

Figure 1. Physical Photos of AHVR12V4KV2R5MAP

FEATURES

- Output Voltage Proportional to Input Voltage
- Output Voltage from 0 to 4000V
- Input Voltage from 0.7V to 12V
- Low Power Consumption
- High Efficiency
- High Stability
- Low Turn-on Voltage 0.7VDC
- Input to Output Isolation
- Small Output Ripple, Time Drift, and Temperature Drift
- Overload and Short Circuit Protection
- Metal Enclosure for Zero EMIS
- Easy Control and Installation

APPLICATIONS

This power module, AHVR12V4KV2R5MAP, is designed for achieving DC-DC conversion from low voltage to high voltage as a power supply source. It can be used for:

- X-ray Machine
- Spectral Analysis
- Nondestructive Inspection
- Semiconductor Manufacturing Equipment
- Capillary Electrophoresis
- Physical Vapor Phase Deposition
- Electrospinning Preparation of Nanofiber
- DC Reactive Magnetron Sputtering

Table 1. Pin Names, Functions and Specifications

No.	Name	Description	Type	Min.	Typ.	Max.
1	$+V_{IN}$	Input Voltage	Power supply input	0V		12V
2	$-V_{IN}$	Input Ground	Ground for power supply		0V	
3	$+V_{OUT}$	Output Voltage	Power output	0V		4000V
4	$-V_{OUT}$	Output Ground	Power output		0V	
5	NC	No Connect	-		-	

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DESCRIPTION

AHVR12V4KV2R5MAP comes with a quasi-sine wave oscillator, a fully enclosed transformer, an input and output filter, and a five-sided metal enclosure. These modules present low EMI/RFI, low noise, and low ripple. The input and output are galvanically isolated. Proportional to the input voltage, the output voltage has a typical turn-on voltage as low as 0.7V. It also comes with output short-circuit protection and a wide range of output voltage adjustments. This high voltage power supply also features ultra-small size, light weight, moisture proof, shockproof, metal enclosure, and zero EMIs.

USING AHVR12V4KV2R5MAP

This high voltage power supply must be mounted tightly onto a metal plate, ideally, thus expanding its heating sinking capacity of the metal enclosure. Sufficient ventilation must be provided to keep the power supply surface temperature under 55°C.

SAFETY PRECAUTIONS

Although AHVR12V4KV2R5MAP high voltage power supply comes with an over current protection circuit, a short circuit at the output should always be avoided. Make sure the high voltage wire for connecting V_{OUT} node has sufficient insulation capability with its surrounding objects.

APPLICATION NOTES

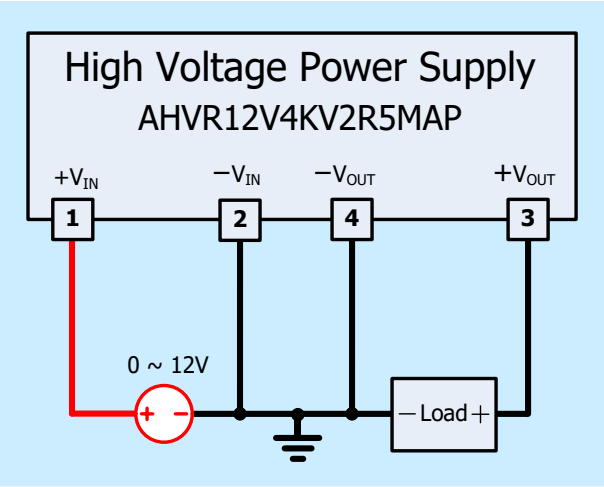


Figure 2. Positive Output

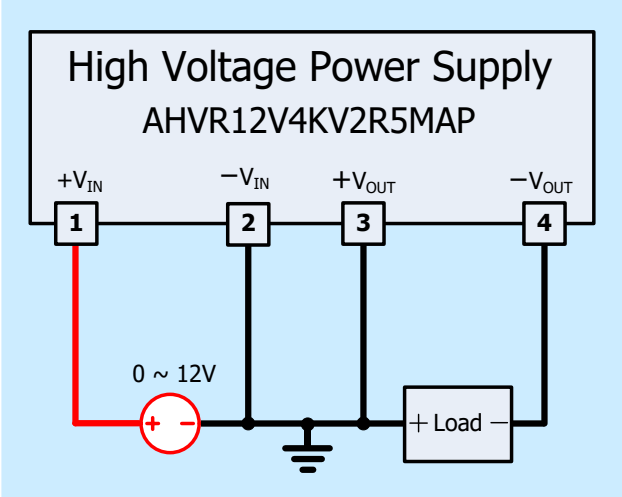


Figure 3. Negative Output

BLOCK DIAGRAM

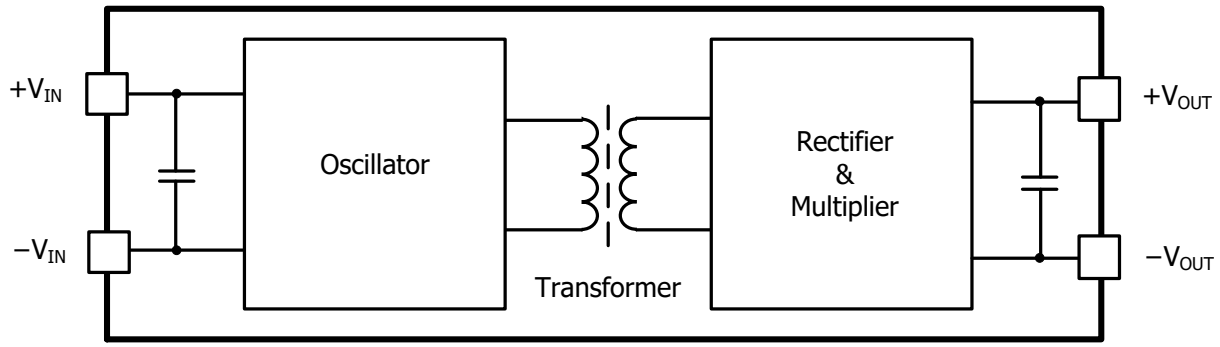


Figure 4. Block Diagram

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SPECIFICATIONS

Table 2. Characteristics. T_A = 25°C, unless otherwise noted.

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit/Note
Input Power Supply Voltage	V_{IN}		0		12	V
Input Power Supply Quiescent Current	I_{VPS_QC}	I_{VOUT} = 0mA	190	240	290	mA
Input Power Supply Current at Full Load	I_{VPS_FL}	I_{VOUT} = 2.5mA	900	950	1000	mA
Output Voltage Range	V_{VOUT}	I_{VOUT} = 0 ~ 2.5mA	0		4000	V
Output Current Range	$I_{VOUTMAX}$	V_{IN} = 12V	0		2.5	mA
Output Load Resistance Range			$\frac{V_{VOUT}}{I_{VOUT}}$		∞	MΩ
Output Voltage Tolerance		At Max V_{OUT}, Full Load			±5	%
Output Voltage Ripple	V_{VOUT_RP}	R_{LOAD} = 1.6MΩ V_{VOUT} = 4000V		≤0.1		%
Response Time	$t_{RESPONSE}$	0 to Max V_{OUT}, Full Load		260		ms
Isolation Voltage: Input to Output				3500		V
Switching Frequency	F_{SW}		25		125	kHz
Full Load Efficiency	η	V_{VPS} = 12V V_{VOUT} = 4000V I_{VOUT} = 2.5mA		≥70		%
Output Voltage Temperature Stability		−20 ~ 50°C			±1	%
Operating Temperature Range	T_{opr}		−10		70	°C
Storage Temperature Range	T_{stg}		−25		90	°C
Humidity		Non-condensing		95		%RH
External Dimensions			71.1×43.2×21.6			mm
			2.80×1.70×0.85			inch
Weight				145		g
				0.32		lbs
				5.11		Oz

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TESTING DATA

Test conditions: V_{VPS} = 12V, T_A = 25°C, R_{LOAD} = 1.6MΩ

The measured output voltage, V_{VOUT}, corresponding to the input voltage, V_{IN}, is shown in Figure 5.

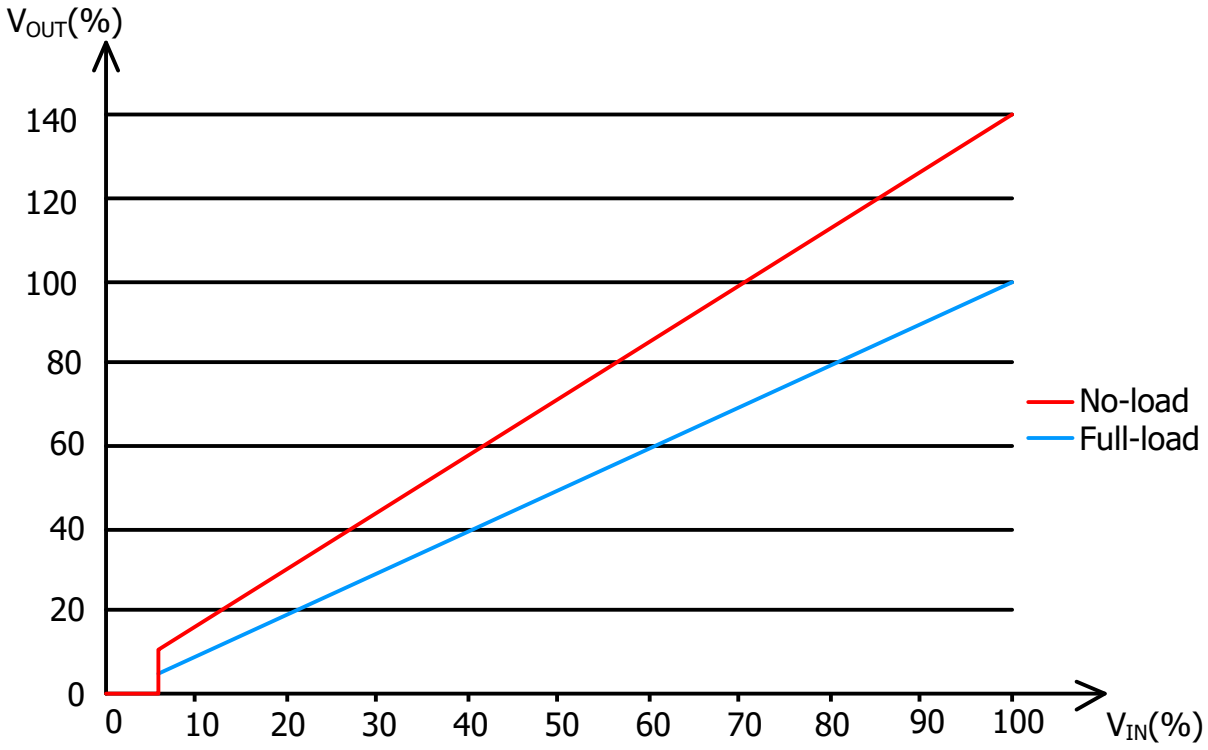


Figure 5. V_{IN} vs. V_{VOUT}

NAMING PRINCIPLE

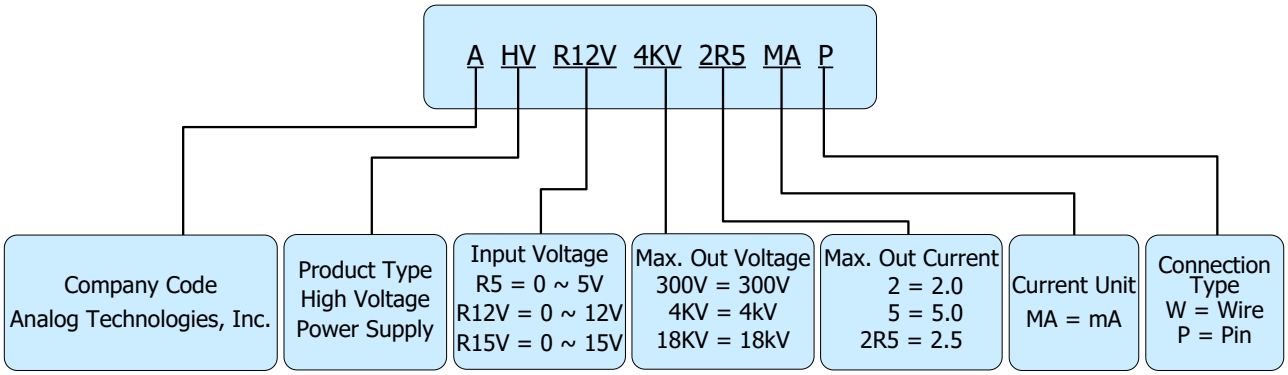


Figure 6. Naming Principle of AHVR12V4KV2R5MAP

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DIMENSIONS

Pin Layout

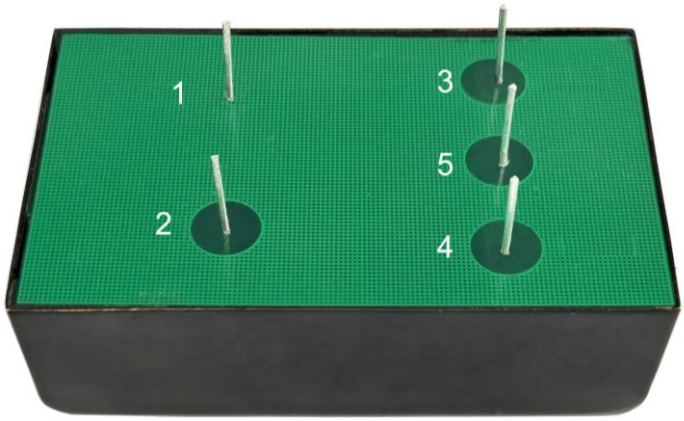


Figure 7. Pin Layout for AHVR12V4KV2R5MAP

Outline Dimensions

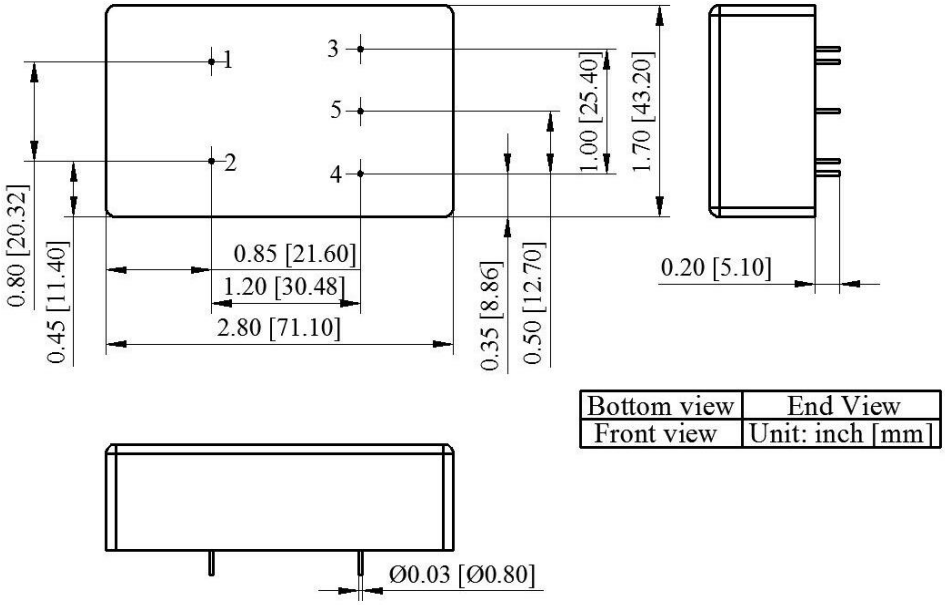


Figure 8. Outline Dimensions

ORDERING INFORMATION

Part Number	Buy Now
AHVR12V4KV2R5MAP	* *

*: both and are our online store icons. Our products can be ordered from either one of them with the same pricing and delivery time.

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RELATED PRODUCTS

Part #	Datasheet	Output Type	Output Voltage (V)	Output Current (mA)	Input Voltage (V)	Ripple (%)	Buy Now*
AHVR12V100V100MAP		Single Output	0 ~ 100 or 0 ~ −100	100	0 ~ 12	<0.6	
AHVR12VPN100V50MAP2	Contact Us	Dual Output	0 ~ ±100	50	0 ~ 12	<1.0	Contact Us
AHVR12V200V50MAP		Single Output	0 ~ 200 or 0 ~ −200	50	0 ~ 12	<1.0	
AHVR12V300V33R3MAP		Single Output	0 ~ 300 or 0 ~ −300	33.3	0 ~ 12	<1.0	
AHVR12VPN150V33R3MAP2	Contact Us	Dual Output	0 ~ ±150	33.3	0 ~ 12	<1.0	Contact Us
AHVR12V400V25MAP	Contact Us	Single Output	0 ~ 400 or 0 ~ −400	25	0 ~ 12	<1.0	Contact Us
AHVR12VPN200V25MAP2	Contact Us	Dual Output	0 ~ ±200	25	0 ~ 12	<1.0	Contact Us
AHVR12V500V20MAP		Single Output	0 ~ 500 or 0 ~ −500	20	0 ~ 12	<1.0	
AHVR12V600V16MAP		Single Output	0 ~ 600 or 0 ~ −600	16	0 ~ 12	<1.0	
AHVR12VPN300V25MAP2	Contact Us	Dual Output	0 ~ ±300	16	0 ~ 12	<1.0	Contact Us
AHVR12V800V12R5MAP		Single Output	0 ~ 800 or 0 ~ −800	12.5	0 ~ 12	<1.0	
AHVR12V1KV10MAP		Single Output	0 ~ 1000 or 0 ~ −1000	12.5	0 ~ 12	<1.0	
AHVR12VPN500V10MAP2	Contact Us	Dual Output	0 ~ ±500	10	0 ~ 12	<1.0	Contact Us
AHVR12V1200V8R3MAP		Single Output	0 ~ 1200 or 0 ~ −1200	8.3	0 ~ 12	<1.0	
AHVR12VPN600V8R3MAP2	Contact Us	Dual Output	0 ~ ±600	8.3	0 ~ 12	<1.0	Contact Us
AHVR12V1500V6R6MAP		Single Output	0 ~ 1500 or 0 ~ −1500	6.6	0 ~ 12	<1.0	
AHVR12VPN750V6R6MAP2	Contact Us	Dual Output	0 ~ ±750	6.6	0 ~ 12	<1.0	Contact Us
AHVR12V2KV5MAP		Single Output	0 ~ 2000 or 0 ~ −2000	5	0 ~ 12	<1.0	
AHVR15V3KV3R3MAP		Single Output	0 ~ 3000 or 0 ~ −3000	3.3	0 ~ 15	<1.0	
AHVR15VPN1500V3R3MAP2	Contact Us	Dual Output	0 ~ ±1500	3.3	0 ~ 15	<1.0	Contact Us
AHVR15V4KV2R5MAP		Single Output	0 ~ 4000 or 0 ~ −4000	2.5	0 ~ 15	<1.0	
AHVR15VPN2KV2R5MAP2	Contact Us	Dual Output	0 ~ ±2000	2.5	0 ~ 15	<1.0	Contact Us
AHVR15V5KV2MAP		Single Output	0 ~ 5000 or 0 ~ −5000	2.0	0 ~ 15	<1.0	
AHVR15VPN2500V2MAP2	Contact Us	Dual Output	0 ~ ±2500	2.0	0 ~ 15	<1.0	Contact Us
AHVR15V6KV1R66MAP	Contact Us	Single Output	0 ~ 6000 or 0 ~ −6000	1.66	0 ~ 15	<1.0	Contact Us
AHVR15VPN3KV2MAP2	Contact Us	Dual Output	0 ~ ±3000	1.66	0 ~ 15	<1.0	Contact Us
AHVR15V8KV1R25MAP	Contact Us	Single Output	0 ~ 8000 or 0 ~ −8000	1.25	0 ~ 15	<2.5	Contact Us
AHVR15VPN4KV1R25MAP2	Contact Us	Dual Output	0 ~ ±4000	1.25	0 ~ 15	<2.5	Contact Us
AHVR15V10KV1MAP	Contact Us	Single Output	0 ~ 10000 or 0 ~ −10000	1.25	0 ~ 15	<2.5	Contact Us
AHVR15V12KVR83MAP	Contact Us	Single Output	0 ~ 12000 or 0 ~ −12000	0.83	0 ~ 15	<2.5	Contact Us
AHVR15VPN6KVR83MAP2	Contact Us	Dual Output	0 ~ ±6000	0.83	0 ~ 15	<2.5	Contact Us

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