

A7504C

**1 Ch 4 kV/100 μ A
High Efficiency HV
Power Supply
Module**



Features



- High efficiency
- 4 kV/100 µA output ranges
- Available with positive or negative polarity
- Stand alone architecture
- Compact package: 29x54x16 mm³ (WxLxH)

Description

The **A7504C** is a high efficiency power supply providing a programmable and monitorable output voltage ranging from **0** to **4 kV**, when supplied with a **+12 V** input. It is available with either **positive** or **negative** output voltage. The output voltage is regulated by providing a **0** to **+2.5 V** external voltage (Vset). The board is provided with an over-current protection: if a current larger than the lout maximum value is drawn, the module is not being damaged.

The module is engineered on a **FR4 PCB**, coated and housed in **DC01 steel box**. CAD Altium library components and 3D step models are available on request.

Technical Specifications

Packaging

Material: DC01; dimension: W=29 mm ; L=54 mm ; H=16 mm

Contact pins

Male strip header; 2.54mm step; phosphor bronze; UL94V0 insulator

Operating temperature

-55° C ÷ +80° C

Storage temperature

-55° C ÷ +85° C

Voltage Supply (Vin)

+12 V ± 5%

Output Voltage (Vout)

0 ÷ 4 kV

Enable

If Enable > 2.8 V Channel active
If Enable < 1 V Channel disabled

Output polarity

Available positive or negative

Vmon Output

0 ÷ +2.5 V

Vset Input

0 ÷ +2.5 V
Important!: Vset must not exceed 2.6 V (Vout is not limited)

Iset Input

0 ÷ +2.5 V

Imon Output

0 ÷ +2.5 V

Status OVC bit

0÷5 V

Δ Vout/Vout (for ±5% Vin variations)

<1.5 X 10⁻³ @ full scale

Maximum Output Current (I_{out})

100 μA at +4 kV

Power requirement

<1.2 W; @ 4000 V / 100 μA (R_{load} ~ 40 MΩ)

Protection

Over current, short circuit, sparks and humidity

Efficiency

>30% @ V_{out} >2000 V (0° C ÷ +40° C)

Output Ripple (Full Load)

Typical 10mVpp; Maximum 15mVpp

V_{out} / Temperature coefficient

< 50 ppm / °C (@ V_{out} > 1000 V)

V_{set} vs. V_{out} Integral Non Linearity

<±0.2% (-20° C ÷ +50° C)

V_{mon} vs. V_{out} Integral Non Linearity

<±0.2% (-20° C ÷ +50° C)

Electromagnetic compatibility

Weak emission of electromagnetic impulse and RF; one-piece metal shielding with several ground connections

Uniformity of a lot

< 1 %

Protection

Over current short circuit, sparks and humidity

Packaging

- 0 pF: < 2.8 ns
- 330 pF: < 6.812 ns

Contact pins

<± 0.05% (0 ÷ ± 10 V 1 kΩ termination)

Operating temperature

200 mV/MeV^(Si)

Storage temperature

Model

A1422E (2ch) **+12 V**
A1422F (4ch) 60 mA **-12 V**
120 mA 20 mA
40 mA

Number of Channels

Material: DC01; dimension: W=29 mm ; L=54 mm ; H=16 mm

Maximum Output Current (I_{out})

Male strip header; 2.54mm step; phosphor bronze; UL94V0 insulator

Output Voltage (V_{out})

-55° C ÷ +80° C

Output Ripple (Full Load)

-55° C ÷ +85° C

V_{out} / Temperature coefficient

1

ΔV_{out}/V_{out} (for ±5% V_{in} variations)

100 μA at +4 kV

V_{out} vs. V_{set} Integral Non Linearity

0 ÷ 4 kV

V_{mon} vs. V_{out} Integral Non Linearity

Typical 10mVpp; Maximum 15mVpp

I_{set} input (positive analog command)

< 50 ppm / °C (@ V_{out} > 1000 V)

V_{mon} Output (positive analog command)

< 1.5 X 10⁻³ @ full scale

I_{set} input (positive analog command)

< ±0.2% (-20° C ÷ +50° C)

I_{mon} Output (positive analog command)

< ±0.2% (-20° C ÷ +50° C)

Status OVC bit

0 ÷ +2.5 V

Power requirement

$<\pm 0.2\%$ ($-20^{\circ}\text{C} \div +50^{\circ}\text{C}$)

Thermal stability ($\Delta V_{\text{out}}/V_{\text{out}}$)

$0 \div +2.5\text{ V}$

Electromagnetic compatibility

$0 \div +2.5\text{ V}$

Protection

$0 \div 5\text{ V}$ (low= OVC)

Ordering Options

| Code | Description | |
|--------------|--|------|
| WA7504CNXAAA | A7504CN -4kV 100 μ A HV Power Supply Module (12V in) | RoHS |
| WA7504CPXAAA | A7504CP 4kV 100 μ A HV Power Supply Module (12V in) | RoHS |

Accessories

DT75XX



HV Carrier Board for A750x PCB Modules

Related Products

A7501



1 Ch 2100 V/100 μ A High Efficiency HV Power Supply Module

A7502



1 Ch 2100 V/100 μ A High Efficiency HV Power Supply Module (5V in)

A7511



1 Ch 1100 V/1000 μ A High Efficiency HV Power Supply Module

A7526



1 Ch 2600 V/500 μ A High Efficiency HV Power Supply Module - PCB Mount

A7505



1 Ch 1600 V/500 μ A High Efficiency HV Power Supply Module

A7508

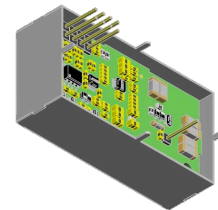


1 Ch 800 V/50 μ A High Efficiency HV Power Supply Module (5V in)

A7504



1 Ch 4 kV/100 μ A High Efficiency HV Power Supply Module



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