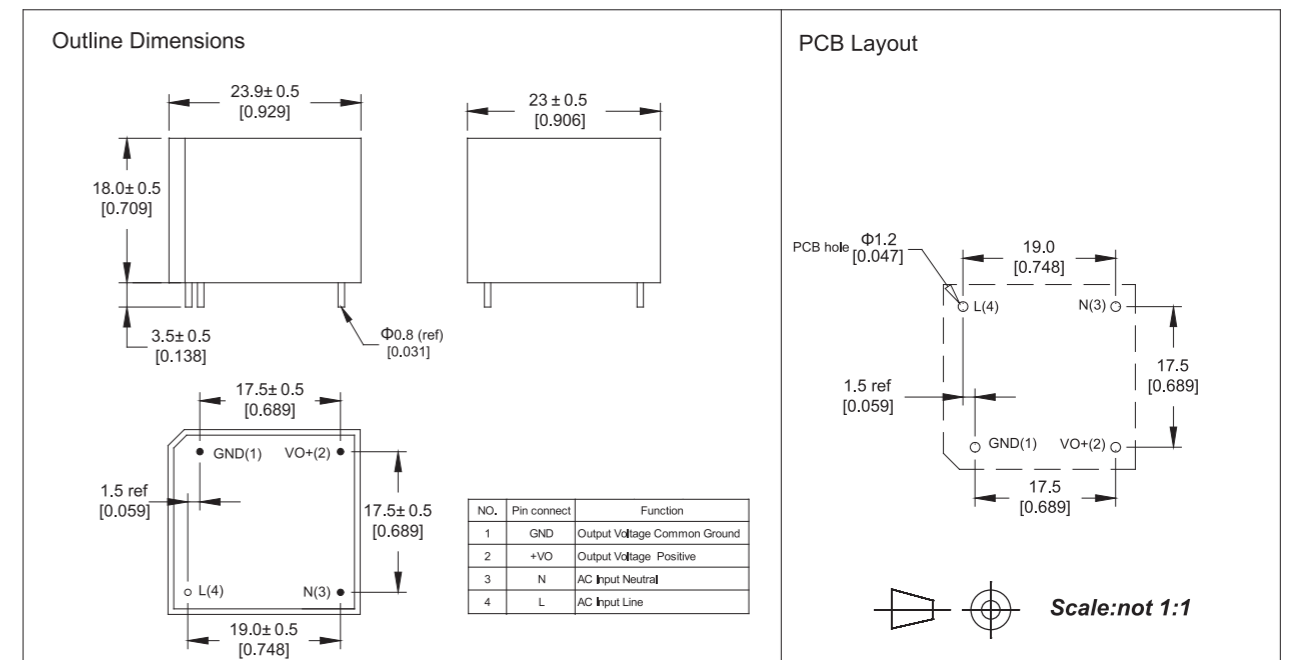


**Note:** The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

Optional recommendations on external components:

- C1 from output filter is electrolytic capacitor, High frequency low resistance capacitance is recommended; withstand voltage derating over 80%.
- C2 from output filter is ceramic capacitor, to remove high frequency noise.
- TVS from output filter is to protect the rear circuit.
- Fuse from input filter is to meet safety requirement. Type:1A/310V Slow-Blow.

尺寸图 **MECHANICAL SPECIFICATION**



## ZP02 STANDARD SERIES:[ 2W ]



### FEATURES

- PCB mounted switching power module
- AC input voltage range: 85VAC ~ 265VAC
- DC input voltage range: 100VDC - 370VDC
- Operating temperature range: -25°C ~ 50°C (Refer to derating curve)
- Storage temperature range: -25°C ~ 85°C
- Leakage current(input:265VAC): <0.1mA
- Isolation voltage: Input-Output ≥3000Vac 60S
- Insulation Resistance:Input-Output 500VDC ≥100M Ohms
- MTBF(at 25°C 70%RH environment): >300000hrs
- Compact size, easy installation
- High efficiency, low standby power consumption, environmental-friendly
- Built-in output over current protection, over-voltage protection, short circuit protection
- Built-in EMI filter components, comply with the EN55032 Class B standard
- Insulation: Class II

### 产品特点

- 可用在PCB上插装的电源模块
- 交流输入电压范围: 85VAC ~ 265VAC
- 直流输入电压范围: 100VDC - 370VDC
- 工作环境温度范围: -25°C ~ 50°C (Refer to derating curve)
- 储存温度范围: -25°C ~ 85°C
- 漏电流(输入电压:265VAC): <0.1mA
- 绝缘电压: 输入-输出 ≥3000Vac 60S
- 绝缘电阻: 输入-输出 500VDC ≥100M Ohms
- MTBF(25°C 70%RH): >300000hrs
- 体积小, 便于安装
- 高效率, 低待机功耗, 绿色环保
- 内置输出过流保护, 过压保护, 短路保护功能
- 内置EMI滤波元器件, 裸机可以满足EN55032 Class B
- 安全等级: Class II

### 应用 APPLICATIONS

该系列产品在LED、灯光控制, 仪表、通讯、智能家居及民用等多个领域都有重要的应用。  
This series could be widely applied in the LED, lighting control, instrument, smart home and other home appliances.

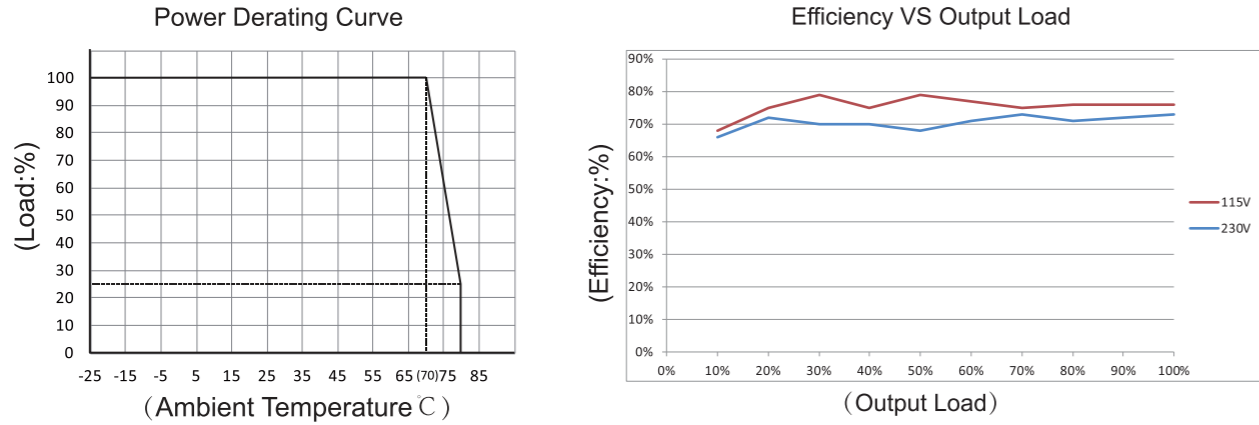
### 型号列表 MODEL LIST

Part No.	Output Power	DC Voltage	Rated Current	Efficiency 230VAC, % Typ.	Ripple&Noise	Ambient TEMP(°C)	Weight	TUV
ZP02S0300WF	2W	3.3Vdc	606mA	65%	500mv	70	18g	●
ZP02S0500WF	2W	5Vdc	400mA	65%	500mv	70	18g	●
ZP02S0600WF	2W	6Vdc	333mA	65%	500mv	70	18g	●
ZP02S0700WF	2W	7.5Vdc	266mA	68%	500mv	70	18g	●
ZP02S0900WF	2W	9Vdc	222mA	68%	500mv	70	18g	●
ZP02S1200WF	2W	12Vdc	166mA	68%	350mv	70	18g	●
ZP02S1500WF	2W	15Vdc	133mA	70%	350mv	70	18g	●
ZP02S1800WF	2W	18Vdc	111mA	70%	350mv	70	18g	●
ZP02S2400WF	2W	24Vdc	83mA	70%	350mv	70	18g	●

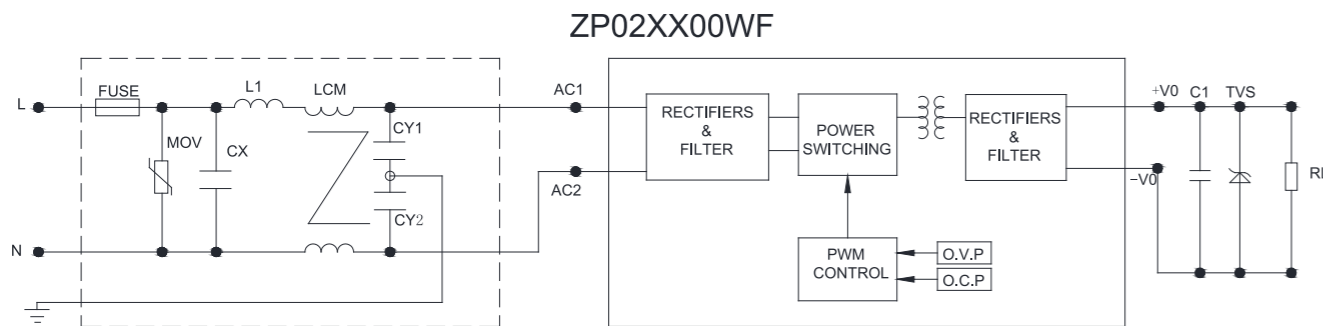
### 电性能 ELECTRICAL SPECIFICATION

项目 Item		规格 Specification	
输入 Input	输入电压范围 Input Voltage Range	85~265Vac or 100~370Vdc	
	输入频率范围 AC Input Frequency Range	47~63Hz	
	输入电流 Input Current	115Vac	230Vac
		25mA	18mA
	冲击电流 Inrush Current	115Vac	230Vac
		6A	10A
	待机功耗 Stand-by Power Consumption	0.3W Max	
外接保险管推荐值 Recommended External Input Fuse	1A/250V 慢断(Time lag)		
热插拔 Hot Plug	不支持(Unavailable)		
输出 Output	输出电压精度 Output Voltage Accuracy	±5% (>20% load) ±7% (≤20% load)	
	线性调节率 Line Regulation	±2%	
	负载调节率 Load Regulation	±3%	
	温度漂移系数 Temperature Drift Factor	±0.05%/°C (0-85°C)	
	最小负载 Min. Load	0	
	满载开机上升时间 Set-Up Time At Full Load	17.2ms/230Vac	27.7ms/115Vac
	满载掉电保持时间(典型值) Hold-up Time At Full Load	168ms/230Vac	59ms/115Vac
保护特性 Protection Characteristics	过流保护 Over-Current Protection	≥120%Io 自恢复 Self-recovery	
	短路保护 Short Circuit Protection	打隔式,可长期短路,自恢复 Hiccup,Continuous short capable,Self-recovery	
环境 Ambient	工作环境温度 Operating Temperature	-25°C ~ 50°C (Refer to derating curve)	
	工作环境湿度 Operating Humidity	10~90% RH (无冷凝 No Condensing) at full load	
	存储温度 Storage Temperature	-25°C ~85°C	
	存储湿度 Storage Humidity	5%~95%	
安全&EMC Safety&EMC requirement	绝缘强度 Dielectric Strength	Input-Output ≥3000Vac 5mA 60S	
	设计参考标准 Reference Safety Standards	IEC/UL 62368 IEC/EN60950 IEC/EN61558-2-16	
	需要增加外置EMC器件 Need to add external EMC Component	传导骚扰 CE	Meet EN55032 CLASS B
辐射骚扰 RE		Meet EN55032 CLASS B	
可靠性 Reliability Requirement	MTBF(MIL-HDBK-217F)	300Khrs Min @230VAC input 25°C	
	老化测试 Burn-In Test	输入 264Vac, 常温满载老化 2~5 小时 The unit shall be burned in for 2~5 hours under 264Vac input and DC with full load at normal temperature	

产品特性曲线 **PRODUCT CHARACTERISTIC CURVE**



典型应用电路 **TYPICAL APPLICATION SCHEMATIC**

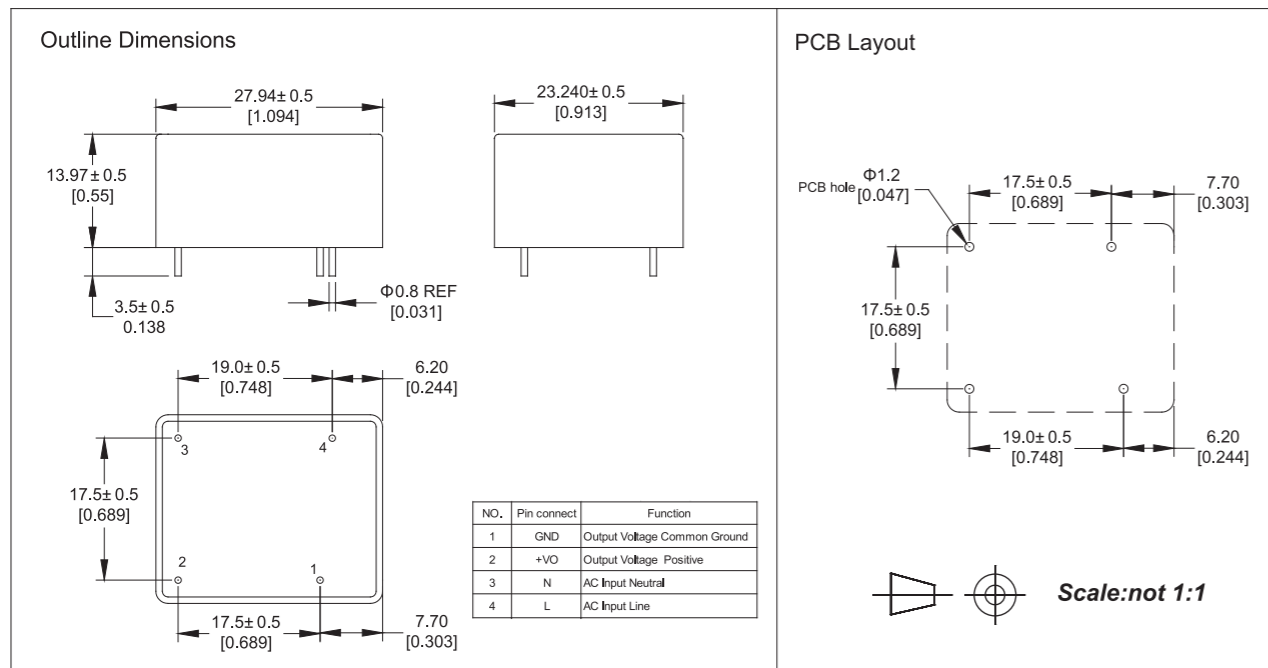


**Note:** The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

**Optional recommendations on external components:**

- C1 from output filter is electrolytic capacitor, High frequency low resistance capacitance is recommended; withstand voltage derating over 80%.
- C2 from output filter is ceramic capacitor, to remove high frequency noise.
- TVS from output filter is to protect the rear circuit.
- Fuse from input filter is to meet safety requirement. Type:1A/310V Slow-Blow.

尺寸图 **MECHANICAL SPECIFICATION**



**ZP03 MINI SERIES:[ 3W ]**



**FEATURES**

- PCB mounted switching power module
- AC input voltage range: 85VAC ~ 265VAC
- DC input voltage range: 100VDC ~ 370VDC
- Operating temperature range: -25°C ~ 50°C (Refer to derating curve)
- Storage temperature range: -25°C ~ 85°C
- Leakage current(input:265VAC): <0.1mA
- Isolation voltage: Input-Output ≥3000Vac 60S
- Insulation Resistance:Input-Output 500VDC ≥100M Ohms
- MTBF(at 25°C 70%RH environment): >300000hrs
- Compact size, easy installation
- High efficiency, low standby power consumption, environmental-friendly
- Built-in output over current protection, over-voltage protection, short circuit protection
- Built-in EMI filter components, comply with the EN55032 Class B standard
- Insulation: Class II

**产品特点**

- 可用在PCB上插装的电源模块
- 交流输入电压范围: 85VAC ~ 265VAC
- 直流输入电压范围: 100VDC ~ 370VDC
- 工作环境温度范围: -25°C ~ 50°C (Refer to derating curve)
- 储存温度范围: -25°C ~ 85°C
- 漏电流(输入电压:265VAC): <0.1mA
- 绝缘电压: 输入-输出 ≥3000Vac 60S
- 绝缘电阻: 输入-输出 500VDC ≥100M Ohms
- MTBF(25°C 70%RH): >300000hrs
- 体积小, 便于安装
- 高效率, 低待机功耗, 绿色环保
- 内置输出过流保护, 过压保护, 短路保护功能
- 内置EMI滤波元器件, 裸机可以满足EN55032 Class B
- 安全等级: Class II

**应用 APPLICATIONS**

该系列产品在LED、灯光控制, 仪表、通讯、智能家具及民用等多个领域都有重要的应用。  
This series could be widely applied in the LED, lighting control, instrument, smart home and other home appliances.

**型号列表 MODEL LIST**

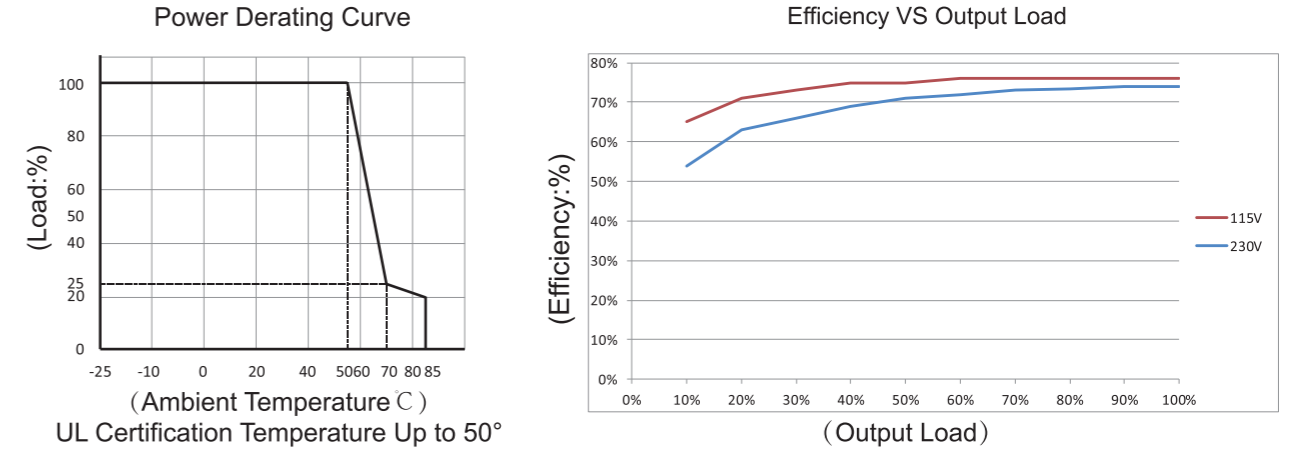
Part No.	Output Power	DC Voltage	Rated Current	Efficiency 230VAC, % Typ.	Ripple & Noise(max)	Ambient TEMP(°C)	Weight	Certificate
								UL
ZP03S0500WE	3W	5Vdc	600mA	66%	700mv	50	15g	●
ZP03S0600WE	3W	6Vdc	500mA	68%	700mv	50	15g	●
ZP03S0700WE	3W	7.5Vdc	400mA	70%	700mv	50	15g	●
ZP03S0800WE	3W	8Vdc	375mA	70%	700mv	50	15g	●
ZP03S0900WE	3W	9Vdc	333mA	70%	700mv	50	15g	●
ZP03S1000WE	3W	10Vdc	300mA	70%	700mv	50	15g	●
ZP03S1200WE	3W	12Vdc	250mA	72%	700mv	50	15g	●
ZP03S1500WE	3W	15Vdc	200mA	72%	700mv	50	15g	●
ZP03S1800WE	3W	18Vdc	166mA	74%	700mv	50	15g	●
ZP03S2400WE	3W	24Vdc	125mA	74%	700mv	50	15g	●



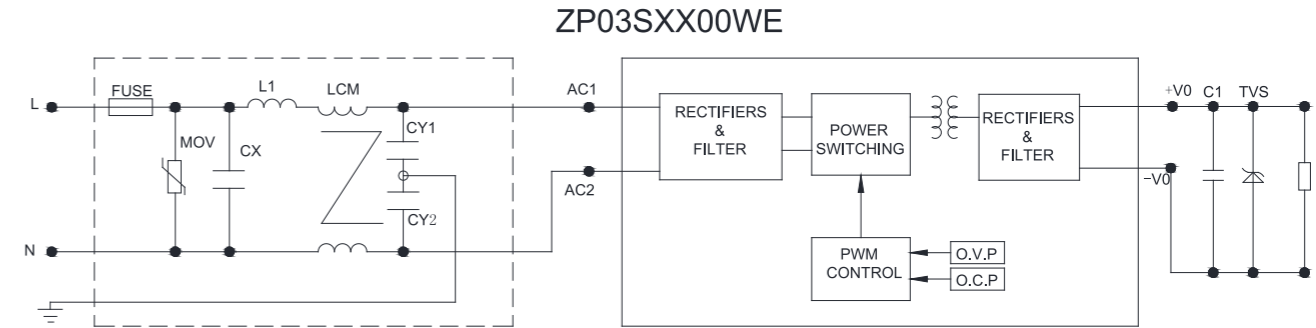
电性能 **ELECTRICAL SPECIFICATION**

项目 Item		规格 Specification	
输入 Input	输入电压范围 Input Voltage Range	85~265Vac or 100~370Vdc	
	输入频率范围 AC Input Frequency Range	47~63Hz	
	输入电流 Input Current	115Vac	230Vac
		70mA	40mA
	冲击电流 Inrush Current	115Vac	230Vac
		10A	20A
	待机功耗 Stand-by Power Consumption	0.3W Max	
外接保险管推荐值 Recommended External Input Fuse	1A/250V 慢断(Time lag)		
热插拔 Hot Plug	不支持(Unavailable)		
输出 Output	输出电压精度 Output Voltage Accuracy	±5% (>20% load) ±7% (≤20% load)	
	线性调节率 Line Regulation	±2%	
	负载调节率 Load Regulation	±3%	
	温度漂移系数 Temperature Drift Factor	±0.05%/°C (0~85°C)	
	最小负载 Min. Load	0	
	满载开机上升时间 Set-Up Time At Full Load	15.9ms/230Vac	23.8ms/115Vac
满载掉电保持时间(典型值) Hold-up Time At Full Load	20ms/230Vac	10ms/115Vac	
保护特性 Protection Characteristics	过流保护 Over-Current Protection	≥120%Io 自恢复 Self-recovery	
	短路保护 Short Circuit Protection	打隔式,可长期短路,自恢复 Hiccup,Continuous short capable,Self-recovery	
环境 Ambient	工作环境温度 Operating Temperature	-25°C ~ 50°C (Refer to derating curve)	
	工作环境湿度 Operating Humidity	10~90% RH (无冷凝 No Condensing) at full load	
	存储温度 Storage Temperature	-25°C ~ 85°C	
	存储湿度 Storage Humidity	5%~95%	
安全&EMC Safety&EMC requirement	绝缘强度 Dielectric Strength	Input-Output ≥3000Vac 5mA 60S	
	设计参考标准 Reference Safety Standards	IEC/UL62368 IEC/EN60950 IEC/EN61558-2-16	
	需要增加外置EMC器件 Need to add external EMC Component	传导骚扰 CE	Meet EN55032 CLASS B
		辐射骚扰 RE	Meet EN55032 CLASS B
可靠性 Reliability Requirement	MTBF(MIL-HDBK-217F)	300Khrs Min @230VAC input 25°C	
	老化测试 Burn-In Test	输入 264Vac, 常温满载老化 2~5 小时 The unit shall be burned in for 2~5 hours under 264Vac input and DC with full load at normal temperature	

产品特性曲线 **PRODUCT CHARACTERISTIC CURVE**



典型应用电路 **TYPICAL APPLICATION SCHEMATIC**

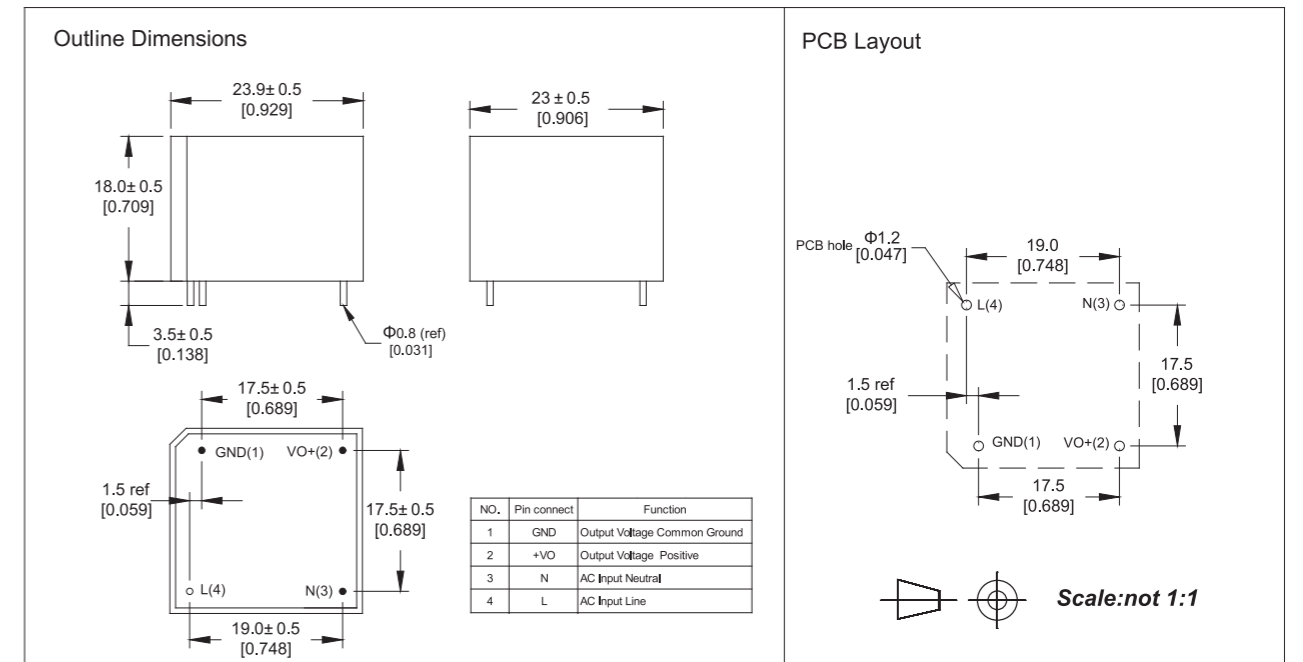


**Note:** The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

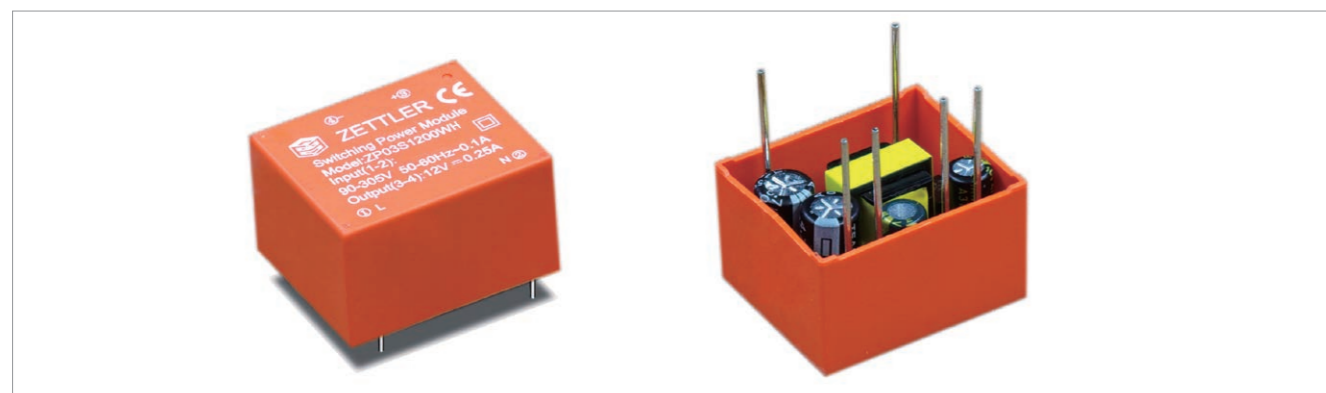
**Optional recommendations on external components:**

- C1 from output filter is electrolytic capacitor, High frequency low resistance capacitance is recommended; withstand voltage derating over 80%.
- C2 from output filter is ceramic capacitor, to remove high frequency noise.
- TVS from output filter is to protect the rear circuit.
- Fuse from input filter is to meet safety requirement. Type:1A/310V Slow-Blow.

尺寸图 **MECHANICAL SPECIFICATION**



## ZP03 STANDARD SERIES:[ 3W ]



### FEATURES

- PCB mounted switching power module
- AC input voltage range: 85VAC ~ 265VAC
- DC input voltage range: 100VDC - 370VDC
- Operating temperature range: - 25°C ~ 50°C (Refer to derating curve)
- Storage temperature range: - 25°C ~ 85°C
- Leakage current(input:265VAC): <0.1mA
- Isolation voltage: Input-Output ≥3000Vac 60S
- Insulation Resistance:Input-Output 500VDC ≥100M Ohms
- MTBF(at 25°C 70%RH environment): >300000hrs
- Compact size, easy installation
- High efficiency, low standby power consumption, environmental-friendly
- Built-in output over current protection, over-voltage protection, short circuit protection
- Built-in EMI filter components, comply with the EN55032 Class B standard
- Insulation: Class II

### 应用 APPLICATIONS

该系列产品在LED、灯光控制，仪表、通讯、智能家居及民用等多个领域都有重要的应用。  
This series could be widely applied in the LED, lighting control, instrument, smart home and other home appliances.

### 型号列表 MODEL LIST

Part No.	Output Power	DC Voltage	Rated Current	Efficiency 230VAC, % Typ.	Ripple& Noise(max)	Ambient TEMP(°C)	Weight
ZP03S0300WH	2W	3.3Vdc	606mA	66%	<5% Vout	50	17.5g
ZP03S0500WH	2W	5Vdc	400mA	66%	<5% Vout	50	17.5g
ZP03S0600WH	3W	6Vdc	500mA	70%	<4% Vout	50	17.5g
ZP03S0700WH	3W	7.5Vdc	400mA	70%	<4% Vout	50	17.5g
ZP03S0800WH	3W	8Vdc	375mA	72%	<4% Vout	50	17.5g
ZP03S0900WH	3W	9Vdc	333mA	72%	<3% Vout	50	17.5g
ZP03S1000WH	3W	10Vdc	300mA	72%	<3% Vout	50	17.5g
ZP03S1200WH	3W	12Vdc	250mA	74%	<3% Vout	50	17.5g
ZP03S1500WH	3W	15Vdc	200mA	74%	<3% Vout	50	17.5g
ZP03S1800WH	3W	18Vdc	166mA	75%	<2% Vout	50	17.5g
ZP03S2400WH	3W	24Vdc	125mA	75%	<2% Vout	50	17.5g

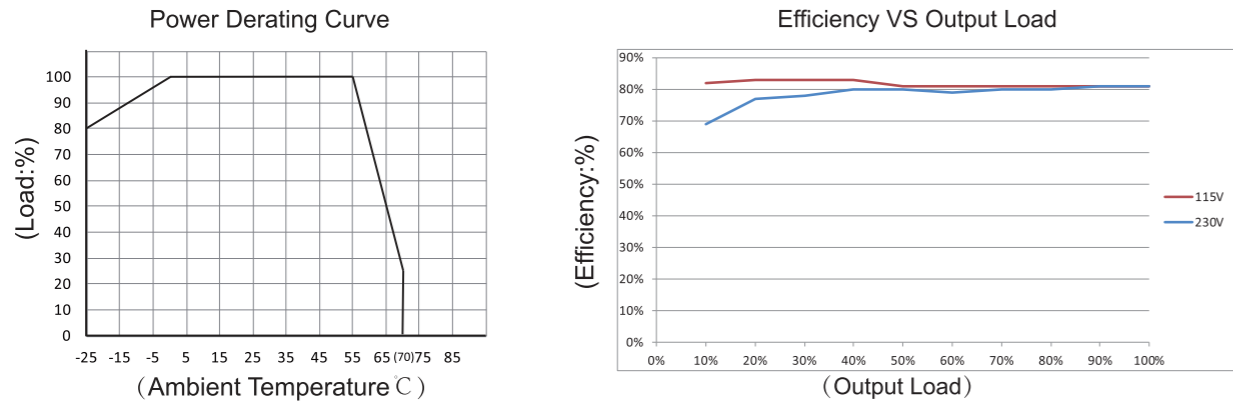
### 产品特点

- 可用在PCB上插装的电源模块
- 交流输入电压范围: 85VAC~265VAC
- 直流输入电压范围: 100VDC - 370VDC
- 工作环境温度范围: - 25°C ~ 50°C (Refer to derating curve)
- 储存温度范围: - 25°C ~ 85°C
- 漏电流(输入电压:265VAC): <0.1mA
- 绝缘电压: 输入-输出 ≥3000Vac 60S
- 绝缘电阻: 输入-输出 500VDC ≥100M Ohms
- MTBF(25°C 70%RH): >300000hrs
- 体积小, 便于安装
- 高效率, 低待机功耗, 绿色环保
- 内置输出过流保护, 过压保护, 短路保护功能
- 内置EMI滤波元器件, 裸机可以满足EN55032 Class B
- 安全等级: Class II

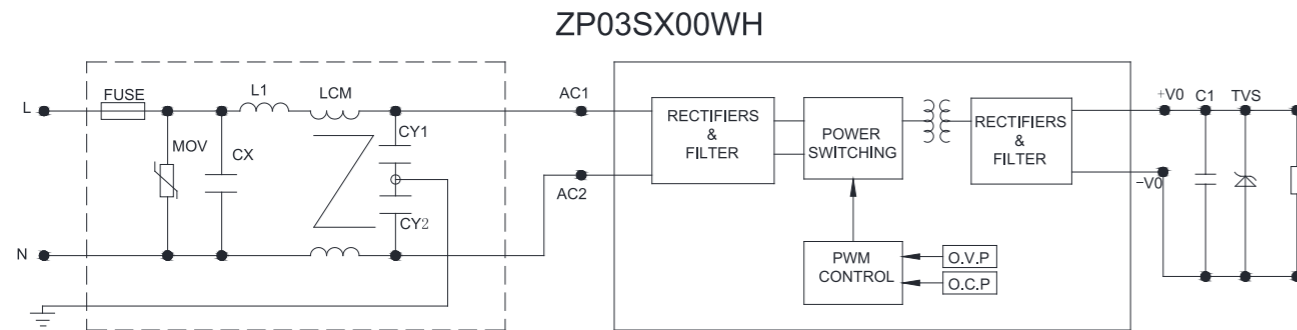
## 电性能 ELECTRICAL SPECIFICATION

项目 Item		规格 Specification	
输入 Input	输入电压范围 Input Voltage Range	85~265Vac or 100~370Vdc	
	输入频率范围 AC Input Frequency Range	47~63Hz	
	输入电流 Input Current	115Vac	230Vac
		60mA	35mA
	冲击电流 Inrush Current	115Vac	230Vac
		10A	20A
待机功耗 Stand-by Power Consumption	0.3W Max		
外接保险管推荐值 Recommended External Input Fuse	1A/250V 慢断(Time lag)		
热插拔 Hot Plug	不支持(Unavailable)		
输出 Output	输出电压精度 Output Voltage Accuracy	±5% (>20% load) ±7% (≤20% load)	
	线性调节率 Line Regulation	±2%	
	负载调节率 Load Regulation	±3%	
	温度漂移系数 Temperature Drift Factor	±0.05%/°C ( 0-85°C )	
	最小负载 Min. Load	0	
	满载开机上升时间 Set-Up Time At Full Load	81.8ms/230Vac	79ms/115Vac
满载掉电保持时间(典型值) Hold-up Time At Full Load	57.8ms/230Vac	10.6ms/115Vac	
保护特性 Protection Characteristics	过流保护 Over-Current Protection	≥120%Io 自恢复 Self-recovery	
	短路保护 Short Circuit Protection	打隔式,可长期短路,自恢复 Hiccup,Continuous short capable,Self-recovery	
环境 Ambient	工作环境温度 Operating Temperature	- 25°C ~ 50°C (Refer to derating curve)	
	工作环境湿度 Operating Humidity	10~90% RH (无冷凝 No Condensing) at full load	
	存储温度 Storage Temperature	- 25°C ~85°C	
	存储湿度 Storage Humidity	5%~95%	
安全&EMC Safety&EMC requirement	绝缘强度 Dielectric Strength	Input-Output ≥3000Vac 5mA 60S	
	设计参考标准 Reference Safety Standards	IEC/UL62368 IEC/EN60950 IEC/EN61558-2-16	
	需要增加外置EMC器件 Need to add external EMC Component	传导骚扰 CE	Meet EN55032 CLASS B
		辐射骚扰 RE	Meet EN55032 CLASS B
可靠性 Reliability Requirement	MTBF(MIL-HDBK-217F)	300Khrs Min @230VAC input 25°C	
	老化测试 Burn-In Test	输入 264Vac,常温满载老化 2~5 小时 The unit shall be burned in for 2~5 hours under 264Vac input and DC with full load at normal temperature	

产品特性曲线 **PRODUCT CHARACTERISTIC CURVE**



典型应用电路 **TYPICAL APPLICATION SCHEMATIC**

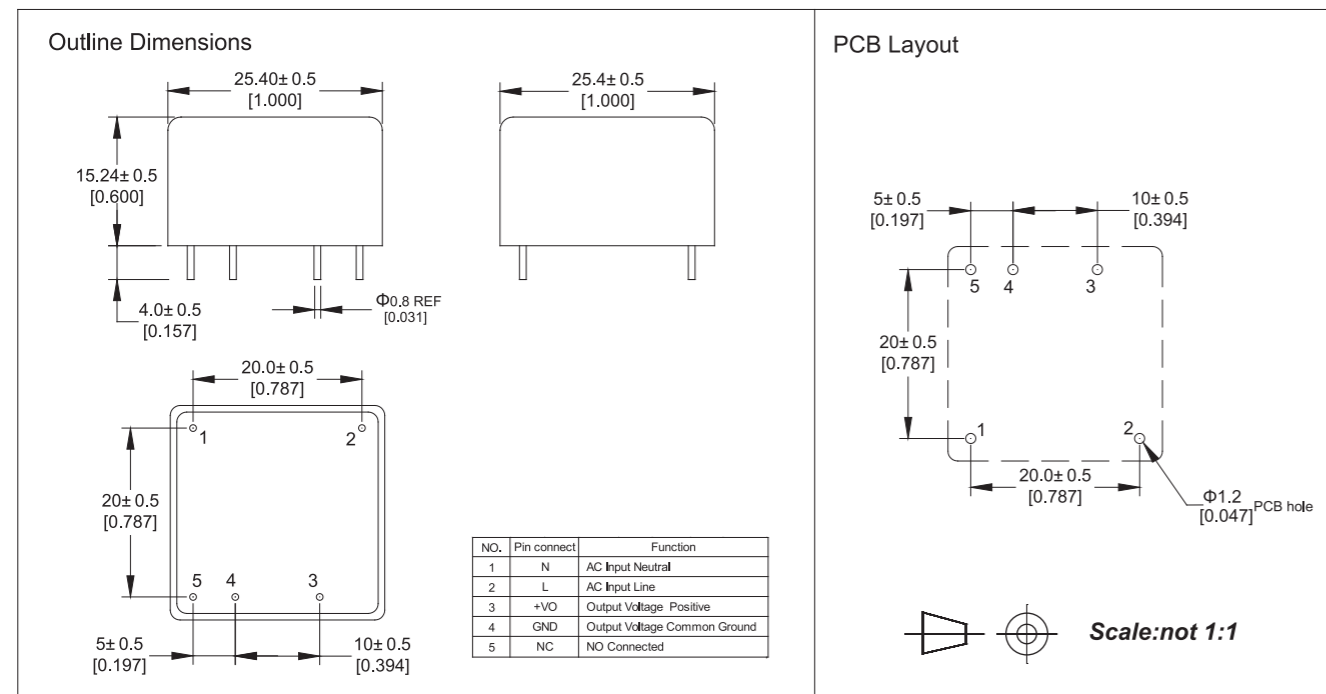


**Note:** The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

**Optional recommendations on external components:**

- C1 from output filter is electrolytic capacitor, High frequency low resistance capacitance is recommended; withstand voltage derating over 80%.
- C2 from output filter is ceramic capacitor, to remove high frequency noise.
- TVS from output filter is to protect the rear circuit.
- Fuse from input filter is to meet safety requirement. Type:1A/310V Slow-Blow.

尺寸图 **MECHANICAL SPECIFICATION**



**ZP05 ECONOMIC SERIES:[ 5W ]**



FEATURES

- Switching Power Module for PCB Mount
- AC input voltage range: 85VAC ~ 265VAC
- DC input voltage range: 100VDC ~ 370VDC
- Operating temperature range: - 25°C ~ 50°C (Refer to derating curve)
- Storage temperature range: - 25°C ~ 85°C
- Leakage current(input:265VAC): <0.1mA
- Isolation voltage: Input-Output ≥3000Vac 60S
- Insulation Resistance:Input-Output 500VDC ≥100M Ohms
- MTBF(at 25°C 70%RH environment): >300000hrs
- Compact size, easy installation
- High efficiency, low standby power consumption, environmental-friendly
- Built-in output over current protection, over-voltage protection, short circuit protection
- Built-in EMI filter components, comply with the EN55032 Class B standard
- Insulation: Class II

产品特点

- 可用在PCB上插装的电源模块
- 交流输入电压范围: 85VAC ~ 265VAC
- 直流输入电压范围: 100VDC ~ 370VDC
- 工作环境温度范围: - 25°C ~ 50°C (Refer to derating curve)
- 储存温度范围: - 25°C ~ 85°C
- 漏电流(输入电压:265VAC): <0.1mA
- 绝缘电压: 输入-输出 ≥3000Vac 60S
- 绝缘电阻: 输入-输出 500VDC ≥100M Ohms
- MTBF(25°C 70%RH): >300000hrs
- 体积小, 便于安装
- 高效率, 低待机功耗, 绿色环保
- 内置输出过流保护, 过压保护, 短路保护功能
- 内置EMI滤波元器件, 裸机可以满足EN55032 Class B
- 安全等级: Class II

应用 APPLICATIONS

该系列产品在LED、灯光控制, 仪表、通讯、智能家居及民用等多个领域都有重要的应用。  
This series could be widely applied in the LED, lighting control, instrument, smart home and other home appliances.

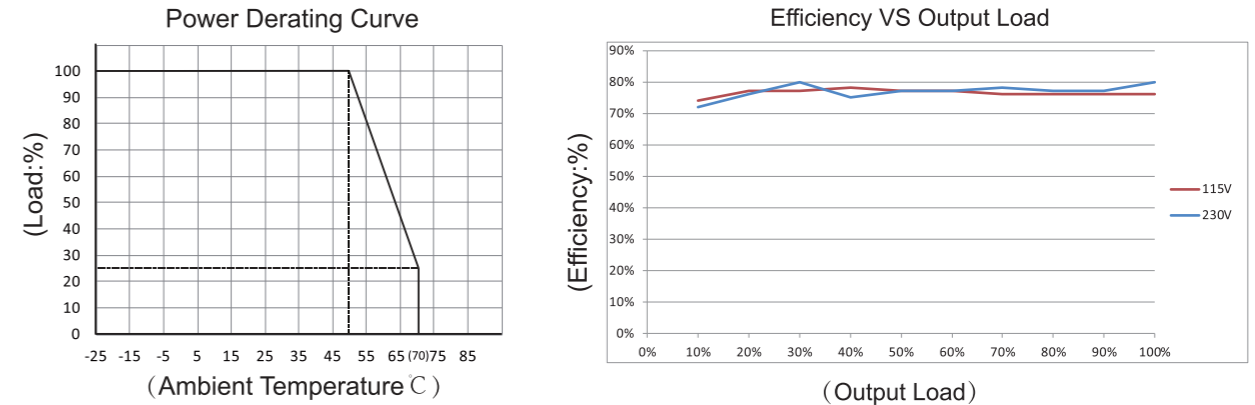
型号列表 MODEL LIST

Part No.	Output Power	DC Voltage	Rated Current	Efficiency 230VAC, % Typ.	Ripple& Noise(max)	Ambient TEMP(°C)	Weight	Certificate		
								TUV	UL	CB
ZP05S0300WB	5W	3.3Vdc	1510mA	65%	<5% Vout	50	26.8g			
ZP05S0500WB	5W	5Vdc	1000mA	70%	<5% Vout	50	26.8g	●	●	●
ZP05S0600WB	5W	6Vdc	830mA	70%	<5% Vout	50	26.8g	●	●	●
ZP05S0700WB	5W	7.5Vdc	670mA	70%	<5% Vout	50	26.8g	●	●	●
ZP05S0900WB	5W	9Vdc	550mA	70%	<5% Vout	50	26.8g	●	●	●
ZP05S1200WB	5W	12Vdc	420mA	70%	<5% Vout	50	26.8g	●	●	●
ZP05S1500WB	5W	15Vdc	330mA	70%	<5% Vout	50	26.8g	●	●	●
ZP05S1800WB	5W	18Vdc	280mA	70%	<5% Vout	50	26.8g	●	●	●
ZP05S2400WB	5W	24Vdc	210mA	70%	<5% Vout	50	26.8g	●	●	●

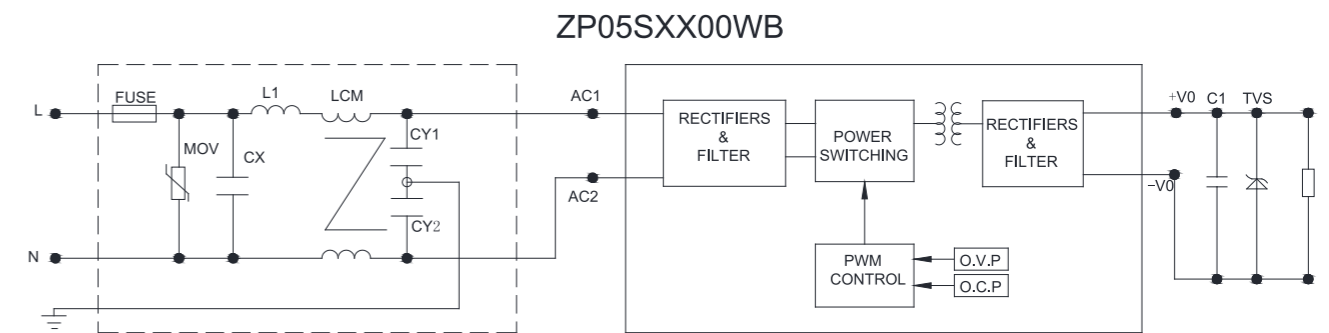
电性能 **ELECTRICAL SPECIFICATION**

项目 Item		规格 Specification		
输入 Input	输入电压范围 Input Voltage Range	85~265Vac or 100~370Vdc		
	输入频率范围 AC Input Frequency Range	47~63Hz		
	输入电流 Input Current	115Vac	230Vac	
		100mA	60mA	
	冲击电流 Surge Current	115Vac	230Vac	
		10A	20A	
	待机功耗 Stand-by Power Consumption	0.3W Max		
外接保险管推荐值 Recommended External Input Fuse	1A/250V 慢断(Time lag)			
热插拔 Hot Plug	不支持(Unavailable)			
输出 Output	输出电压精度 Output Voltage Accuracy	±5% (>20% load) ±7% (≤20% load)		
	线性调节率 Line Regulation	±2%		
	负载调节率 Load Regulation	±3%		
	温度漂移系数 Temperature Drift Factor	±0.05%/°C ( 0-85°C )		
	最小负载 Min. Load	0		
	满载开机上升时间 Set-Up Time At Full Load	38.9ms/230Vac	68.8ms/115Vac	
满载掉电保持时间( 典型值 ) Hold-up Time At Full Load	63.2ms/230Vac	12.2ms/115Vac		
保护特性 Protection Characteristics	过流保护 Over-Circuit Protection	≥120%Io 自恢复 Self-recovery		
	短路保护 Short Circuit Protection	打隔式,可长期短路,自恢复 Hiccup,Continuous short capable,Self-recovery		
环境 Ambient	工作环境温度 Operating Temperature	- 25°C ~ 50°C (Refer to derating curve)		
	工作环境湿度 Operating Humidity	10~90% RH (无冷凝 No Condensing) at full load		
	存储温度 Storage Temperature	- 25°C ~ 85°C		
	存储湿度 Storage Humidity	5%~95%		
安全&EMC Safety&EMC requirement	绝缘强度 Dielectric Strength	Input-Output ≥3000Vac 5mA 60S		
	设计参考标准 Reference Safety Standards	IEC/UL 62368 IEC/EN60950 IEC/EN61558-2-16		
	需要增加外置EMC器件 Need to add external EMC Component	传导骚扰 CE	Meet EN55032 CLASS B	
		辐射骚扰 RE	Meet EN55032 CLASS B	
可靠性 Reliability Requirement	MTBF(MIL-HDBK-217F)	300Khrs Min @230VAC input 25°C		
	老化测试 Burn-In Test	输入 264Vac ,常温满载老化 2~5 小时 The unit shall be burned in for 2~5 hours under 264Vac input and DC with full load at normal temperature		

产品特性曲线 **PRODUCT CHARACTERISTIC CURVE**



典型应用电路 **TYPICAL APPLICATION SCHEMATIC**

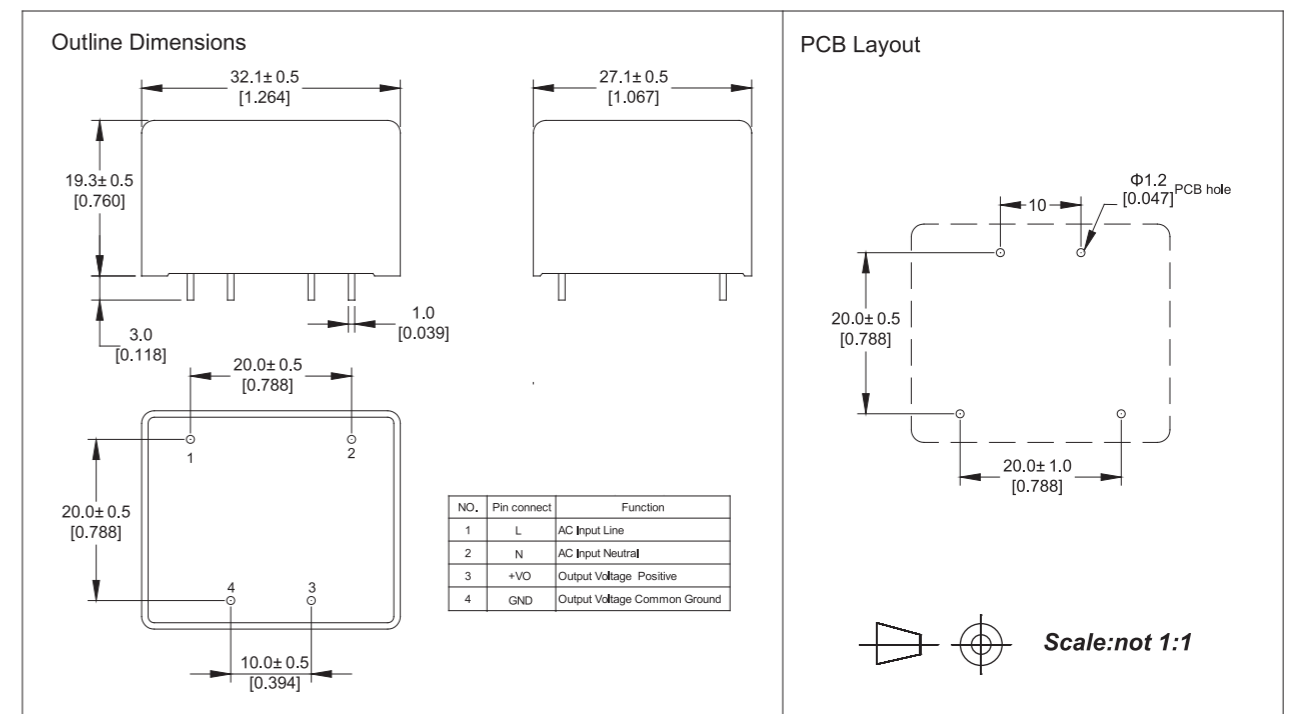


**Note:** The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

**Optional recommendations on external components:**

- C1 from output filter is electrolytic capacitor, High frequency low resistance capacitance is recommended; withstand voltage derating over 80%.
- C2 from output filter is ceramic capacitor, to remove high frequency noise.
- TVS from output filter is to protect the rear circuit.
- Fuse from input filter is to meet safety requirement. Type:1A/310V Slow-Blow.

尺寸图 **MECHANICAL SPECIFICATION**



## ZP08 SERIES: [ 8W ]



### FEATURES

- PCB mounted switching power module
- AC input voltage range: 85VAC~305VAC
- DC input voltage range: 100VDC~430VDC
- Operating temperature range: -25°C ~ 85°C
- Storage temperature range: -25°C ~ 85°C
- Leakage current(input:305VAC): <0.25mA
- Isolation voltage: Input-Output ≥3000Vac 60S
- Insulation Resistance:Input-Output 500VDC ≥100M Ohms
- Flat, height 20mm.
- High efficiency, low standby power consumption, green environmental protection function
- Built-in output over current protection, over-voltage protection, short circuit protection.
- Built-in EMI filter components, comply with the EN55032 Class B standard .
- Insulation: Class II

### 产品特点:

- 可用在PCB上插装的电源模块
- 交流输入电压范围: 85VAC~264VAC
- 直流输入电压范围: 100VDC~380VDC
- 工作环境温度范围: -25°C ~ 50°C
- 储存温度范围: -25°C ~ 85°C
- 漏电流(输入电压:305VAC): <0.25mA
- 绝缘电压: 输入-输出 ≥3000Vac 60S
- 绝缘电阻: 输入-输出 500VDC ≥100M Ohms
- 结构扁平, 高度20mm
- 高效率, 低待机功耗, 绿色环保
- 内置输出过流保护, 过压保护, 短路保护功能。
- 内置EMI滤波元器件, 裸机可以满足EN55032 Class B
- 安全等级: Class II

### 应用 APPLICATIONS

该系列产品在LED、灯光控制, 仪表、通讯、智能家居及民用等多个领域都有重要的应用, 当应用于电磁兼容比较恶劣的环境时必须参考应用电路。

This series could be widely applied in the LED, lighting control, instrument, smart home and other home appliance. If necessary, please refer to application circuit to improve EMC performance.

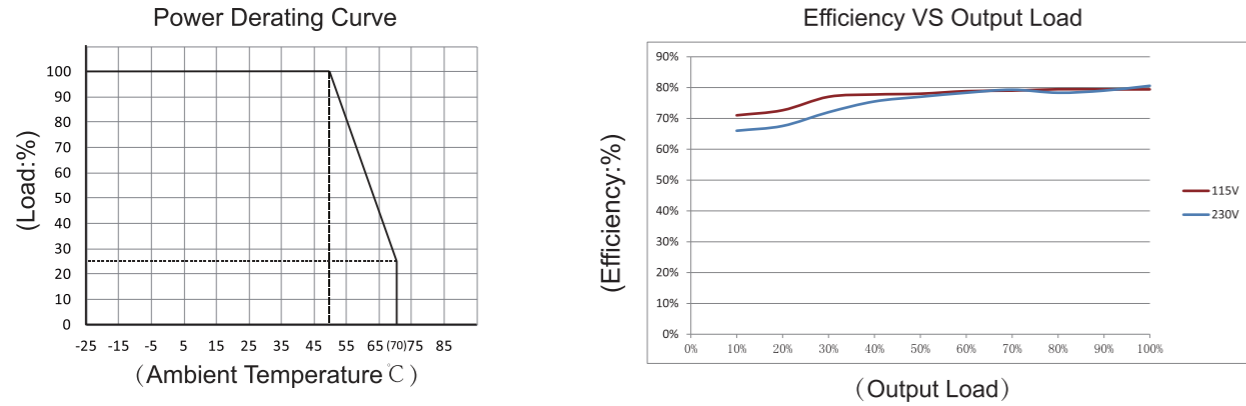
### 型号列表 MODEL LIST

Part No.	Output Power	DC Voltage	Rated Current	Efficiency 230VAC, % Typ.	Ripple&Noise (max)	Ambient TEMP(°C)	Weight	CQC
ZP08S0500WK	8W	5Vdc	1600mA	72%	120mVp-p	50	85g	●
ZP08S0900WK	8W	9Vdc	889mA	75%	120mVp-p	50	85g	●
ZP08S1200WK	8W	12Vdc	667mA	77%	120mVp-p	50	85g	●
ZP08S1500WK	8W	15Vdc	533mA	75%	200mVp-p	50	85g	●
ZP08S1800WK	8W	18Vdc	444mA	75%	200mVp-p	50	85g	●
ZP08S2400WK	8W	24Vdc	333mA	75%	300mVp-p	50	85g	●

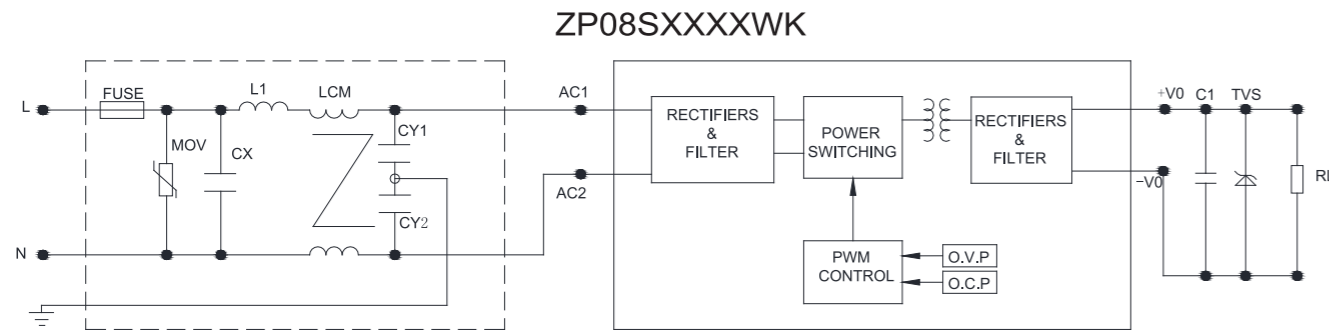
### 电性能 ELECTRONIC SPECIFICATION

	项目 Item	规格 Specification		
输入 Input	输入电压范围 Input Voltage Range	85~305Vac or 100~430Vdc		
	输入频率范围 AC Input Frequency Range	47~63Hz		
	输入电流 Input Current	115Vac	230Vac	277Vac
		25mA	18mA	15mA
	冲击电流 Inrush Current	115Vac	230Vac	
		6A	10A	
	待机功耗 Stand-by Power Consumption	0.3W Max		
外接保险管推荐值 Recommended External Input Fuse	1A/350V 慢断(Time lag)			
热插拔 Hot Plug	不支持(Unavailable)			
输出 Output	输出电压精度 Output Voltage Accuracy	±5% (>20% load) ±7% (≤20% load)		
	线性调节率 Line Regulation	±2%		
	负载调节率 Load Regulation	±3%		
	温度漂移系数 Temperature Drift Factor	±0.04%/°C ( 0-85°C )		
	最小负载 Min. Load	0		
	满载开机上升时间 Set-Up Time At Full Load	≤50ms/230Vac , ≤30ms /115Vac		
	满载掉电保持时间(典型值) Hold-up Time At Full Load	> 40ms/230Vac , > 12ms/115Vac		
保护特性 Protection Characteristics	过流保护 Over-Current Protection	≥120%Io 自恢复 Self-recovery		
	短路保护 Short Circuit Protection	打隔式,可长期短路,自恢复 Hiccup,Continuous short capable,Self-recovery		
环境 Ambient	工作环境温度 Operating Temperature	-25°C ~ 50°C (Refer to derating curve)		
	工作环境湿度 Operating Humidity	10~90% RH (无冷凝 No Condensing) at full load		
	存储温度 Storage Temperature	-25°C ~ 85°C		
安全&EMC Safety&EMC requirement	存储湿度 Storage Humidity	5%~95%		
	绝缘强度 Dielectric Strength	Input-Output ≥3000Vac 5mA 60S		
	设计参考标准 Reference Safety Standards	IEC/UL 62368 IEC/EN60950 IEC/EN61558-2-16		
可靠性 Reliability Requirement	需要增加外置EMC器件 Need to add external EMC Component	传导骚扰 CE	Meet EN55032 CLASS B	
		辐射骚扰 RE	Meet EN55032 CLASS B	
可靠性 Requirement	MTBF(MIL-HDBK-217F)	1000Khrs Min @230VAC input 25°C		
	老化测试 Burn-In Test	输入 264Vac ,常温满载老化 2~5 小时 The unit shall be burned in for 2~5 hours under 264Vac input and DC with full load at normal temperature		

产品特性曲线 **PRODUCT CHARACTERISTIC CURVE**



典型应用电路 **TYPICAL APPLICATION SCHEMATICS**

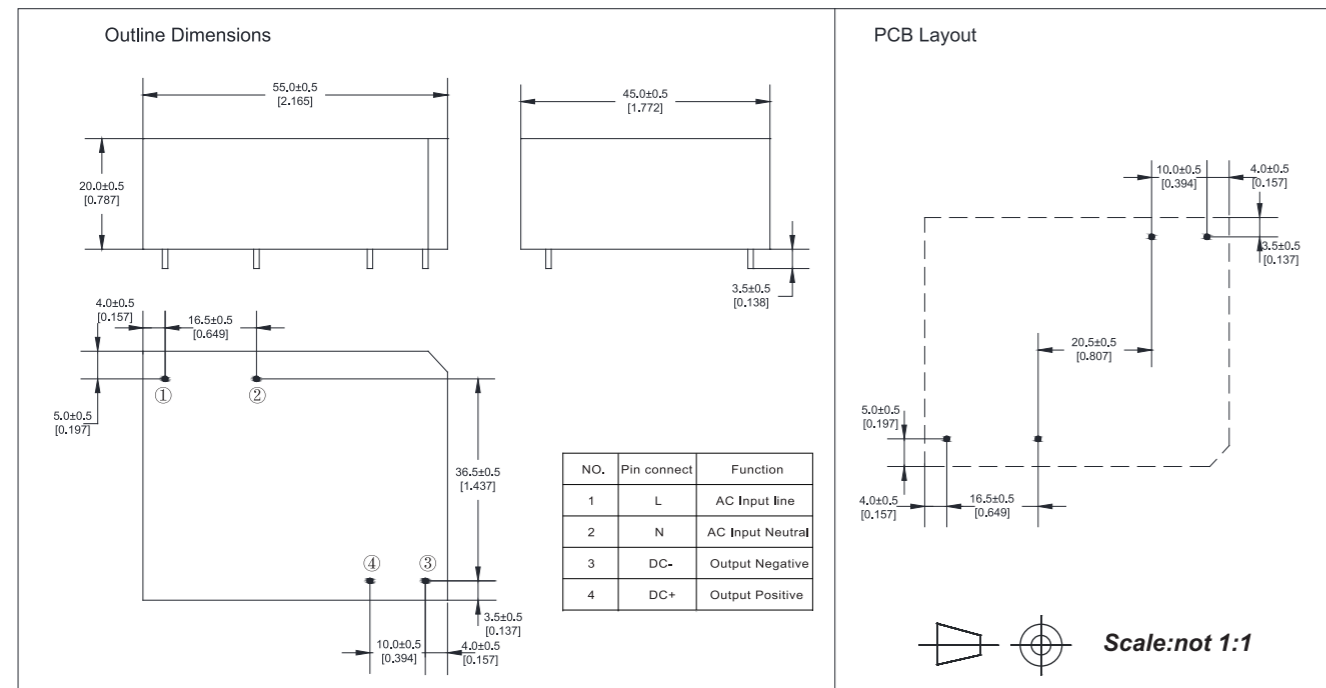


**Note:** The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

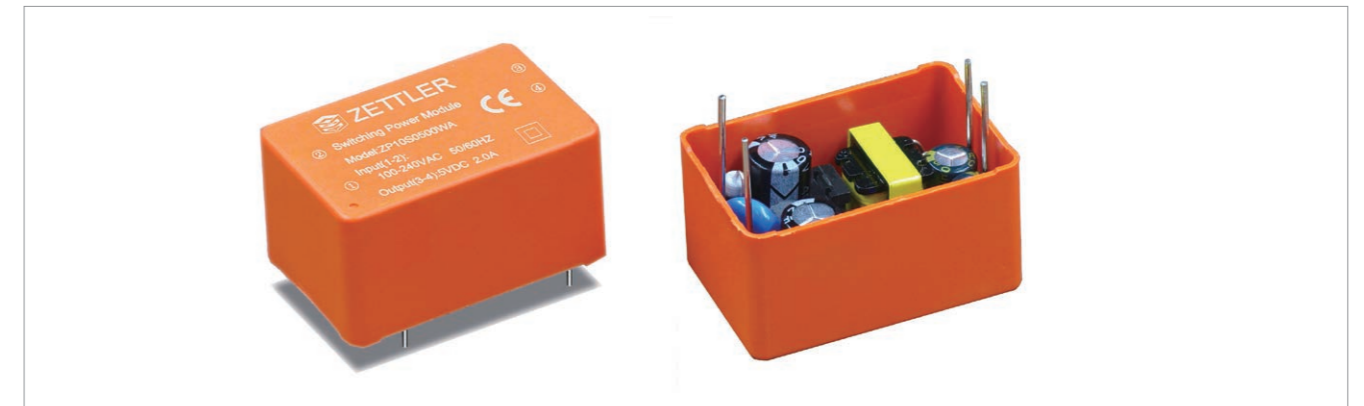
**Optional recommendations on external components:**

- C1 from output filter is electrolytic capacitor, High frequency low resistance capacitance is recommended; withstand voltage derating over 80%.
- C2 from output filter is ceramic capacitor, to remove high frequency noise.
- TVS from output filter is to protect the rear circuit.
- Fuse from input filter is to meet safety requirement. Type:1A/310V Slow-Blow.

尺寸图 **MECHANICAL SPECIFICATION**



**ZP10 MINI SERIES:[ 10W ]**



**FEATURES**

- PCB mounted switching power module
- AC input voltage range: 85VAC ~ 265VAC
- DC input voltage range: 100VDC ~ 370VDC
- Operating temperature range: -25°C ~ 50°C (Refer to derating curve)
- Storage temperature range: -25°C ~ 85°C
- Leakage current(input:265VAC): <0.1mA
- Isolation voltage: Input-Output ≥3000Vac 60S
- Insulation Resistance:Input-Output 500VDC ≥100M Ohms
- MTBF(at 25°C 70%RH environment): >300000hrs
- Compact size, easy installation
- High efficiency, low standby power consumption, environmental-friendly
- Built-in output over current protection, over-voltage protection, short circuit protection
- Built-in EMI filter components, comply with the EN55032 Class B standard
- Insulation: Class II

**应用 APPLICATIONS**

该系列产品在LED、灯光控制、仪表、通讯、智能家居及民用等多个领域都有重要的应用。  
This series could be widely applied in the LED, lighting control, instrument, smart home and other home appliances.

**型号列表 MODEL LIST**

Part No.	Output Power	DC Voltage	Rated Current	Efficiency 230VAC, % Typ.	Ripple & Noise(max)	Ambient TEMP(°C)	Weight
ZP10S0300WA	10W	3.3Vdc	3000mA	65%	<2% Vout	50	50g
ZP10S0500WA	10W	5Vdc	2000mA	70%	<2% Vout	50	50g
ZP10S0600WA	10W	6Vdc	1666mA	70%	<2% Vout	50	50g
ZP10S0700WA	10W	7.5Vdc	1333mA	70%	<2% Vout	50	50g
ZP10S0900WA	10W	9Vdc	1111mA	70%	<2% Vout	50	50g
ZP10S1000WA	10W	10Vdc	1000mA	70%	<2% Vout	50	50g
ZP10S1200WA	10W	12Vdc	833mA	70%	<2% Vout	50	50g
ZP10S1500WA	10W	15Vdc	666mA	70%	<2% Vout	50	50g
ZP10S1800WA	10W	18Vdc	555mA	70%	<2% Vout	50	50g
ZP10S2400WA	10W	24Vdc	416mA	70%	<2% Vout	50	50g
ZP10S4800WA	10W	48Vdc	208mA	70%	<2% Vout	50	50g

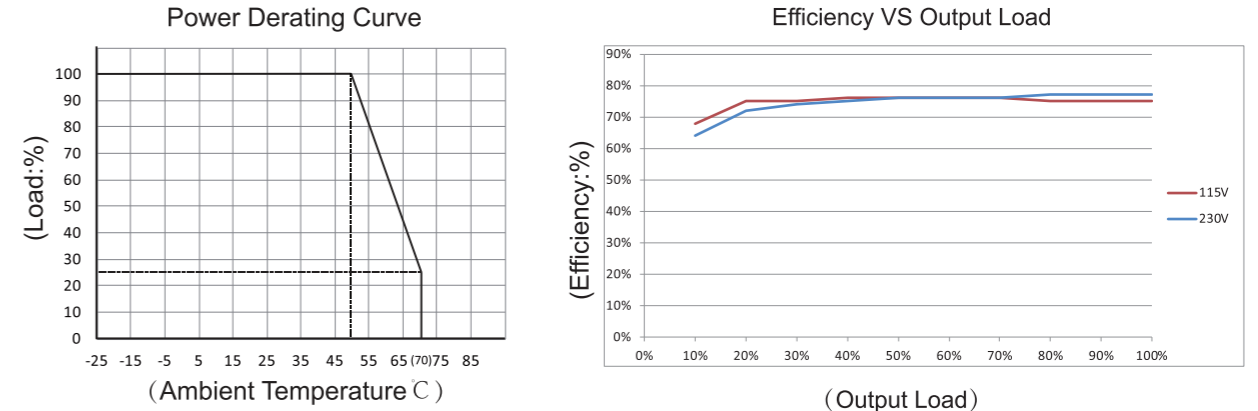
**产品特点**

- 可用在PCB上插装的电源模块
- 交流输入电压范围: 85VAC ~ 265VAC
- 直流输入电压范围: 100VDC ~ 370VDC
- 工作环境温度范围: -25°C ~ 50°C (Refer to derating curve)
- 储存温度范围: -25°C ~ 85°C
- 漏电流(输入电压:265VAC): <0.1mA
- 绝缘电压: 输入-输出 ≥3000Vac 60S
- 绝缘电阻: 输入-输出 500VDC ≥100M Ohms
- MTBF(25°C 70%RH): >300000hrs
- 体积小, 便于安装
- 高效率, 低待机功耗, 绿色环保
- 内置输出过流保护, 过压保护, 短路保护功能
- 内置EMI滤波元器件, 裸机可以满足EN55032 Class B
- 安全等级: Class II

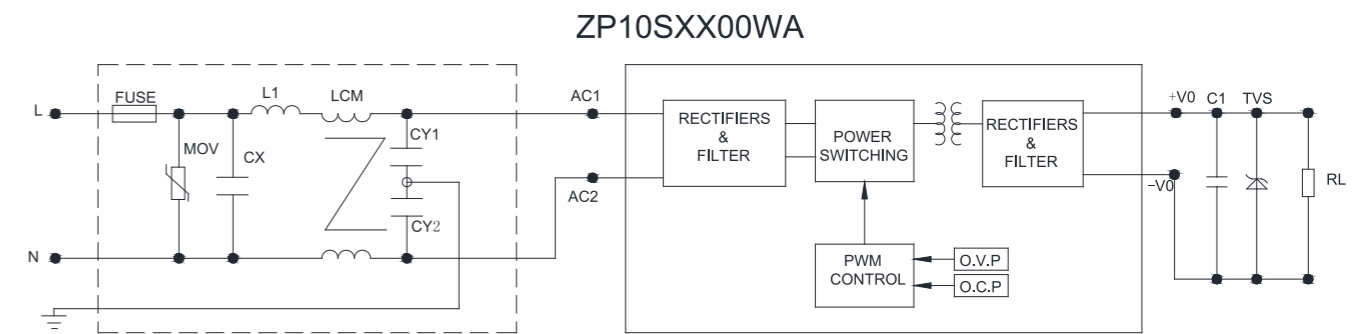
电性能 **ELECTRICAL SPECIFICATION**

项目 Item		规格 Specification	
输入 Input	输入电压范围 Input Voltage Range	85~265Vac or 100~370Vdc	
	输入频率范围 AC Input Frequency Range	47~63Hz	
	输入电流 Input Current	115Vac	230Vac
		200mA	120mA
	冲击电流 Inrush Current	115Vac	230Vac
		30A	60A
	待机功耗 Stand-by Power Consumption	0.3W Max	
外接保险管推荐值 Recommended External Input Fuse	2A/250V 慢断(Time lag)		
热插拔 Hot Plug	不支持(Unavailable)		
输出 Output	输出电压精度 Output Voltage Accuracy	±7%	
	线性调节率 Line Regulation	±2%	
	负载调节率 Load Regulation	±3%	
	温度漂移系数 Temperature Drift Factor	±0.05%/°C ( 0-85°C )	
	最小负载 Min. Load	0	
	满载开机上升时间 Set-Up Time At Full Load	253ms/230Vac	169ms/115Vac
满载掉电保持时间(典型值) Hold-up Time At Full Load	76.9ms/230Vac	13.6ms/115Vac	
保护特性 Protection Characteristics	过流保护 Over-Current Protection	≥120%Io 自恢复 Self-recovery	
	短路保护 Short Circuit Protection	打隔式,可长期短路,自恢复 Hiccup, Continuous short capable, Self-recovery	
环境 Ambient	工作环境温度 Operating Temperature	- 25°C ~ 50°C (Refer to derating curve)	
	工作环境湿度 Operating Humidity	10~90% RH (无冷凝 No Condensing) at full load	
	存储温度 Storage Temperature	- 25°C ~ 85°C	
	存储湿度 Storage Humidity	5%~95%	
安全&EMC Safety&EMC requirement	绝缘强度 Dielectric Strength	Input-Output ≥3000Vac 5mA 60S	
	设计参考标准 Reference Safety Standards	IEC/UL 62368 IEC/EN60950 IEC/EN61558-2-16	
	需要增加外置EMC器件 Need to add external EMC Component	传导骚扰 CE	Meet EN55032 CLASS B
		辐射骚扰 RE	Meet EN55032 CLASS B
可靠性 Reliability Requirement	MTBF(MIL-HDBK-217F)	300Khrs Min @230VAC input 25°C	
	老化测试 Burn-In Test	输入 264Vac, 常温满载老化 2~5 小时 The unit shall be burned in for 2~5 hours under 264Vac input and DC with full load at normal temperature	

产品特性曲线 **PRODUCT CHARACTERISTIC CURVE**



典型应用电路 **TYPICAL APPLICATION SCHEMATIC**

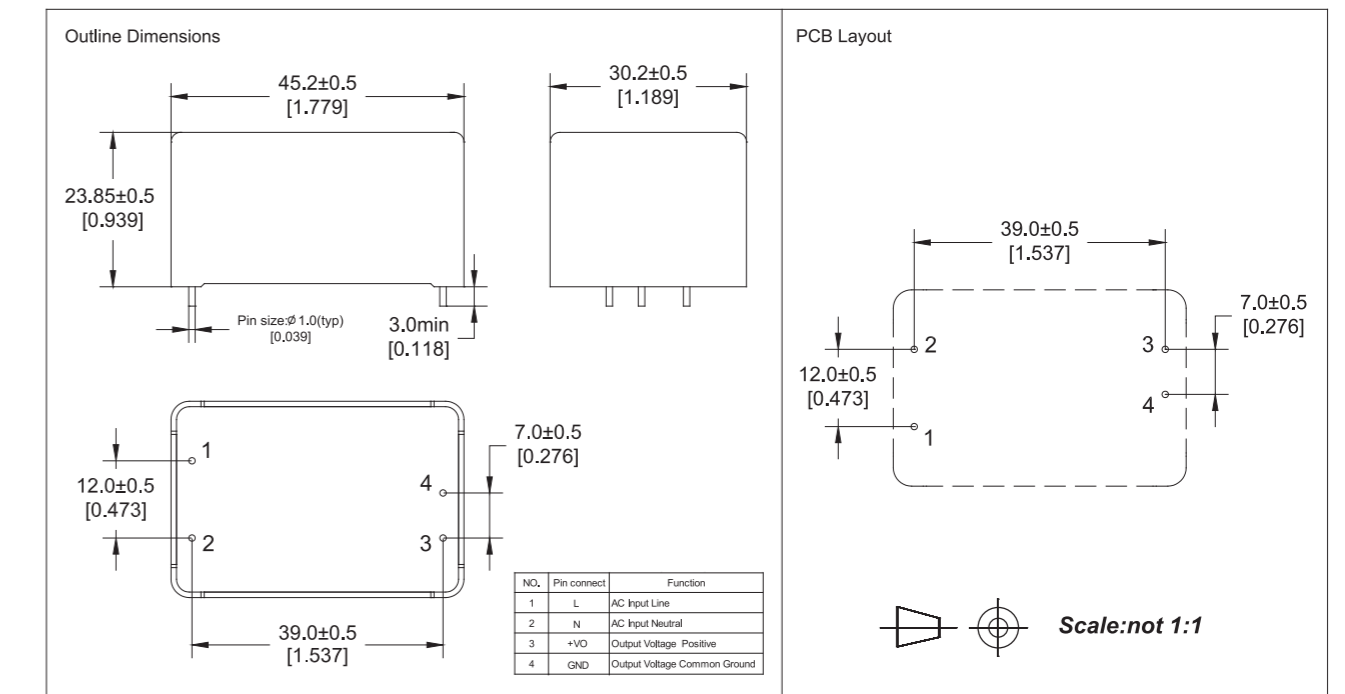


**Note:** The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

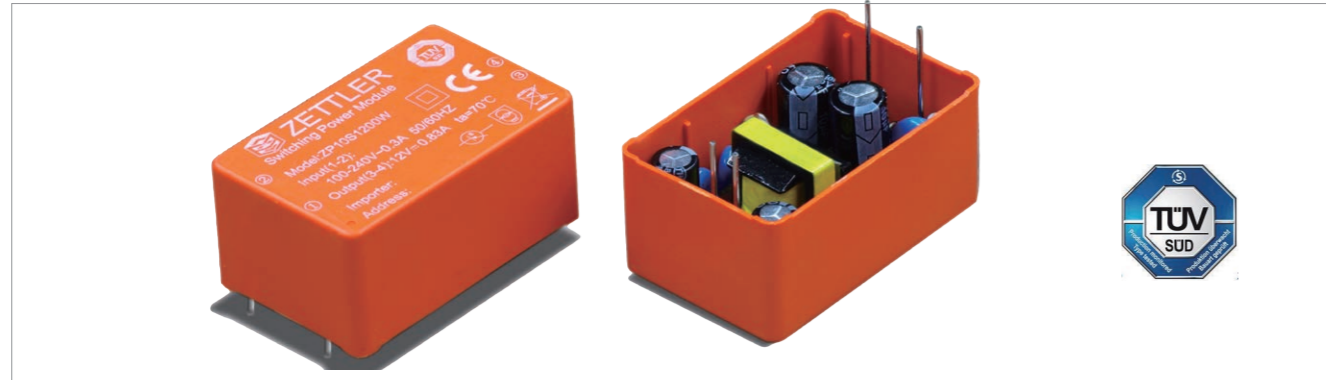
**Optional recommendations on external components:**

- C1 from output filter is electrolytic capacitor, High frequency low resistance capacitance is recommended; withstand voltage derating over 80%.
- C2 from output filter is ceramic capacitor, to remove high frequency noise.
- TVS from output filter is to protect the rear circuit.
- Fuse from input filter is to meet safety requirement. Type:1A/310V Slow-Blow.

尺寸图 **MECHANICAL SPECIFICATION**



## ZP10 STANDARD SERIES:[ 10W ]



### FEATURES

- PCB mounted switching power module
- AC input voltage range: 85VAC ~ 265VAC
- DC input voltage range: 100VDC – 370VDC
- Operating temperature range: - 25°C ~ 70°C (Refer to derating curve)
- Storage temperature range: - 25°C ~ 85°C
- Leakage current(input:265VAC): <0.1mA
- Isolation voltage: Input-Output ≥3000Vac 60S
- Insulation Resistance:Input-Output 500VDC ≥100M Ohms
- MTBF(at 25°C 70%RH environment): >300000hrs
- Compact size, easy installation
- High efficiency, low standby power consumption, environmental-friendly
- Built-in output over current protection, over-voltage protection, short circuit protection
- Built-in EMI filter components, comply with the EN55032 Class B standard
- Insulation: Class II

### 应用 APPLICATIONS

该系列产品在LED、灯光控制，仪表、通讯、智能家具及民用等多个领域都有重要的应用。  
This series could be widely applied in the LED, lighting control, instrument, smart home and other home appliances.

### 型号列表 MODEL LIST

Part No.	Output Power	DC Voltage	Rated Current	Efficiency 230VAC, % Typ.	Ripple & Noise(max)	Ambient TEMP(°C)	Weight	Certificate	
								TUV	CB
ZP10S0300W	10W	3.3Vdc	3000mA	72%	<1% Vout	70	70g	●	●
ZP10S0500W	10W	5Vdc	2000mA	72%	<1% Vout	70	70g	●	●
ZP10S0600W	10W	6Vdc	1670mA	72%	<1% Vout	70	70g	●	●
ZP10S0700W	10W	7.5Vdc	1330mA	72%	<1% Vout	70	70g	●	●
ZP10S0800W	10W	8Vdc	1250mA	72%	<1% Vout	70	70g	●	●
ZP10S0900W	10W	9Vdc	1110mA	72%	<1% Vout	70	70g	●	●
ZP10S1000W	10W	10Vdc	1000mA	72%	<1% Vout	70	70g	●	●
ZP10S1200W	10W	12Vdc	830mA	72%	<1% Vout	70	70g	●	●
ZP10S1500W	10W	15Vdc	660mA	72%	<1% Vout	70	70g	●	●
ZP10S1800W	10W	18Vdc	550mA	72%	<1% Vout	70	70g	●	●
ZP10S2400W	10W	24Vdc	420mA	72%	<1% Vout	70	70g	●	●

### 产品特点

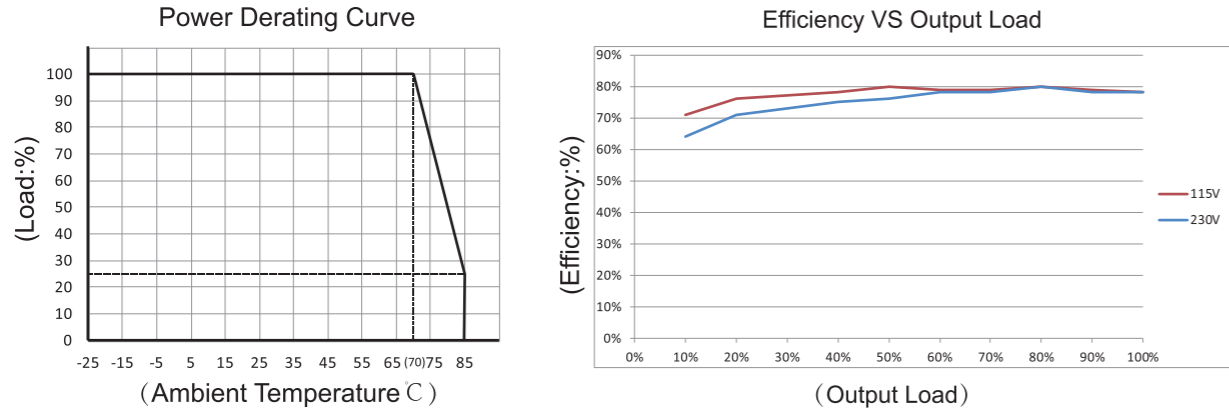
- 可用在PCB上插装的电源模块
- 交流输入电压范围: 85VAC ~ 265VAC
- 直流输入电压范围: 100VDC – 370VDC
- 工作环境温度范围: - 25°C ~ 70°C (Refer to derating curve)
- 储存温度范围: - 25°C ~ 85°C
- 漏电流(输入电压:265VAC): <0.1mA
- 绝缘电压: 输入-输出 ≥3000Vac 60S
- 绝缘电阻: 输入-输出 500VDC ≥100M Ohms
- MTBF(25°C 70%RH): >300000hrs
- 体积小, 便于安装
- 高效率, 低待机功耗, 绿色环保
- 内置输出过流保护, 过压保护, 短路保护功能
- 内置EMI滤波元器件, 裸机可以满足EN55032 Class B
- 安全等级: Class II

## 电性能 ELECTRICAL SPECIFICATION

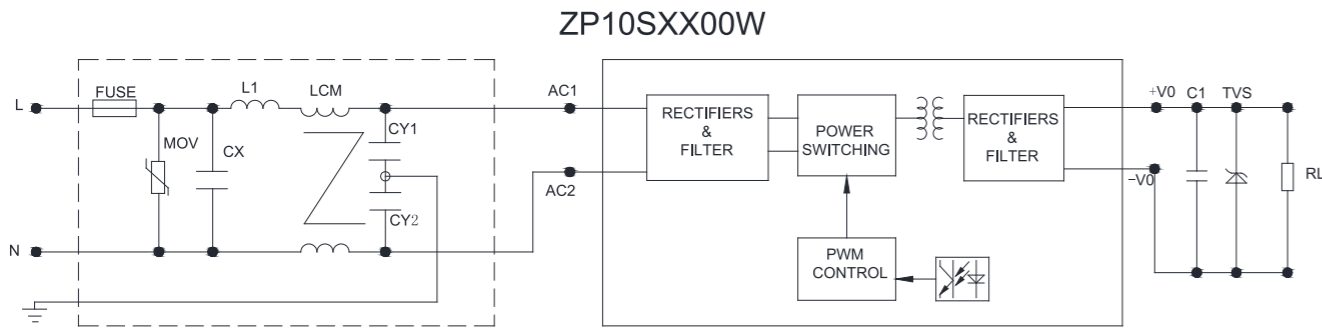
项目 Item		规格 Specification		
输入 Input	输入电压范围 Input Voltage Range	85~265Vac or 100~370Vdc		
	输入频率范围 AC Input Frequency Range	47~63Hz		
	输入电流 Input Current	115Vac	230Vac	
		200mA	120mA	
	冲击电流 Inrush Current	115Vac	230Vac	
		20A	40A	
	待机功耗 Stand-by Power Consumption	0.3W Max		
外接保险管推荐值 Recommended External Input Fuse	2A/250V 慢断(Time lag)			
热插拔 Hot Plug	不支持(Unavailable)			
输出 Output	输出电压精度 Output Voltage Accuracy	±3%		
	线性调节率 Line Regulation	±0.5%		
	负载调节率 Load Regulation	±0.5%		
	温度漂移系数 Temperature Drift Factor	±0.05%/°C ( 0-85°C )		
	最小负载 Min. Load	0		
	满载开机上升时间 Set-Up Time At Full Load	149ms/230Vac	248ms/115Vac	
	满载掉电保持时间(典型值) Hold-up Time At Full Load	62.4ms/230Vac	10.6ms/115Vac	
保护特性 Protection Characteristics	过流保护 Over-Current Protection	≥120%Io 自恢复 Self-recovery		
	短路保护 Short Circuit Protection	打隔式,可长期短路,自恢复 Hiccup,Continuous short capable,Self-recovery		
环境 Environmental	工作环境温度 Operating Temperature	- 25°C ~ 70°C (Refer to derating curve)		
	工作环境湿度 Operating Humidity	10~90% RH (无冷凝 No Condensing) at full load		
	存储温度 Storage Temperature	- 25°C ~ 85°C		
安全&EMC Safety&EMC requirement	绝缘强度 Dielectric Strength	Input-Output ≥3000Vac 5mA 60S		
	设计参考标准 Reference Safety Standards	IEC/UL 62368 IEC/EN60950 IEC/EN61558-2-16		
	需要增加外置EMC器件 Need to add external EMC Component	传导骚扰 CE	Meet EN55032 CLASS B	
		辐射骚扰 RE	Meet EN55032 CLASS B	
可靠性 Reliability Requirement	MTBF(MIL-HDBK-217F)	300Khrs Min @230VAC input 25°C		
	老化测试 Burn-In Test	输入 264Vac, 常温满载老化 2~5 小时 The unit shall be burned in for 2~5 hours under 264Vac input and DC with full load at normal temperature		



产品特性曲线 **PRODUCT CHARACTERISTIC CURVE**



典型应用电路 **TYPICAL APPLICATION SCHEMATIC**

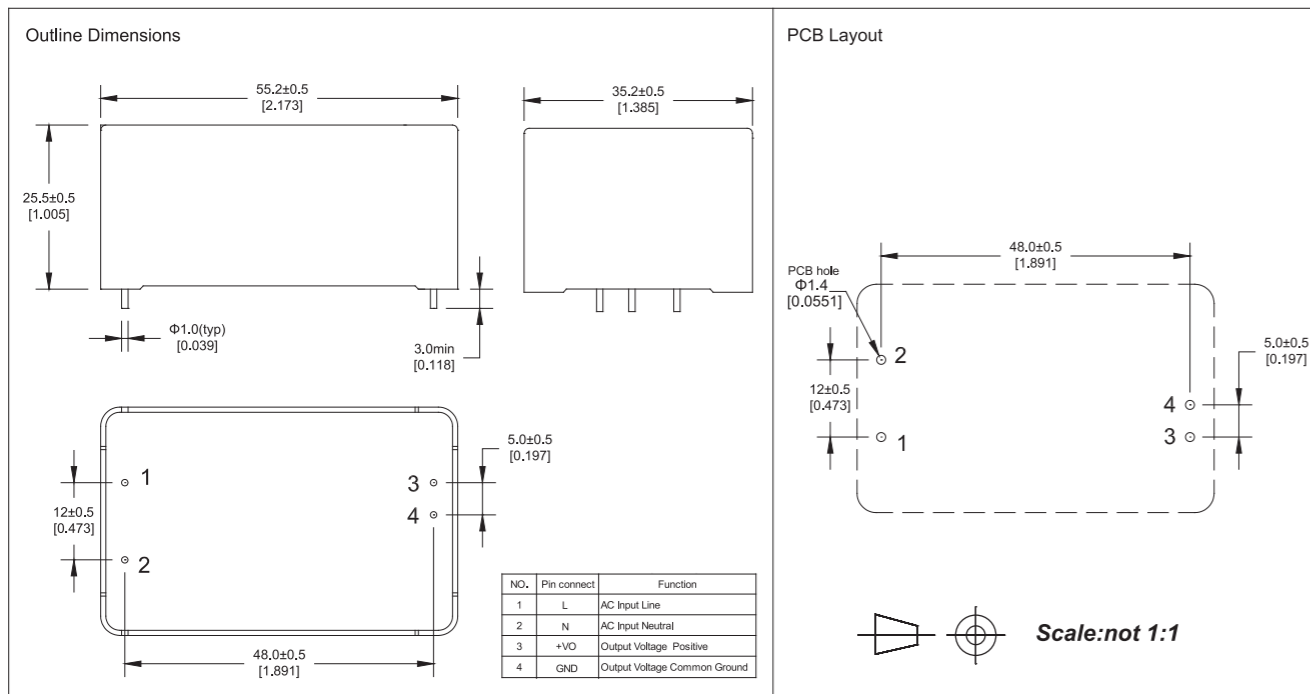


**Note:** The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

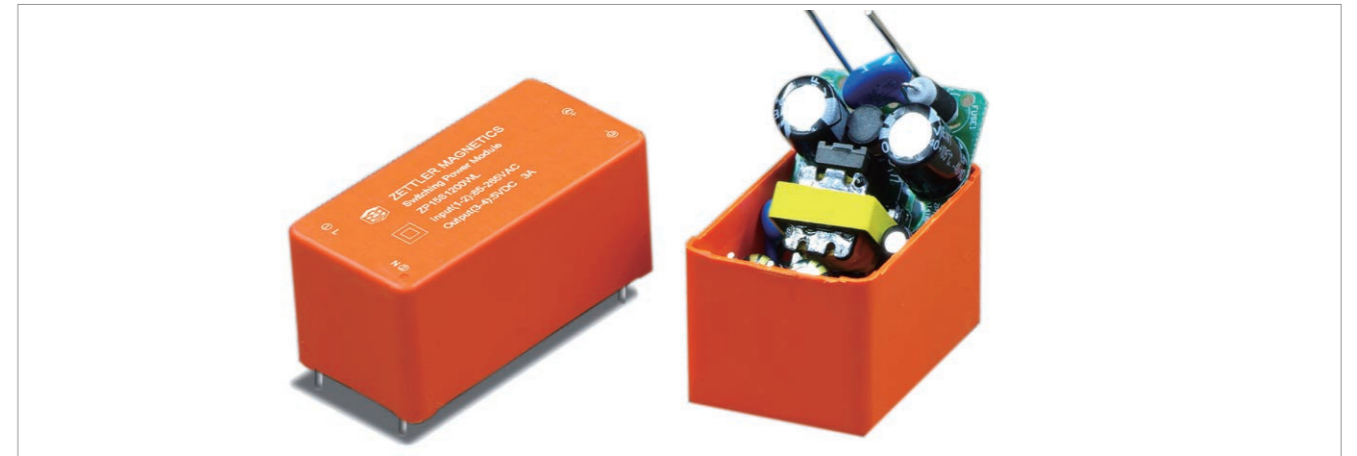
**Optional recommendations on external components:**

- C1 from output filter is electrolytic capacitor, High frequency low resistance capacitance is recommended; withstand voltage derating over 80%.
- C2 from output filter is ceramic capacitor, to remove high frequency noise.
- TVS from output filter is to protect the rear circuit.
- Fuse from input filter is to meet safety requirement. Type:1A/310V Slow-Blow.

尺寸图 **MECHANICAL SPECIFICATION**



**ZP15 STANDARD SERIES:[ 15W ]**



**FEATURES**

- PCB mounted switching power module
- AC input voltage range: 85VAC ~ 265VAC
- DC input voltage range: 100VDC ~ 370VDC
- Operating temperature range: -25°C ~ 50°C (Refer to derating curve)
- Storage temperature range: -25°C ~ 85°C
- Leakage current(input:265VAC): <0.1mA
- Isolation voltage: Input-Output ≥3000Vac 60S
- Insulation Resistance:Input-Output 500VDC ≥100M Ohms
- MTBF(at 25°C 70%RH environment): >970000hrs
- Compact size, easy installation.
- High efficiency, low standby power consumption, environmental-friendly
- Built-in output over current protection, over-voltage protection, short circuit protection
- Built-in EMI filter components, comply with the EN55032 Class B standard
- Insulation: Class II

**产品特点**

- 可用在PCB上插装的电源模块
- 交流输入电压范围: 85VAC ~ 265VAC
- 直流输入电压范围: 100VDC ~ 370VDC
- 工作环境温度范围: -25°C ~ 50°C (Refer to derating curve)
- 储存温度范围: -25°C ~ 85°C
- 漏电流(输入电压:265VAC): <0.25mA
- 绝缘电压: 输入-输出 ≥3000Vac 60S
- 绝缘电阻: 输入-输出 500VDC ≥100M Ohms
- MTBF(25°C 70%RH): >970000hrs
- 体积小, 便于安装
- 高效率, 低待机功耗, 绿色环保
- 内置输出过流保护, 过压保护, 短路保护功能
- 内置EMI滤波元器件, 裸机可以满足EN55032 Class B
- 安全等级: Class II

**应用 APPLICATIONS**

该系列产品在LED、灯光控制, 仪表、通讯、智能家居及民用等多个领域都有重要的应用。  
This series could be widely applied in the LED, lighting control, instrument, smart home and other home appliances.

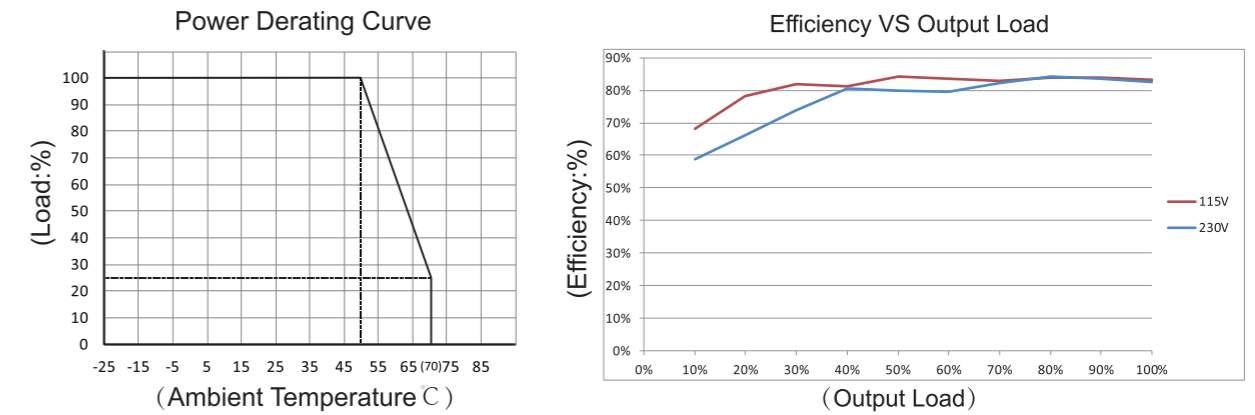
**型号列表 MODEL LIST**

Part No.	Output Power	DC Voltage	Rated Current	Efficiency 230VAC, % Typ.	Ripple& Noise(max)	Ambient TEMP(°C)	Weight
ZP15S0300WL	11.55W	3.3Vdc	3.5A	74%	200mVp-p	50	59g
ZP15S0500WL	15W	5Vdc	3A	78%	200mVp-p	50	59g
ZP15S1200WL	15W	12Vdc	1.25A	82%	200mVp-p	50	59g
ZP15S1500WL	15W	15Vdc	1A	82%	200mVp-p	50	59g
ZP15S2400WL	15W	24Vdc	0.63A	83%	200mVp-p	50	59g

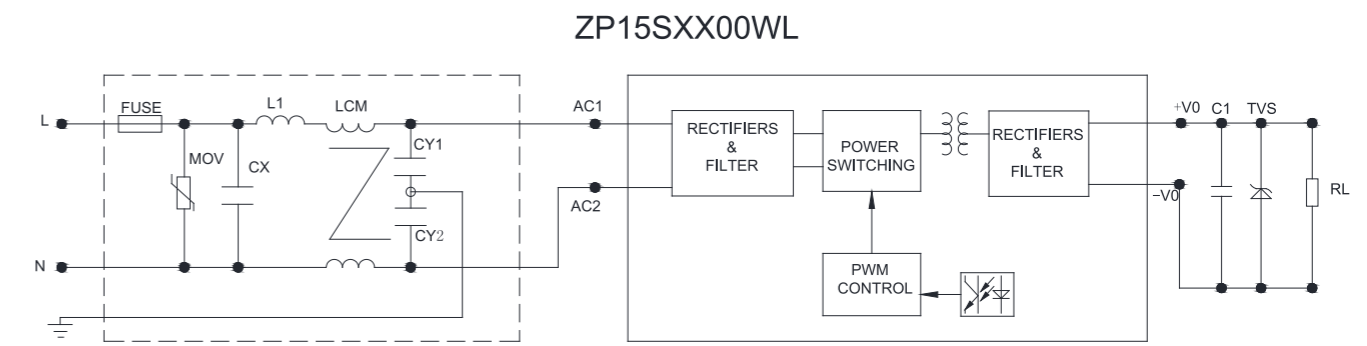
电性能 **ELECTRICAL SPECIFICATION**

项目 Item		规格 Specification	
输入 Input	输入电压范围 Input Voltage Range	85~265Vac or 100~370Vdc	
	输入频率范围 AC Input Frequency Range	47~440Hz	
	输入电流 Input Current	115Vac	230Vac
		250mA	120mA
	冲击电流 Inrush Current	115Vac	230Vac
		20A	40A
	待机功耗 Stand-by Power Consumption	0.3W Max	
外接保险管推荐值 Recommended External Input Fuse	3.15A/250V 慢断(Time lag)		
热插拔 Hot Plug	不支持(Unavailable)		
输出 Output	输出电压精度 Output Voltage Accuracy	±5%	
	线性调节率 Line Regulation	±1%	
	负载调节率 Load Regulation	±1%	
	温度漂移系数 Temperature Drift Factor	±0.05%/°C ( 0-85°C )	
	最小负载 Min. Load	0	
	满载开机上升时间 Set-Up Time At Full Load	253ms,20ms/230Vac 169ms,20ms/115Vac	
满载掉电保持时间( 典型值 ) Hold-up Time At Full Load	76.9ms/230Vac 13.6ms/115Vac		
保护特性 Protection Characteristics	过流保护 Over-Current Protection	≥120%Io 自恢复 Self-recovery	
	短路保护 Short Circuit Protection	打隔式,可长期短路,自恢复 Hiccup,Continuous short capable,Self-recovery	
环境 Ambient	工作环境温度 Operating Temperature	-25°C ~ 50°C (Refer to derating curve)	
	工作环境湿度 Operating Humidity	20~90% RH (无冷凝 No Condensing) at full load	
	存储温度 Storage Temperature	-25°C ~ +85°C	
	存储湿度 Storage Humidity	10%~95%	
安全&EMC Safety&EMC requirement	绝缘强度 Dielectric Strength	Input-Output ≥3000Vac 5mA 60S	
	设计参考标准 Reference Safety Standards	IEC/UL 62368 IEC/EN60950	
	需要增加外置EMC器件 Need to add external EMC Component	传导骚扰 CE	Meet EN55032 CLASS B
		辐射骚扰 RE	Meet EN55032 CLASS B
可靠性 Reliability Requirement	MTBF(MIL-HDBK-217F)	300Khrs Min @230VAC input 25°C	
	老化测试 Burn-In Test	输入 264Vac, 常温满载老化 2~5 小时 The unit shall be burned in for 2~5 hours under 264Vac input and DC with full load at normal temperature	

产品特性曲线 **PRODUCT CHARACTERISTIC CURVE**



典型应用电路 **TYPICAL APPLICATION SCHEMATIC**

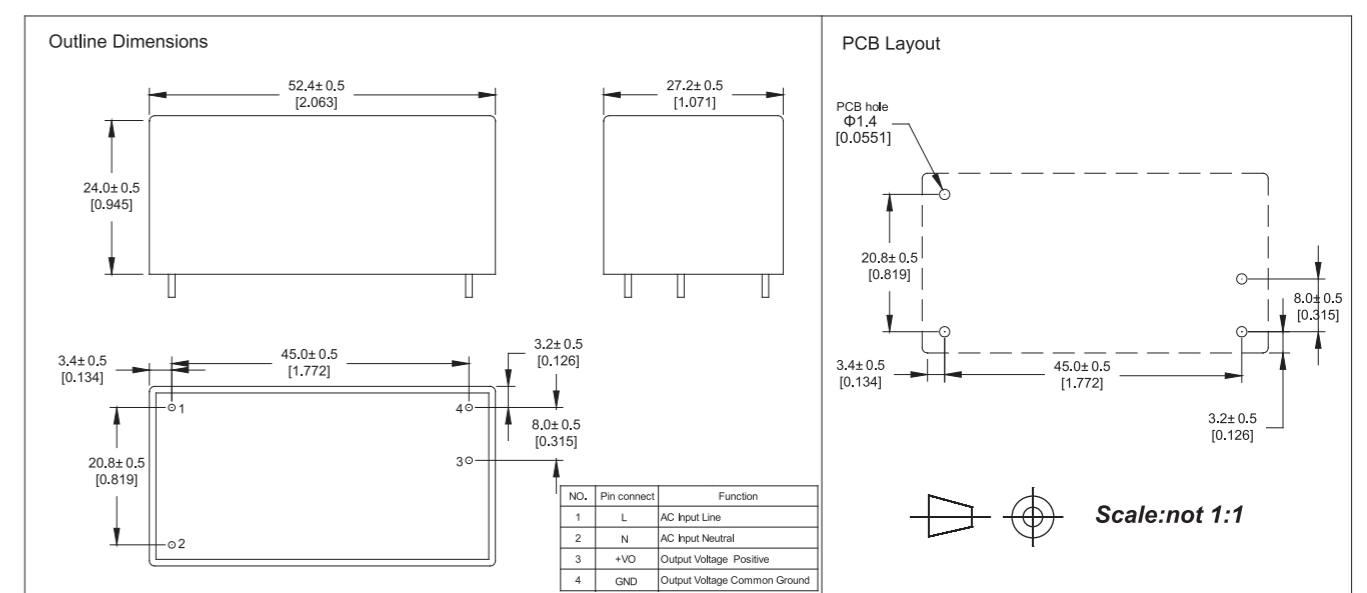


**Note:** The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

**Optional recommendations on external components:**

- C1 from output filter is electrolytic capacitor, High frequency low resistance capacitance is recommended; withstand voltage derating over 80%.
- C2 from output filter is ceramic capacitor, to remove high frequency noise.
- TVS from output filter is to protect the rear circuit.
- Fuse from input filter is to meet safety requirement. Type:1A/310V Slow-Blow.

尺寸图 **MECHANICAL SPECIFICATION**



## ZP20 STANDARD SERIES:[ 20W ]



### FEATURES

- PCB mounted switching power module
- AC input voltage range: 85VAC ~ 265VAC
- DC input voltage range: 100VDC – 370VDC
- Operating temperature range: - 25°C ~ 50°C (Refer to derating curve)
- Storage temperature range: - 25°C ~ 85°C
- Leakage current(input:265VAC): <0.25mA
- Isolation voltage: Input-Output ≥3000Vac 60S
- Insulation Resistance:Input-Output 500VDC ≥100M Ohms
- MTBF(at 25°C 70%RH environment): >970000hrs
- Compact size, easy installation
- High efficiency, low standby power consumption, environmental-friendly
- Built-in output over current protection, over-voltage protection, short circuit protection
- Built-in EMI filter components, comply with the EN55032 Class B standard
- Insulation: Class II

### 产品特点

- 可用在PCB上插装的电源模块
- 交流输入电压范围: 85VAC ~ 265VAC
- 直流输入电压范围: 100VDC – 370VDC
- 工作环境温度范围: - 25°C ~ 50°C (Refer to derating curve)
- 储存温度范围: - 25°C ~ 85°C
- 漏电流(输入电压:265VAC): <0.25mA
- 绝缘电压: 输入-输出 ≥3000Vac 60S
- 绝缘电阻: 输入-输出 500VDC ≥100M Ohms
- MTBF(25°C 70%RH): >300000hrs
- 体积小, 便于安装
- 高效率, 低待机功耗, 绿色环保
- 内置输出过流保护, 过压保护, 短路保护功能
- 内置EMI滤波元器件, 裸机可以满足EN55032 Class B
- 安全等级: Class II

### 应用 APPLICATIONS

该系列产品在LED、灯光控制, 仪表、通讯、智能家具及民用等多个领域都有重要的应用。  
This series could be widely applied in the LED, lighting control, instrument, smart home and other home appliances.

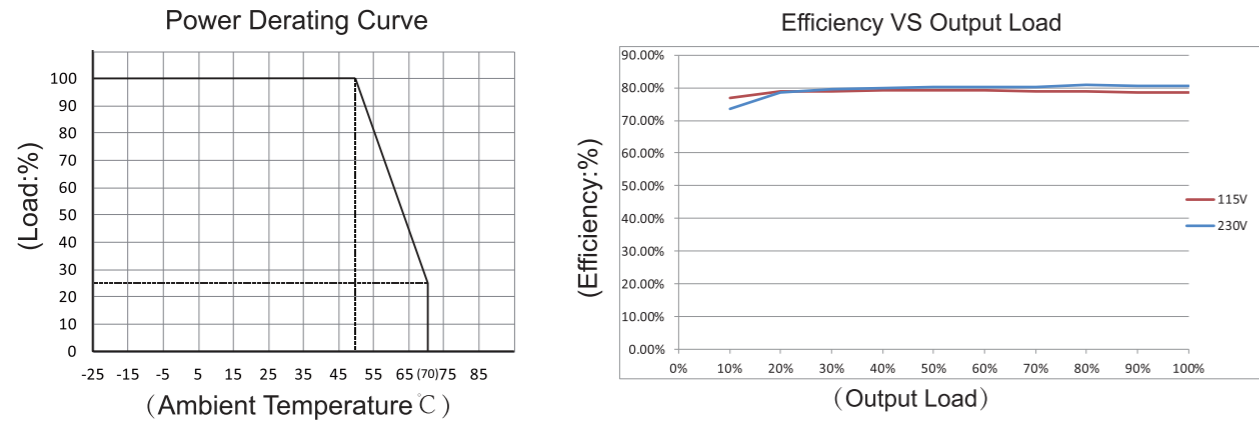
### 型号列表 MODEL LIST

Part No.	Output Power	DC Voltage	Rated Current	Efficiency 230VAC, % Typ.	Ripple & Noise(max)	Ambient TEMP(°C)	Weight
ZP20S0500WL	20W	5Vdc	4A	83%	200mVp-p	50	59g
ZP20S1200WL	20W	12Vdc	1.67A	85%	200mVp-p	50	59g
ZP20S1500WL	20W	15Vdc	1.33A	85%	200mVp-p	50	59g
ZP20S2400WL	20W	24Vdc	0.8A	85%	200mVp-p	50	59g

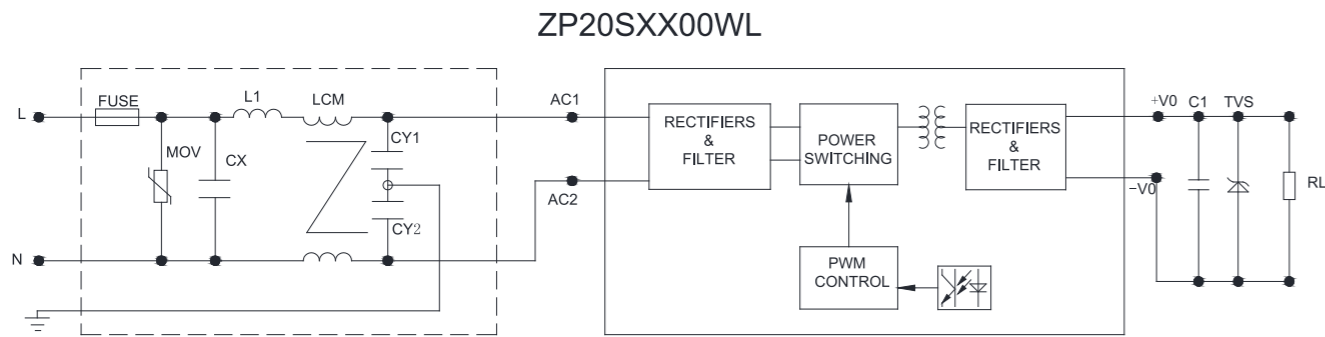
### 电性能 ELECTRICAL SPECIFICATION

项目 Item		规格 Specification	
输入 Input	输入电压范围 Input Voltage Range	85~265Vac or 100~370Vdc	
	输入频率范围 AC Input Frequency Range	47~440Hz	
	输入电流 Input Current	115Vac	230Vac
		300mA	150mA
	冲击电流 Inrush Current	115Vac	230Vac
		20A	40A
	待机功耗 Stand-by Power Consumption	0.3W Max	
外接保险管推荐值 Recommended External Input Fuse	3.15A/250V 慢断(Time lag)		
热插拔 Hot Plug	不支持(Unavailable)		
输出 Output	输出电压精度 Output Voltage Accuracy	±5%	
	线性调节率 Line Regulation	±1%	
	负载调节率 Load Regulation	±1%	
	温度漂移系数 Temperature Drift Factor	±0.05%/°C ( 0-85°C )	
	最小负载 Min. Load	0	
	满载开机上升时间 Set-Up Time At Full Load	253ms,20ms/230Vac 169ms,20ms/115Vac	
	满载掉电保持时间(典型值) Hold-up Time At Full Load	76.9ms/230Vac 13.6ms/115Vac	
保护特性 Protection Characteristics	过流保护 Over-Current Protection	≥120%Io 自恢复 Self-recovery	
	短路保护 Short Circuit Protection	打隔式,可长期短路,自恢复 Hiccup,Continuous short capable,Self-recovery	
环境 Ambient	工作环境温度 Operating Temperature	- 25°C ~ 50°C (Refer to Derating Curve)	
	工作环境湿度 Operating Humidity	20~90% RH (无冷凝 No Condensing) at full load	
	存储温度 Storage Temperature	- 25°C ~ +85°C	
	存储湿度 Storage Humidity	10%~95%	
安全&EMC Safety&EMC requirement	绝缘强度 Dielectric Strength	Input-Output ≥3000Vac 5mA 60S	
	设计参考标准 Reference Safety Standards	IEC/UL 62368 IEC/EN60950	
	需要增加外置EMC器件 Need to add external EMC Component	传导骚扰 CE	Meet EN55032 CLASS B
		辐射骚扰 RE	Meet EN55032 CLASS B
可靠性 Reliability Requirement	MTBF(MIL-HDBK-217F)	300Khrs Min @230VAC input 25°C	
	老化测试 Burn-In Test	输入 264Vac, 常温满载老化 2~5 小时 The unit shall be burned in for 2~5 hours under 264Vac input and DC with full load at normal temperature	

产品特性曲线 **PRODUCT CHARACTERISTIC CURVE**



典型应用电路 **TYPICAL APPLICATION SCHEMATIC**

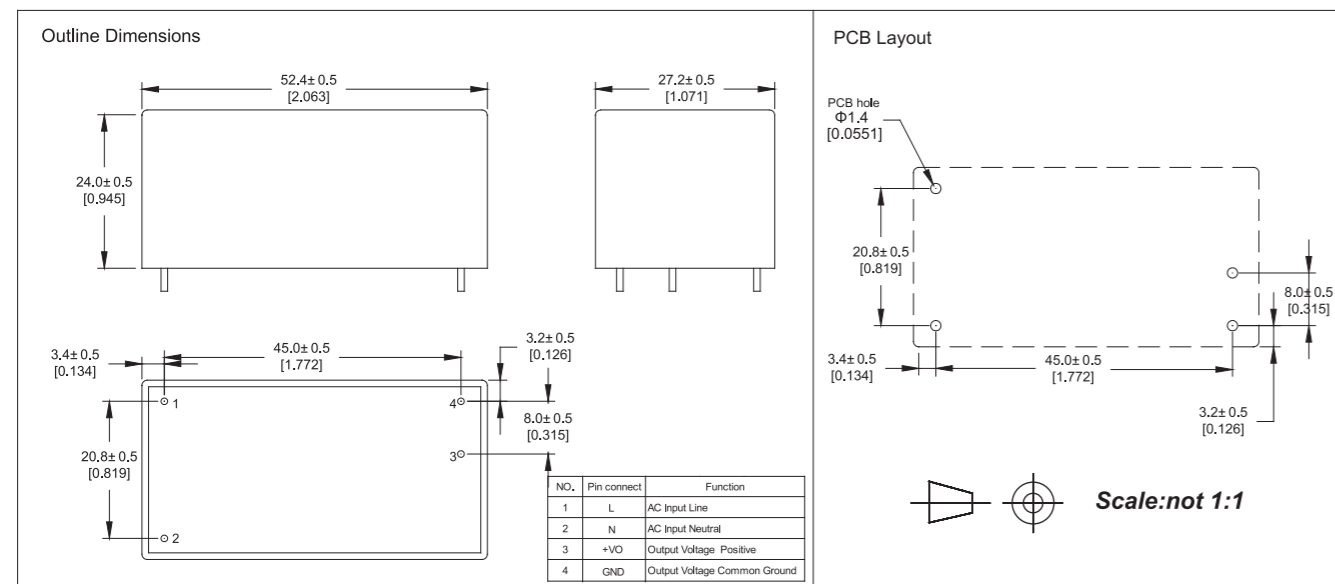


**Note:** The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

**Optional recommendations on external components:**

- C1 from output filter is electrolytic capacitor, High frequency low resistance capacitance is recommended; withstand voltage derating over 80%.
- C2 from output filter is ceramic capacitor, to remove high frequency noise.
- TVS from output filter is to protect the rear circuit.
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尺寸图 **MECHANICAL SPECIFICATION**



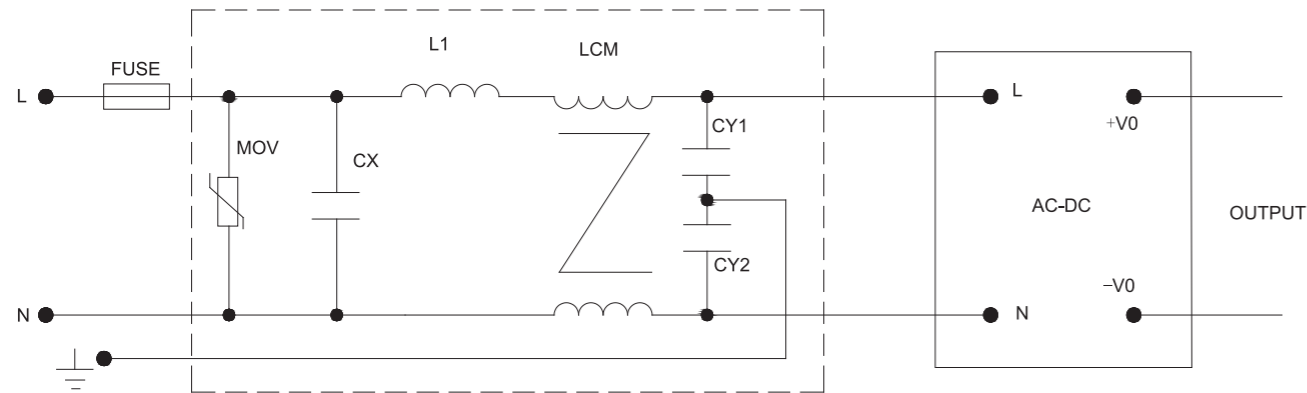
外观尺寸及功率推荐表 **ZETTLER OUTLINE DIMENSION DATA**

Case Type	Dimension	Power Capability	ZETTLER SERIES
	L X W X H(mm)		
TYPE A	45.2 X 30.2 X 23.85	5-10w	ZP05 ZP10
TYPE B	32.1 X 27.1 X 19.3	3-5w	ZP03 ZP05
TYPE D	55.2 X 35.2 X 25.5	10-20w	ZP10
TYPE E	23.9 X 23.0 X 18.0	0-3w	ZP01 ZP03
TYPE F	27.94 X 23.24 X 13.97	0-2w	BP01
TYPE G	37.8 X 28.3 X 26.1	2-5W	ZPI04
TYPE H	25.4 X 25.4 X 15.24	3-5w	ZP03 ZP05
TYPE I	33.7 X 22.2 X 15	0-2w	HP01
TYPE J	37.0 X 24.0 X 15	2-3w	HP02 HP03
TYPE K	55.0 X 45.0 X 20.0	8-20w	ZP08 ZP15
TYPE L	52.4 X 27.2 X 24.0	10-20w	ZP15 ZP20
TYPE M	62 X 45 X 22.9	10-20w	ZP15 ZP20
TYPE N	70 X 48 X 23.5	10-30w	ZP15 AP26
TYPE O	35 X 30 X 31	1-5w	
TYPE P	裸板		

EMC特性 **EMC SPECIFICATIONS**

项目 Item		标准 Standard
EMI	传导骚扰 CE	EN55032, CLASS B
	辐射骚扰 RE	EN55032, CLASS B
EMS	静电放电 ESD	IEC/EN61000-4-2 Contact ±6 kV / Air ±8 kV Perf. Criteria A
	辐射抗扰度 RS	IEC/EN61000-4-3 10V/m Perf. Criteria A
	脉冲群抗扰度 EFT	IEC/EN61000-4-4 ±1KV perf. Criteria A
		IEC/EN61000-4-4 ±4KV perf. Criteria B
	浪涌抗扰度 Surge	IEC/EN61000-4-5 L-N : ±1KV perf. Criteria A
		IEC/EN61000-4-5 ±2KV/4KV perf. Criteria B
	传导骚扰抗扰度 CS	IEC/EN61000-4-6 10 Vr.m.s perf. Criteria A
工频磁场抗扰度 PFM	IEC/EN61000-4-8 10A/m perf. Criteria A	
电压暂降、跌落和短时中断抗扰度 Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11 0%-70% perf. Criteria A	

EMC解决方案——推荐电路 **EMC SOLUTION-RECOMENDED CIRCUIT**



ITEM	MOV	CX	L1	LCM	CY1, CY2	FUSE
1~2W	14D561K	0.1~0.47uF/275VAC	500uH~2mH/0.5A	10mH~30mH	100~2200PF/400VAC	1A/250V
3~10W	14D561K	0.1~0.47uF/275VAC	500uH~2mH/1A	10mH~30mH	100~2200PF/400VAC	2A/250V
10~20W	14D561K	0.1~0.47uF/275VAC	500uH~2mH/1A	10mH~30mH	100~2200PF/400VAC	3.15A/250V

托盘包装规格 **TRAY PACKAGING**

Part No.	Tray Size L x W x H(mm)	Qty (Per Tray)	Weight(kg) (Per Tray)	Carton Outline L x W x H(mm)	QTY (Per Carton)	Weight(kg) (Per Carton)
HP01SXXXXWI	480X36.5X23	20	0.46	550X180X125	420	10
HP02SXXXXWI	480X36.5X23	12	0.32	550X180X125	288	8
HP03SXXXXWJ	480X27X23	12	0.32	550X180X125	288	8
BP01SXXXXW	325X225X45	104	1.92	355X245X120	208	3.94
ZP01SXXXXWE	325X225X45	117	1.86	355X245X120	234	3.82
ZP02SXXXXWF	325X225X45	104	1.98	355X245X120	208	4.06
ZP03SXXXXWE	325X225X45	117	1.86	355X245X120	234	3.82
ZP03SXXXXWH	325X225X45	96	2.5	355X245X120	192	5.1
ZP05SXXXXWB	325X225X45	72	2.26	355X245X120	144	4.62
ZP10SXXXXWA	325X225X46	42	2.2	355X245X121	84	4.5
ZP10SXXXXW	325X225X45	30	2.2	355X245X120	60	4.5
ZP15SXXXXWL	325X225X45	44	2.6	355X245X120	88	5.3
ZP20SXXXXWL	325X225X45	44	2.6	355X245X120	88	5.3

产品定制能力 **CUSTOMIZED CAPABILITY**

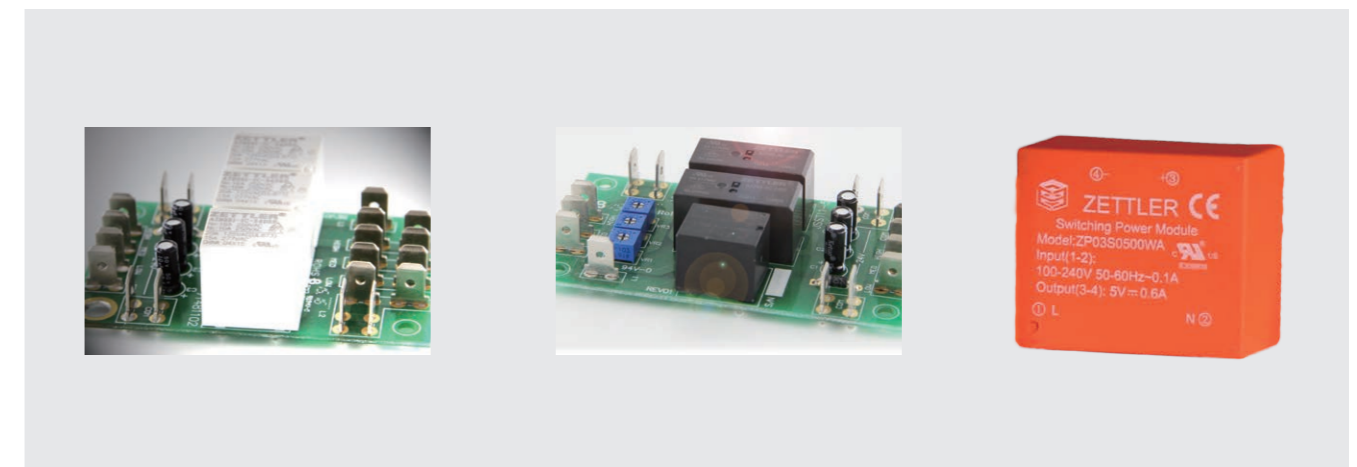
- 让赛特勒经验丰富的工程师们为您的下一个应用项目量身打造一款专属的变压器吧!
- 赛特勒在变压器行业已有多年的沉淀，因此我们的工程师团队具备丰富的设计经验和专业的设计能力去为客户特定的变压器应用寻找到合适的产品解决方案。不论是对您标准产品的简单改进，还是为您的电气产品应用提供一个完全定制化的变压器产品，我们的工程师们皆可快速而精准地满足您的要求。
- 我们可以提供的客户订制产品种类繁多，下图所列的四个品种只是它们中的一部分。如您在其中没有找到合适的产品，敬请联系我们，让我们了解您的需求。
- Let our highly experienced design engineers assist you in designing a transformer that is custom tailored to fit your next project application!
- Zettler Magnetics, Inc. has many years of transformer experience. As a result, our engineering staff has the expertise it takes to find solutions to our customers' specialized transformer applications. Whether you need to slightly after one of your standard products or completely custom design a transformer to support your electrical demands, our engineers are ready to provide the answers to your custom transformer requirements.
- As Zettler Magnetics, Inc, we offer many different styles of custom designs. Only a few of the custom types that we produce are listed in the following categorie. If you don't see a style below that fits your application, contact us directly to discuss your special transformer needs.

定制电源变压器 **CUSTOM POWER TRANSFORMS**

单个或者单相，低功率到高功率，频率50/60, 400Hz根据客户规格要求定制设计。  
Custom designed power transformers for one or single phase, low to high power, frequencies of 50/60 and 400Hz based on customer specifications.

开关电源变压器 **SWITCH MODE TRANSFORMS**

适用于变频逆变器、电脑、通讯、开关电源、EL驱动模块等  
Suitable for converter inverters, computers, telecommunications, switching power supplies, EL driver modules, etc.



## 赛特勒集团 ZETTLER GROUP

经历了一个多世纪的德国精密工程技术和工艺的传承，如今赛特勒已成为一个专门从事电子元器件设计、制造和销售的世界级企业。卓越的工程开发能力与广泛的全球业务网络的独特结合是我们成为行业领导者的保证。

赛特勒集团拥有的多元化产品线能针对各种客户需求提供元器件应用方面的完整解决方案。目前产品分如下四大系列：

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- 变压器
- LCD/TFT 显示模组
- 暖通空调及制冷控制元器件/温控器
- 新能源解决方案

通过在世界多个工业化地区建立全球运营网络，我们不仅具有成本的优势，而且有能力为以下区域所服务的工业和民用领域客户提供快捷的定制化产品解决方案：

- 美国
- 中国和东南亚
- 欧洲

Building on a foundation of more than a century of expertise in German precision engineering, ZETTLER GROUP is a world-class enterprise, engaged in the design, manufacturing, sales and distribution of Electronic Components. Our industry leadership is based on an unique combination of Engineering Competence and Global Scale.

ZETTLER GROUP's diversified product lines are designed to provide complete solutions for component applications across a broad spectrum of industries:

- Electromechanical Relays
- Transformers/Magnetics
- LCD/TFT Displays
- HVAC/R Control Components and Thermostats
- New Energy Solutions

With a global network of operating companies established across many parts of the industrialized world, we are not only present in low cost manufacturing geographies, but also have the ability to provide customer focused solutions in local proximity to the industrial and commercial markets we serve:

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- China and South East Asia
- Europe



欧洲  
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