A7505

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

1	1600 V	500 µA
No. of Channels	Max Output V	Max Output I

The A7505 is a compact, PCB-mount single-channel high-voltage DC/DC converter providing a programmable and monitorable 0 to 1600 V output at up to 500 µA from a +12 V input. Positive or negative output polarity versions are available. External 0 to +2.6 V and 0 to +2.5 V controls set the output voltage and current, respectively. Over-current protection limits the current and protects the module. The low-noise converter measures 29x54x16 mm3 (WxLxH) and is housed in a coated FR4 PCB and DC01 steel box.

Overview

Product Highlights

- High efficiency
- 1600 V/500 µA output ranges
- Available with positive or negative polarity
- Compact package: 29x54x16 mm^3 (WxLxH)

Product Description

AT A GLANCE	
No. of Channels	**1**
Max Output V	**1600 V**
Max Output I	**500 µA**
Vset Input (V)	**0 ÷ +2.6**
Vmon Output (V)	**0 ÷ +2.6**
Imon Output (V)	**0 ÷ +2.6**

The CAEN **Mod.A7505** is a high efficiency, low noise single channel High Voltage DC/DC converters in a PCB mount form factor. It provides a programmable and monitorable output voltage ranging from **0** to **1600 V**, 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 **+2.6 V** external voltage (Vset). The maximum output current is **500 µA**, regulated by providing **0** to **+2.5 V** external voltage (Iset). The board is provided with an over-current protection: if a current larger than the Iout maximum value is drawn, the module is not being damaged.

Thanks to its excellent stability and special design, **A7505** power supply is engineered to work in **harsh environment and under severe temperature variations**.

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.

Safety Features Include:

- Overcurrent detection if the channel attempts to draw a current larger than Iset, the output voltage is varied to keep the current below Iset limit. The channel behaves like a current generator.

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Technical Specifications

Packaging	Material: DC01; dimension: W=29 mm ; L=54 mm ; H=16 mm
Number of Channels	1
Maximum Output Current (Iout)	500 µA at ±1600 V
Output Voltage (Vout)	0 ÷ 1600 V
Contact pins	Male strip header; 2.54mm step; phosphor bronze; UL94V0 insulator
Protection	Over current, short circuit, sparks and humidity
Operating temperature	-55° C ÷ +80° C
Storage temperature	-55° C ÷ +85° C
Output Ripple (Full Load)	Typical < 5mVpp; Maximum < 10mVpp
Efficiency	>60% @ Vout >1200 V (0° C ÷ +40° C)
Vout / Temperature coefficient	< 50 ppm / °C (@ Vout > 600 V)
DeltaVout/Vout (for ±5% Vin variations)	<1.5 X 10^-3 @ full scale
Vout vs. Vset Integral Non Linearity	<±0.2% (-20° C ÷ +70° C)
Vmon vs. Vout Integral Non Linearity	<±0.2% (-20° C ÷ +70° C)
Voltage Supply (Vin)	+12 V ± 10%
Enable	If Enable > 2.8 V Channel active If Enable < 1 V Channel disabled
Vset Input (positive analog command)	0 ÷ +2.6 V Important!: Vset must not exceed 2.6 V (Vout is not limited)
Vmon Output (positive analog command)	0 ÷ +2.6 V
Iset input (positive analog command)	0 ÷ +2.5 V
Imon Output (positive analog command)	0 ÷ +2.5 V
Status OVC bit	0÷5 V (low = OVC)
Electromagnetic compatibility	Weak emission of electromagnetic impulse and RF; one-piece metal shielding with several ground connections
Power requirement	<1.6 W; @ 1600 V for Rload ~ 3 MΩ
Thermal stability (DeltaVout/Vout)	< 50 ppm/°C (@ Vout > 600 V)

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Ordering Information

ORDERING CODE	DESCRIPTION
WA7505NXAAAA	A7505N -1.6kV 500µA HV Power Supply Module (12V in)
WA7505NXAAAM	A7505N -1.6kV 500µA HV Power Supply Module (12V in) RUGGED
WA7505PXAAAA	A7505P +1.6kV 500µA HV Power Supply Module (12V in)
WA7505PXAAAM	A7505P +1.6kV 500µA HV Power Supply Module (12V in) RUGGED

1. Ordering codes and descriptions are reproduced from the product record. Availability is confirmed at order entry.

Accessories

DT75XX — HV Carrier Board for A750x PCB Modules

Related Products

A7501 — 1 Ch 2100 V/100 µA High Efficiency HV Power Supply Module

A7502 — 1 Ch 2100 V/100 µA High Efficiency HV Power Supply Module (5V in)

A7504C — 1 Ch 4 kV/100 µA High Efficiency HV Power Supply Module

A7505B — 1 Ch 1600 V / 500 µA High Efficiency HV Power Supply Box

A7508 — 1 Ch 800 V/50 µA High Efficiency HV Power Supply Module (5V in)

A7511 — 1 Ch 1100 V/1000 µA High Efficiency HV Power Supply Module

A7526 — 1 Ch 2600 V/500 µA High Efficiency HV Power Supply Module - PCB Mount

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