

200V – 2kV

**REGULATED, PROGRAMMABLE, ULTRA LOW RIPPLE, EN 61010-1:2010 SAFE
HIGH VOLTAGE POWER SUPPLIES**

FEATURES

- Output Protected According to EN 61010-1:2010
- Ultra Low Ripple, High Stability
- Lowest Noise to Below 1Hz
- Very Compact Package, PCB Mountable
- 6-sided Metal Shielding
- Analog Programmable
- Remote ON, Voltage Monitor
- High Performance, Low Cost
- Made in Germany

APPLICATIONS

- APD / Photodetector Bias
- Radiation Detectors, Sensor Supply
- Mass Spectrometry



The HM34S Series is a family of high performance high voltage DC to DC converters. The converters' outputs feature protection against electric shock according to EN 61010-1:2010 / IEC 61010-1:2010-06 Edition 3.0 when connected to accessible parts. The short circuit output current is being limited to < 2mA under normal condition and < 15mA under single fault condition. The stored charge is < 45µC.

Designed for detector supply applications these converters are equally suitable for other applications requiring ultra low ripple, lowest noise and high stability. They are encapsulated in a metal package providing 6-sided shielding. These compact converters are ideal for applications requiring small size, high performance, low cost and ease of use.

The devices are available for 5V_{DC} or 12-15V_{DC} input voltage. The output voltage is programmable via an analog voltage, such as the output from a DAC or by a potentiometer connected locally to the converter's reference voltage output (VREF). The output voltage is directly proportional to the programming voltage. It features excellent linearity.

The output can be enabled via the /ON input by means of a TTL level signal or just by an external contact (internal pull-up). A voltage monitor output is provided. Load regulation is excellent and the output voltage is independent from the input supply voltage. The output is not isolated. High voltage return is internally connected to ground (GND).

Output Voltage	Max. Output Current	Model		Ripple / Noise *3
		Positive Polarity Output	Negative Polarity Output	
0 – 200V	1000µA	HM34S-0.2P-#	HM34S-0.2N-#	5mV _{PP}
0 – 500V	500µA	HM34S-0.5P-#	HM34S-0.5N-#	5mV _{PP}
0 – 1000V	200µA	HM34S-1P-#	HM34S-1N-#	5mV _{PP}
0 – 1500V	150µA	HM34S-1.5P-#	HM34S-1.5N-#	10mV _{PP}
0 – 2000V	100µA	HM34S-2P-#	HM34S-2N-#	20mV _{PP}

#: input voltage designators: '5' for 5V_{DC} / '12' for 12-15V_{DC}

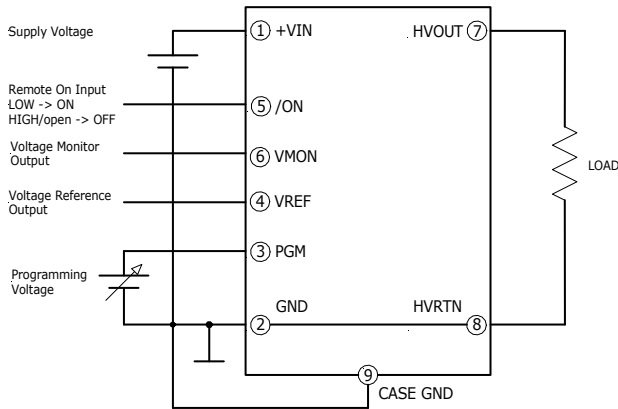
SPECIFICATIONS

Input Supply Voltage (+V _{IN}):	-5: +5V _{DC} ±5%	-12: +11V _{DC} to +16V _{DC}	
Input Supply Current:	-5: 110mA typ. *1	-12: 50mA typ. *1	
Programming Input (PGM):	-5: 0 to +2.048V	-12: 0 to +5.00V	results in 0 to full rated output; Input impedance: 100kΩ
Output Voltage Tolerance:	< ±2% (actual V _{OUT} vs. rated V _{OUT}) *1		
Load Regulation:	-5: < 0.02% (10% load to rated load) *2	-12: < 0.005% (10% load to rated load) *2	
Line Regulation:	-5: < 0.001% (5% input voltage change) *1	-12: < 0.001% (1V input voltage change) *1	
Temperature Coefficient:	25ppm/K typ. (V _{OUT} vs. V _{PGM}) *1		
Stability:	100ppm/h / 200ppm/8h typ. (V _{OUT} vs. V _{PGM}) *1		
Voltage Reference (VREF):	-5: 2.048V ±1%	-12: 5.00V ±1%	max. 2mA, 25ppm/K typ.
Voltage Monitor (VMON):	-5: 0 to 2.048V ±2%	-12: 0 to 5.00V ±2%	Output impedance: 10kΩ
/ON Input:	ON: 0V – 0.8V; I _{ENABLE} ≤ 0.5mA	OFF: 2.4V – 5V or open	internal Pull-up: 10kΩ
Protection:	Arc, overload and continuous output short circuit; reverse input voltage on -12 models		

Temperature Range: Operating: -20°C to +55°C
 Storage: -25°C to +85°C
 Dimensions (LxWxH): 40.6 x 25.4 x 13.3mm³
 Weight: ca. 40g

Operating Conditions:
 All voltages are referenced to GND.
 *1 at full rated output voltage, rated load, 25°C, after 1h warm up
 *2 at full rated output voltage, 25°C, after 1h warm up
 *3 1Hz to 20MHz

CONNECTION DIAGRAM

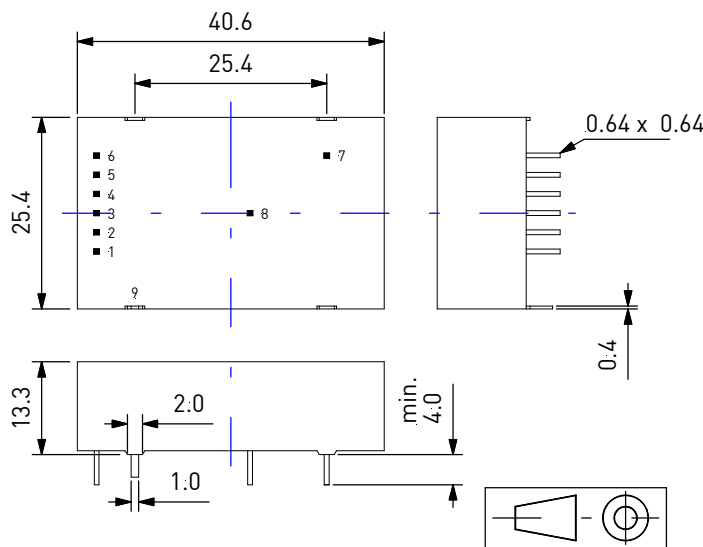


PIN FUNCTION DESCRIPTIONS

Pin No.	Designation	Function
1	+VIN	Input Supply Voltage
2	GND	Ground Reference
3	PGM	Programming Input
4	VREF	Reference Voltage Output
5	/ON	Remote On Input
6	VMON	Voltage Monitor Output
7	HVOUT	High Voltage Output
8	HVRTN	High Voltage Return
9	CASE GND	Case

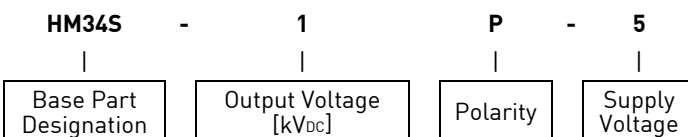
- CASE GND should always be connected to GND
- GND and HVRTN are internally connected

DIMENSIONS



All dimensions are in mm; drawings not to scale

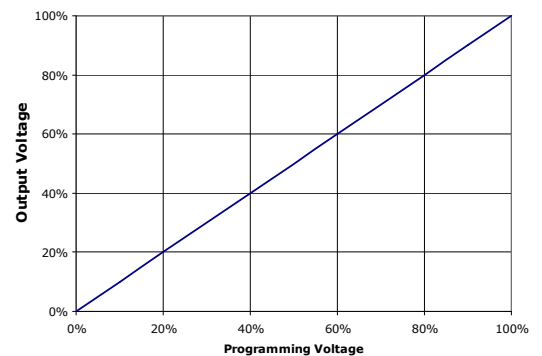
ORDERING INFORMATION



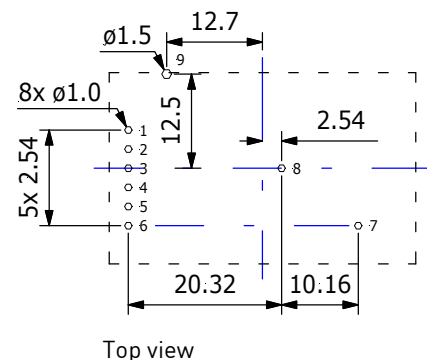
Example: HM34S-1P-5 (HM34S series, 1kV, positive, 5V supply)

All listed models are RoHS2 compliant.

CONTROL CHARACTERISTICS



FOOTPRINT



Top view

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