



*ZRF RITEC SIA*

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**OEM High Voltage Power Supply  
Model HVPS124**

Preliminary Specification

## CONTENTS

<b>1. INTRODUCTION.....</b>	<b>3</b>
<b>2. SPECIFICATIONS .....</b>	<b>4</b>
<b>2. DESIGN FEATURES.....</b>	<b>5</b>
<b>3. SAFETY AND PRECAUTIONS .....</b>	<b>7</b>

## ILLUSTRATION

Fig. 1. High Voltage Power Supply HVPS124 OEM module.....	3
Fig. 2. A typical application HVPS124 module.....	5
Fig. 3. Dimensions of the HVPS124 module.....	6

## 1. INTRODUCTION

The OEM High-Voltage Power Supply is designed to set the bias voltage of various types high-resistance sensors, such as CdZnTe-, He3- or HPGe detectors, piezo devices, toxin detection and etc.

The HVPS124 module fully regulated and programmable outputs of 0 to 2000 volts are available in positive polarity. They based of micro-power DC to high voltage DC converters feature low EMI/RFI due to a magnetic free design.

Modules are available in two types. Module HVPS124-3V powered from 3.0 V to 5.5 V, module HVPS124-5V powered from 4.5 V to 15 V.

Low power consumption and light weight, with a case height of less than 7 mm, allows the use of a module for portable, battery powered equipment.

Voltage monitoring is provided at a 1000:1 ratio. Soft-start high voltage ramp-rates are designed in to further protect sensitive detectors to support long-term reliability.

Outward appearance of the HVPS124 are shown in fig. 1.

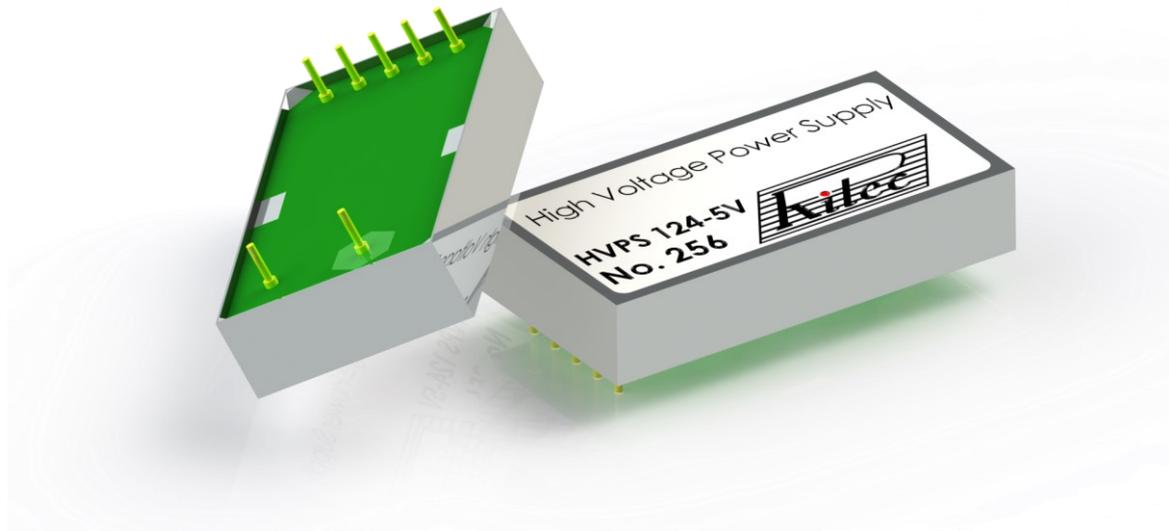


Fig. 1. High Voltage Power Supply HVPS124 OEM module.

## 2. SPECIFICATIONS

### **Basic**

- output voltage ..... 5V ... 2000 V
- output polarity ..... positive
- output current ..... 2  $\mu$ A
- output ripple and noise <sup>1\*</sup> ..... < 10 mVpp
- reference voltage ..... 2.048 V
- control voltage range ..... 0 V ... 2.048 V
- control voltage transfer factor ..... 1000
- monitor output impedance ..... 50  $\Omega$
- temperature instability <sup>2\*</sup> .....  $\pm$  200 ppm/ $^{\circ}$ C
- long-term instability <sup>3\*</sup> ..... < 100 ppm/hr
- startup time ..... < 5 sec

### **Power Requirements**

- input voltage  
HVPS124-3V ..... 3.0 V ... 5.5 V  
HVPS124-5V ..... 4.5 V ... 15 V
- input current <sup>4\*</sup>  
HVPS124-3V .....  $\leq$  14 mA  
HVPS124-5V .....  $\leq$  7 mA
- quiescent current <sup>5\*</sup>  
HVPS124-3V .....  $\leq$  1.4 mA  
HVPS124-5V .....  $\leq$  0.7 mA

**Operation Temperature** ..... -10 $^{\circ}$ C to +60 $^{\circ}$ C

### **Mechanical**

- dimensions ..... 34.9 mm x 17.0 mm x 6.8 mm
- weight ..... < 6 g

<sup>1\*</sup> Measured at 2000 V output voltage, 1000 M $\Omega$  load.

<sup>2\*</sup> Measured at 1000 V output voltage, 500 M $\Omega$  load.

<sup>3\*</sup> Measured at 1000 V output voltage, 500 M $\Omega$  load, 5 min warm-up.

<sup>4\*</sup> Measured at 5 V input voltage, 1000 M $\Omega$  load.

<sup>5\*</sup> Measured at 5 V input voltage.

## 2. DESIGN FEATURES

Appearance of the HVPS124 was shown in fig. 1.

The HVPS124 module pin assignment is shown in table 1.

Table 1

Pin	Function	Description
1	GND	Signal Ground
2	Vin	Input Voltage 3,0 V ... 5,5 V for HVPS124-3V 4,5 V ... 15 V for HVPS124-5V
3	Vref	Reference Voltage Output 2,048 V
4	Vctl	Control Voltage Input 0 ... 2,0 V
5	Vmon	Voltage Monitor Output $V_{mon} = V_{out} / 1000$
6	GND	High Voltage Output Return
7	Vout	High Voltage Output $V_{out} = V_{ctl} * 1000$

A typical application of the OEM module is shown in Fig. 2.

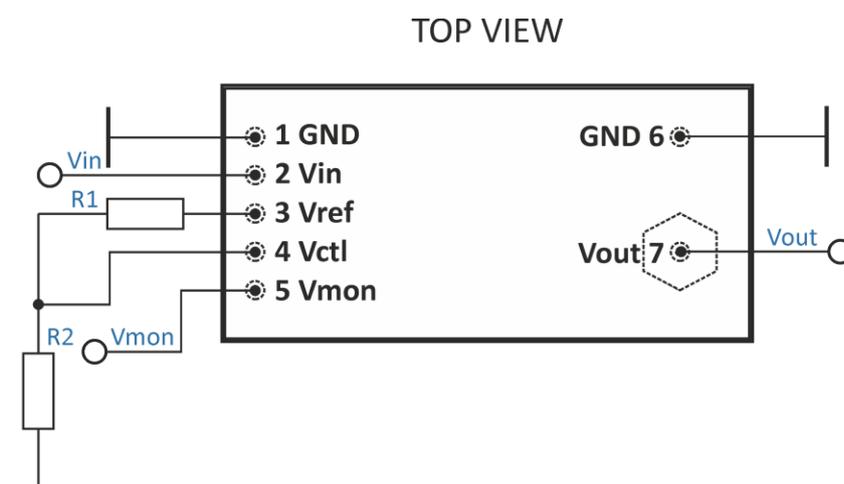


Fig. 2. A typical application of the HVPS124 module.

Dimensions of the HVPS124 shown on fig.3.

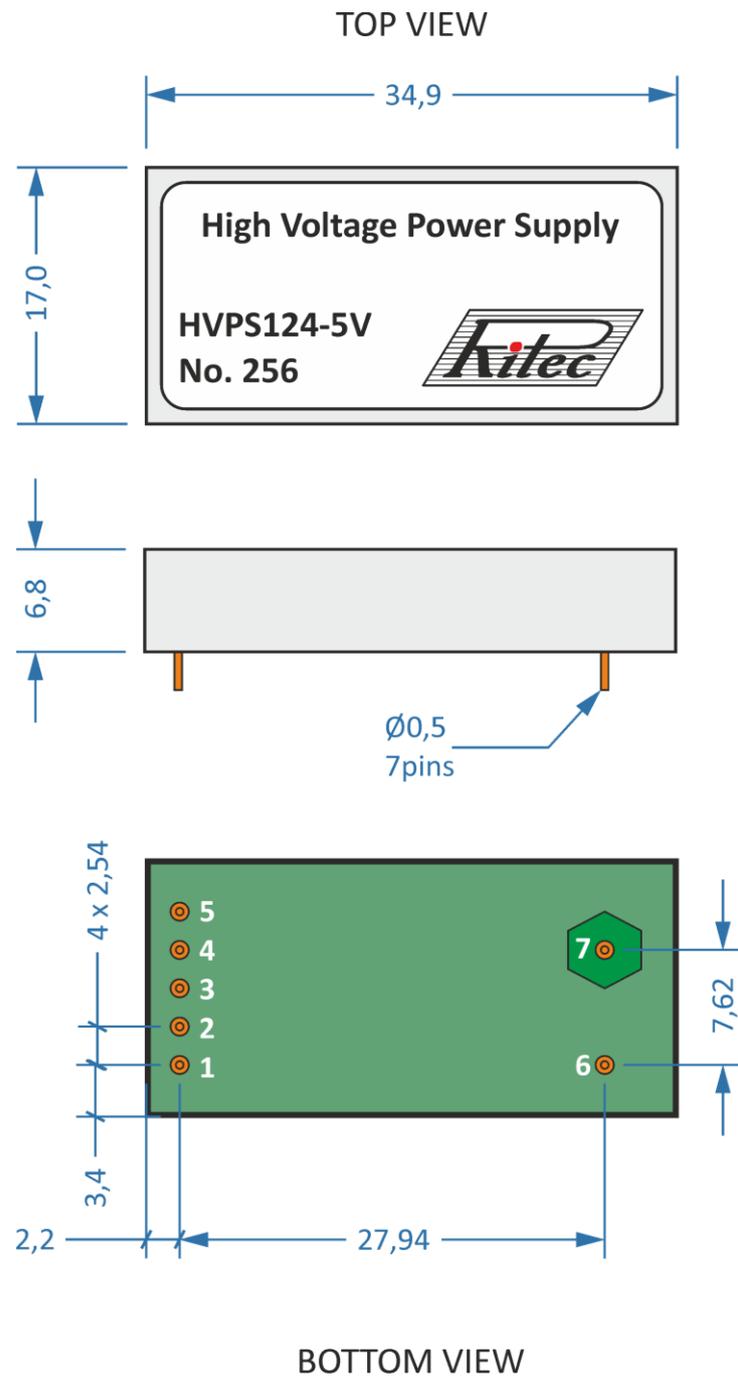


Fig. 3. Dimensions of the HVPS124 module.

### **3. SAFETY AND PRECAUTIONS**

- The Detection Module EMI shields have a thin wall and should not be strongly squeezed.
- Do not remove the EMI shields, this may cause product breakdown.
- Do not touch High Voltage Output pin module while the high voltage is on and for 5 minutes after system is shut down.