

200V – 1kV; 0.5W, 1W REGULATED, PROGRAMMABLE HIGH VOLTAGE POWER SUPPLIES

FEATURES

- High voltages up to 1kV
- Positive or negative polarity
- Internal reference voltage
- Remote On Input
- Stable output voltage
- Patented resonance converter technology
- Low ripple and noise
- Made in Germany



The HMA series is a line of small DC to HV converters providing 200V_{DC} to 1000V_{DC}, positive or negative, at 0.5W or 1W output power. The output voltage control is achieved by means of a programming resistor or a control voltage. An output voltage monitor and an On/Off input are provided. The units are housed in a compact PCB mountable package. The metal box and a patented resonant converter principle guarantee very low EMI. Protected against overload and short circuit. RoHS compliant.

Output Voltage V _{NOM}	0.5W Models		1W Models		Ripple / Noise *1 (@f>10Hz typ. / max.)
	Max. Output Current I _{NOM}	Model	Max. Output Current I _{NOM}	Model	
0 – 200V	2.5mA	HMA-0.2#2.5-5	5mA	HMA-0.2#5-12	< 10 / 30mV _{PP}
0 – 400V	1.2mA	HMA-0.4#1.2-5	2.5mA	HMA-0.4#2.5-12	< 10 / 30mV _{PP}
0 – 600V	0.8mA	HMA-0.6#0.8-5	1.6mA	HMA-0.6#1.6-12	< 10 / 30mV _{PP}
0 – 800V	0.6mA	HMA-0.8#0.6-5	1.2mA	HMA-0.8#1.2-12	< 10 / 30mV _{PP}
0 – 1000V	0.5mA	HMA-1#0.5-5	1mA	HMA-1#1-12	< 10 / 30mV _{PP}

#: output polarity designators: 'P' for positive / 'N' for negative

SPECIFICATIONS

Input Supply Voltage (+V _{IN}) *2:	-5: +5V _{DC} ±10%	-12: +11.5V _{DC} to +15.5V _{DC}
Input Supply Current *3:	-5: 5mA max.	-12: 5mA max. (@ V _{OUT} = 0)
	-5: 25mA max.	-12: 18mA max. (@ V _{OUT} = V _{NOM} , no load)
	-5: 180mA max.	-12: 150mA max. (@ V _{OUT} = V _{NOM} , max load)

Programming Input (VSET):

- External control voltage:
 - 5:** 0 to +2.5V
 - 12:** 0 to +5.0V
 results in 0 to full rated output ±1%; (@ 0°C to +40°C)
 input impedance: 10kΩ to internal reference voltage (2.5V/5.0V);
Since the output voltage is not internally limited, the control voltage must not exceed the values specified above!

- External resistor R_{SET} connected between VSET and GND:
 $R_{SET} = V_{OUT} * 10k\Omega / (|V_{NOM} - V_{OUT}|)$

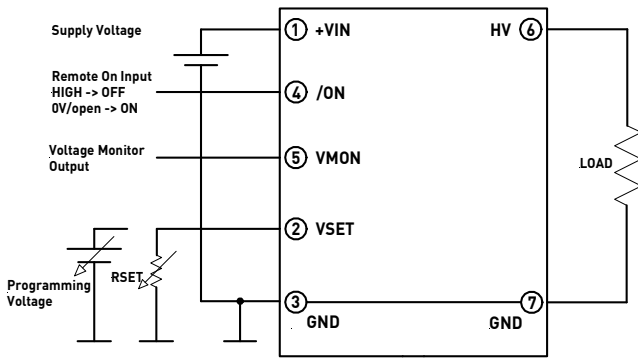
Output Current Limit:	1.5 * I _{NOM}
Line Regulation *1:	< 1 * 10 ⁻⁴ * V _{NOM} (ΔV _{OUT} / ΔV _{IN} min to max supply voltage)
Load Regulation *1:	< 2 * 10 ⁻⁴ * V _{NOM} (ΔV _{OUT} / ΔR _{LOAD} no load to rated load)
Temperature Coefficient:	< 50ppm/K (@ 0°C to +40°C)
Voltage Monitor (VMON):	-5: 0 to 2.5V
/ON Input:	-12: 0 to 5.0V
Protection:	ON: 0V or open; OFF (V _{OUT} = 0): 2.5V – 5.5V
Temperature Range:	overload and short circuit
	Operating: 0°C to +40°C
	Storage: -20°C to +60°C
Dimensions (LxWxH):	39.6 x 15.7 x 11mm ³
Weight:	ca. 13g

Notes:

- *1 at 2% * V_{NOM} < V_{OUT} ≤ V_{NOM}
- *2 A blocking circuit with 22μF is recommended
- *3 at full rated output voltage, rated load, 25°C, after 1h warm up

All voltages are referenced to GND.

CONNECTION DIAGRAM

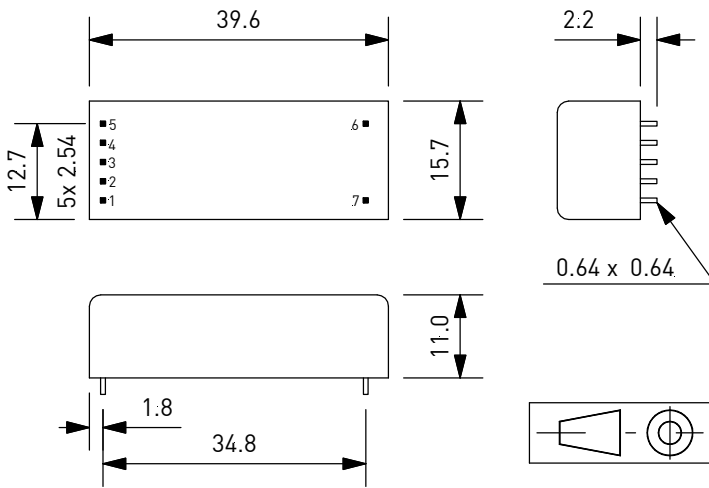


PIN FUNCTION DESCRIPTIONS

Pin No.	Designation	Function
1	+VIN	Input Supply Voltage
2	VSET	Programming Input
3	GND	Ground Reference
4	/ON	HV ON Input
5	VMON	Voltage Monitor Output
6	HV	High Voltage Output
7	GND	High Voltage Return

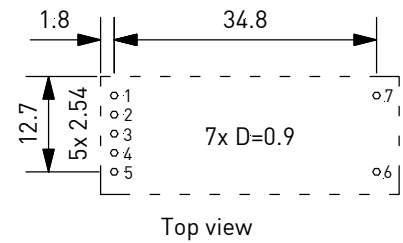
- Pins 3 and 7 are internally connected to the case.

DIMENSIONS

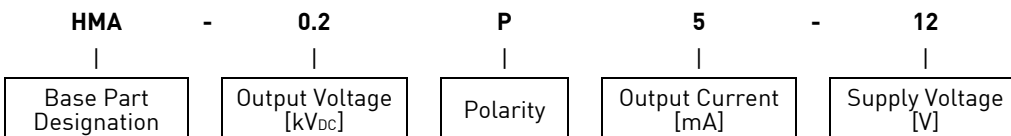


All dimensions are in mm; drawings not to scale

FOOTPRINT



ORDERING INFORMATION



Example: HMA-0.2P5-12 (HMA series, 0.2kV, positive, 5mA, 12V supply)

Disclaimer

The information given in this data sheet is technical data, not assured product characteristics. It has been carefully checked and is believed to be accurate; however, no responsibility is assumed for inaccuracies. The user has to ensure by adequate tests that the product is suitable for his application regarding safety and technical aspects. hivolt.de GmbH & Co. KG does not assume any liability arising out of the application or use of any product described.

Safety Advice

Design, installation and inspection of machinery and devices carrying high voltage require accordingly trained and qualified personnel. Appropriate safety rules and directives must be complied with. Improper handling of high voltage can mean severe injuries or death and may cause serious collateral damage!