



**Customer:**

**Customer Model Number:**

**Product Part Number: PS5012AVU**

**1. SCOPE**

This document details the electrical, mechanical and environmental specifications of a switching power supply.

1.1 Description

- |  |                                   |
|--|-----------------------------------|
| <input checked="" type="checkbox"/> Wall Mount | <input type="checkbox"/> Desk-Top |
| <input type="checkbox"/> Open Frame            | <input type="checkbox"/> Others   |

**2. INPUT REQUIREMENTS**

2.1 Input Voltage & Frequency

The range of input voltage is from 90Vac to 264Vac

	Min.	Normal	Max.
Input Voltage	90Vac	100-240Vac	264Vac
Input Frequency	47Hz	50/60Hz	63Hz

2.2 Input Current

The maximum input current is 200mA max. at 100-240Vac.

2.3 Inrush Current

The inrush current will not exceed 27A at 100-240Vac input and Max load for a cold start at 25°C.

2.4 Stand-By Power

The input power should be less than          with No-Load.



### 3. OUTPUT FEATURES

#### 3.1 Output Parameters

	Output Data	Spec. Limit			Test Condition
		Min. Value	Typical	Max. Value	
3.1.1	5.0Vdc				
3.1.2	Output Voltage	4.75Vdc	5.0Vdc	5.25Vdc	0 A Loading
3.1.3	Output Voltage	4.75Vdc	5.0Vdc	5.25Vdc	1.2 A Loading
3.1.4	Output Load	0.0A	—	1.2 A	
3.1.5	Ripple and Noise	—	—	200mVp-p	20MHz Bandwidth 10uF Ele. Cap.0.1uF Cer. Cap.

#### 3.2 Turn On Delay

During turn on and turn off, no output voltage shall exceed its nominal voltage by more than 10% and no output shall change its polarity with respect to its return line. All outputs shall reach their steady state values within 3 seconds of turn on.

#### 3.3 Hold Up Time

10 ms minimum at 115Vac/60Hz input at maximum load, and 20 ms minimum at 230Vac/50Hz input at maximum load.

#### 3.4 Typical Efficiency

The efficiency (watts out / watts in) shall be higher than          typical while measuring at nominal line and maximum load condition, test in 1 minute after power on.

#### 3.5 Output Transient Response

The power supply shall maintain output transient response time within          with a loading current change from 20% to 80% of maximum current and 0.5A/μs rise up /drop down test at end of output terminal.

### 4. PROTECTION REQUIREMENT

#### 4.1 Over-Voltage Protection

Over-voltage protection shall be included in the adaptor circuit. A single component failure must not cause an over voltage.

#### 4.2 Over-Current Protection

The adaptor must have a current limiting function on the output voltage. in overload mode, the output must drop to a low voltage.



#### 4.3 Short-Circuit Protection

The adaptor must withstand a continuous short circuit on the output without damage.

### 5. ENVIRONMENTAL CONDITIONS

#### 5.1 Operating

The power supply shall be capable of operating normally in any mode without malfunction happens in the following environmental conditions.

##### 5.1.1 Operating Temperature: 0°C ~ 40°C (Can operate normally)

Relative Humidity: 10% ~ 90%

Altitude: Sea level to 2,000 m.

##### 5.1.2 Vibration: 1.0mm, 10 –55Hz, 15 minutes per cycle for each axis (X, Y, Z).

##### 5.1.3 Cooling: Natural convection cooling

#### 5.2 Non - Operating

The power supply shall be capable of withstanding the following environmental conditions extended periods of time, without sustaining electrical or mechanical damage and subsequent operational deficiencies.

##### 5.2.1 Storage Temperature: -30°C ~ 70°C

##### 5.2.2 Relative Humidity: 10% ~ 90%

##### 5.2.3 Altitude: Sea level to 2,000 m.

##### 5.2.4 Vibration and Shock:

The power supply shall be designed to withstand normal transportation vibration per MIL-STD-810D, method 514 and procedures X, as it is mounted in the chassis assembly and packed for shipping.

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## 6. RELIABILITY AND QUALITY CONTROL

### 6.1 MTBF

When the power supply is operating within the limits of this specification the MTBF shall be at least 50,000 hours at 25°C (MIL-HDBK-217F).

### 6.2 Burn-In

The power supply shall withstand a minimum of 4 hours Burn-In test under full load at 35°C ~40°C room temperatures, after test, product shall operate normally.

### 6.3 Component Derating

Semiconductor junction temperatures shall not exceed the manufacturer's maximum thermal rating.

## 7. MECHANICAL CHARACTERISTICS

### 7.1 Physical Dimensions

The detail dimension of the power supply is drawn on APPENDIX A.

### 7.2 Nameplate

The label of the power supply, please see APPENDIX C.

### 7.3 Drop test

Dropped freely from 1 m (for wall mount product) height onto the surface is consisted of hardwood 13 mm thick, mounted on two layers of plywood each 19-20 mm thick, all supported on concrete floor 1 time from 3 different surface, after test, it's no safety damage for product.

## 8. SAFETY

### 8.1 Safety Standard

The power supply shall be certified under the following international regulatory standards

Item	Country	Certified	Standard
UL	USA	Approved	UL60950-1



8.2 Insulation Resistance

Input to output: 10 MΩ min. at 500 VDC.

8.3 Dielectric Strength (Hi-Pot)

Primary to Secondary DC4242V,3.5mA 1 minute for type test,  
DC4500V,3.5mA 2 seconds for product.

8.4 Leakage Current

The leakage current shall be less than 0.25mA for Class II when the power supply is operated maximum input voltage and maximum frequency.

9. EMC STANDARDS

9.1 EMI Standards

The power supply shall meet the radiated and conducted emission requirements for FCC PART 15 CLASS B.

9.2 EMS Standards

The power supply shall meet the following EMS standards

9.2.1 IEC61000-4-2 Electrostatic Discharge (ESD)

Static – discharge test by contact or air should be conducted with Static – discharge tester, energy storage capacitance of 150pF, and discharge resistance of 330Ω.  
8KV air discharge, 4KV contact discharge, Performance Criterion B.

9.2.2 IEC61000-4-3 Radiated Electromagnetic Fields(RS)

Radio- frequency Electromagnetic Field Susceptibility Test, RS, 80-1000MHz,3V/m, 80%AM(1KHz), Performance Criterion A.

9.2.3 IEC61000-4-4 Electrical Fast Transient / Burst (EFT)

Power Line to Line: 1KV  
Performance Criterion B.

9.2.4 EN61000-4-5 Lightning Surge Attachment

Lightning Surge voltage of differential and common modes shall be applied across AC input lines and across input and frame ground.  
Power Line to Line: 1KV  
Performance Criterion B.



- 9.2.5 IEC61000-4-6 Conducted Radio Frequency Disturbances (CS)  
Conducted Radio Frequency Disturbances Test, CS, 0.15-80 MHz, 3V/m,  
80%AM, 1KHz, Performance Criterion A.
- 9.2.6 IEC61000-4-11 Voltage Dips/Short Interruption/Variations  
Voltage Dips, 30% reduction- 10ms, Performance Criterion B, 60%  
Reduction – 100ms, Performance Criterion C, Voltage Interruptions>95%  
Reduction- 5000ms, Performance Criterion C.

## 10. OTHER REQUIREMENTS

### 10.1 Hazardous Substances

The components and used materials shall be in compliance with

- EU Directive 2011/65/EU "RoHS"
- EU Directive 2012/19/EU "WEEE"
- Halogen Free
- REACH

### 10.2 Energy Efficiency

10.2.1 The No-Load power consumption shall be less than 0.3W at input 115/230Vac,60/50Hz

10.2.2 The average active mode efficiency shall be higher than 69.53% at input  
115/230Vac,60/50Hz.

- 10.2.3  International Efficiency Level V .  
 Korea Energy Efficiency Label

10.2.4 This power supply is therefore in compliance with the requirements of

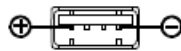
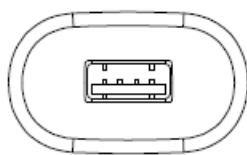
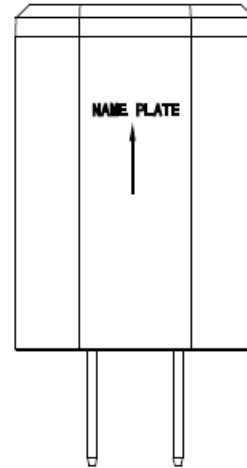
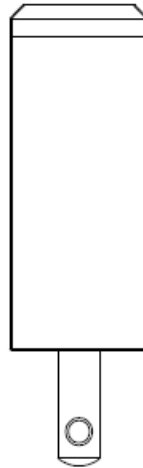
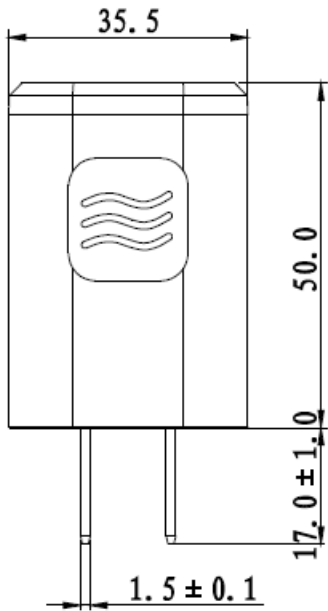
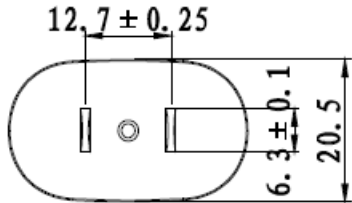
- California Energy Commission Energy Efficiency requirements for external power supplies (CEC)
- Energy Star Energy Efficiency requirements for external power supplies (EPS Version 2.0)
- EU Code of Conduct on Energy Efficiency of External Power Supplies((Version 4)
- Australian and New Zealand Energy Performance Requirements for external power supplies (MEPS,AS/NZS 4665.1,AS/NZS 4665.2)
- China Energy Efficiency requirements for external power supplies (GB20943-2007)
- Korea regulation on Energy Efficiency Labeling and Standards for external power supplies (MKE's Notification 2008-99)
- Implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for no-load condition electric power consumption and average active efficiency of external power supplies (No 278/2009, Stage 2)

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GOLDEN PACIFIC ELECTRONICS, INC.  
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Mechanical Dimensions(Unit: mm) Tolerance Of unspecified Parts:±1.5mm



REMARK	COLOR: BLACK
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