Figure 1. Physical Photo of AHV30V18KVR5MAW

FEATURES

Regulated and stable output voltage: <±1%@−20 ~ 65°C

High efficiency: 60%@18kV0.5mA

Proportional monitoring voltage: $V_{MON}=V_{OUT}$ ÷1000

Reverse input voltage protection up to 40V

Fully shield

APPLICATIONS

This power module, AHV30V18KVR5MAW, is designed for achieving DC-DC conversion from low voltage to high voltage. High voltage power supply is widely used in industry, agriculture, national defense, scientific research and other fields including: X-ray machine high voltage power supply, laser high voltage power supply, spectral analysis high voltage power supply, nondestructive inspection high voltage power supply, semiconductor manufacturing equipment high voltage power supply, capillary electrophoresis high voltage power supply, nondestructive detection high voltage power supply, particles injection high voltage power supply in semiconductor technology, physical vapor phase deposition high voltage power supply, nanolithography high voltage power supply. They are widely applied in ion beam deposition, ion beam assisted deposition, electron beam evaporation, electron beam welding, ion source, DC reactive magnetron sputtering, glass / fabric coating, glow discharge, microwave treatment high voltage capacitance test, CRT monitor test, high voltage cable fault test (PD testing), TWT test, and H-POT test. Particle accelerator, free electron laser, neutron source, cyclotron accelerator, capacitor and inductance pulse generator, Marx high voltage pulse generator, and capacitor charger. Microwave heating, radio frequency amplification, nanotechnology application, electrostatic technology application, electrospinning preparation of nanofiber, high voltage power supply for nuclear power and other products.

DESCRIPTION

AHV30V18KVR5MAW converts an input DC voltage of 27V to 30V, to an output voltage of 18kV with high

efficiency. It allows monitoring the output voltage by measuring the voltage of an output voltage monitor port: multiplying the value 1000 times equals the output voltage. The monitoring output voltage uses shielding wires. The core is the positive and the shield is the negative. The whole converter is shielded by a heavy duty metal enclosure, which blocks incoming and outgoing EMIs. This feature is particularly important for noise intensive environment.

Draw a clear distinction between input lead and output lead: input 27V ~ 30V (red lead), output ground (blue lead), and output high-tension cable (thick brown lead).

SAFETY PRECAUTIONS

The internal protection circuit is provided in the high voltage power supply, but the high voltage short circuit shall be avoided.

Make sure the circuit is insulated perfectly, especially between the high voltage output and the surroundings so as to avoid electronic shock.

SPECIFICATIONS

Table 1. Characteristics

T_A = 25 ℃, unless otherwise noted

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit/Note
Input Voltage Operating Range	V_{IN}		27	30	32	V
Maximum Input Voltage	V_{INMAX}			44		V
Maximum Reverse Input Voltage	$V_{INRVMAX}$			−44		V
Quiescent Input Current	I_{INQQ}	I_{OUT} = 0mA	75	80	85	mA
Full Load Input Current	I_{INFLD}	I_{OUT} = 0.5mA	400	450	500	mA
Start-up Overshoot at Output	V_{OVST}	I_{OUT} = 0 ~ 0.5mA			25	V
Input Ripple Current	I_{INRP}	I_{OUT} = 0 ~ 0.5mA			50	mA
Input Voltage Regulation Ratio	$\Delta V_{OUT}/\Delta V_{IN}$	V_{IN} = 27V ~ 32V		≤0.05		%
Output Voltage	V_{OUT}	I_{OUT} =0 ~ 0.5mA	17820	18000	18180	V
Maximum Output Current	I_{OUTMAX}	V_{IN} = 27V to 32V			0.5	mA
Maximum allowable Over-ride Voltage at the Output Voltage					23	KV
Operating Temperature Rang	T_{opr}		−20		65	°C
Monitor Voltage Out Impedance	Z_{VMON}			1		MΩ
Monitor Voltage Attenuation Ratio	V_{OUT}/V_{MON}	V_{OUT} = 0 ~ 18kV	998	1000	1020	
Monitor Voltage	V_{MON}	V_{OUT} = 0 ~ 18kV	0		18	V
Instantaneous Short Circuit Current	I_{SC}			<500		mA
Output Voltage noise				≤0.5		%
Full Load Efficiency	η			≥60		%
Temperature Coefficient	TCV_O	−20 ~ 65°C		<0.01		%/°C
Output Voltage Temperature Stability		−20 ~ 65°C		< ±1		%
Load regulation rate		I_{OUT} = 0 ~ 0.5mA		≤0.05		%
Storage Temperature Range	T_{stg}		−55		100	°C

Weight				310		g
				0.68		lbs
				10.9		Oz

THE CONNECTION DIAGRAM OF MODULE'S PERIPHERAL CIRCUIT

The leads colors in the figure below are identical with those in the physical AHV30V18KVR5MAW.

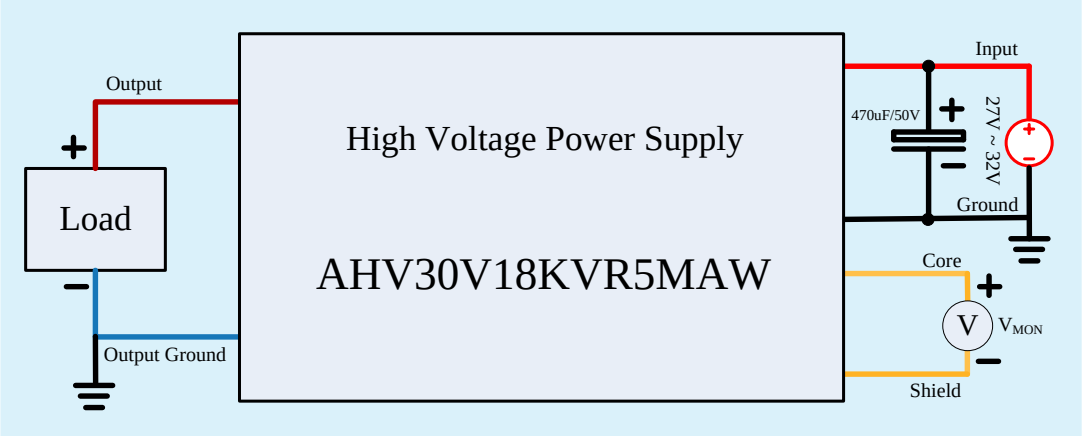

Figure 2. External Connection

DIMENSIONS

I. Dimension of the leads.

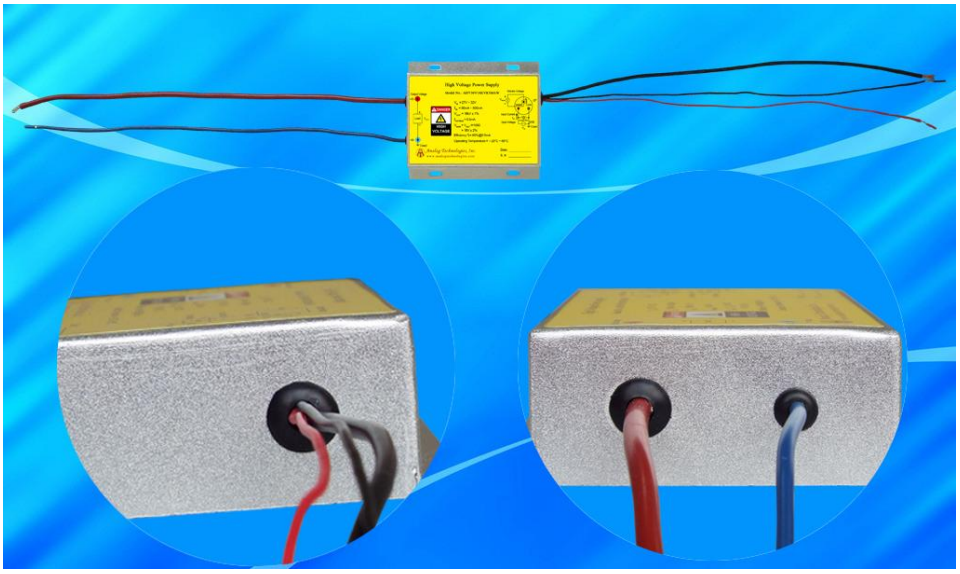

Figure 3. Leads of AHV30V18KVR5MAW

Leads	Diameter (mm)	Length (mm)
Thick brown lead	4.5	30
Blue	3.0	30
Red and black	1.5	30
Shield	3.0	30

NAMING INSTRUCTIONS

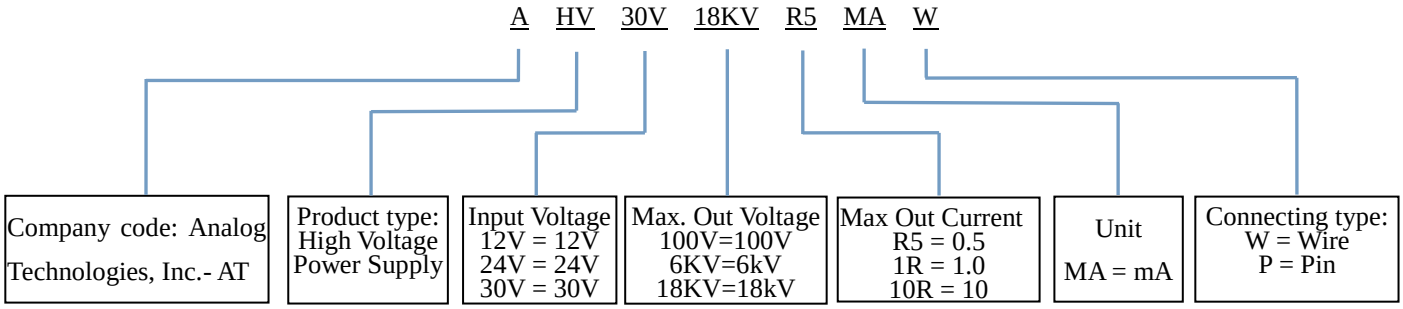

Figure 4. Naming Rules of AHV30V18KVR5MAW

II. Dimension of AHV30V18KVR5MAW.

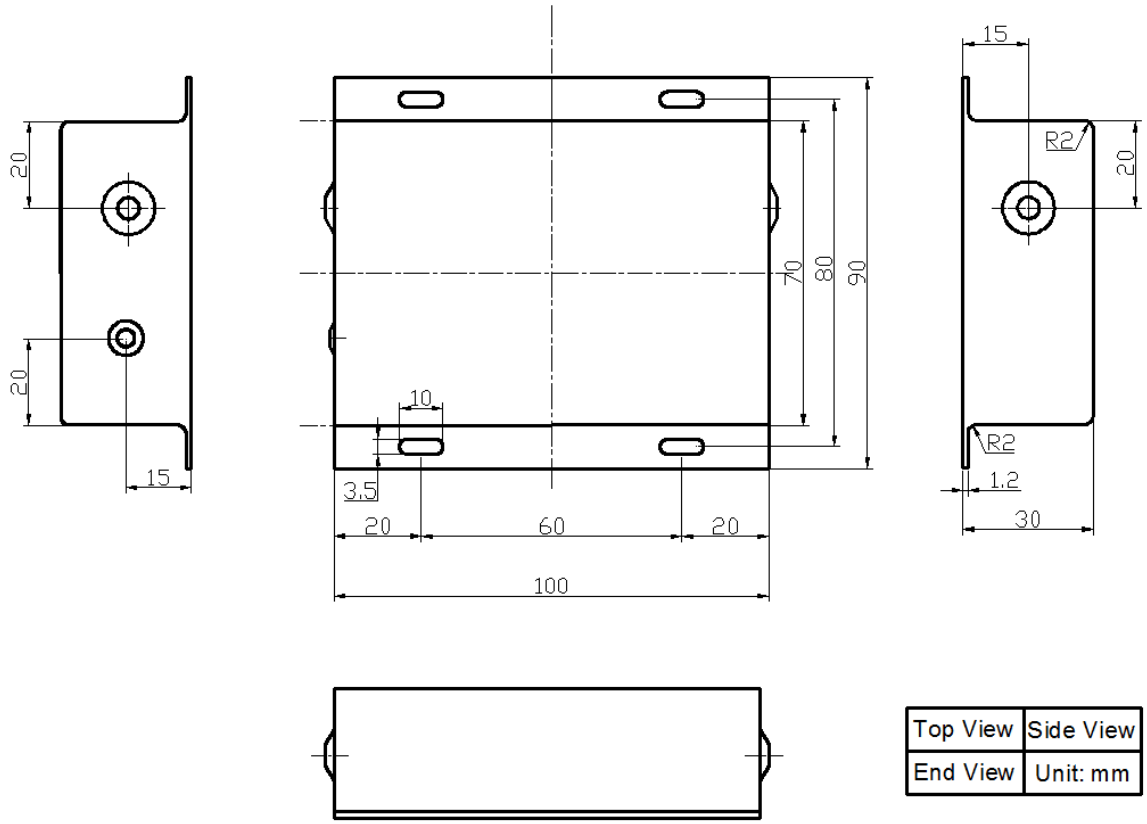

Figure 5. Dimensions for AHV30V18KVR5MAW

PRICES

Quantity	1~9pcs	10~49pcs	50~99pcs	≥100
AHV30V18KVR5MAW	$398	$388	$378	$368

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