

RK Series

High-Precision Regulated HV DC to DC Converter

Miniature Size (1.40"L x 1.10"W x 0.50"H)

Easy to Use, No External Components

Required

Excellent Load and Line Regulation

Extremely Low Quiescent Current

Miniature PC Board Mountable Package

Low Ripple and EMI/RFI

High Impedance Programming Input

(>75kΩ)

Wide Operating Temp Range (-40°C to +60°C)



Mechanical Characteristics

- **Weight:** 23 grams typical
- **Packaging:** Encapsulated in high performance epoxy
- **Shield Material:** Copper Adhesive

Environmental Characteristics

- **Operating Temp Range:** -40°C to +60°C
- **Storage Temp Range:** -55°C to +85°C



Description

The **RK Series** is a family of miniature single-output, fully regulated DC to DC converters supplying up to 5kV @1W in 0.77 cubic inches (1.40"L x 1.10"W x 0.50"H). These ultra-compact converters are ideal for applications requiring small size and ease of use. A high impedance programming input makes it very easy to use, eliminating the need for a low impedance adjustable power source voltage.

HVM's proprietary, ultra-compact resonant converter design minimizes quiescent current and operating noise while delivering maximum performance and reliability. The **RK Series** is sold with a factory installed copper adhesive shield for further noise reduction.

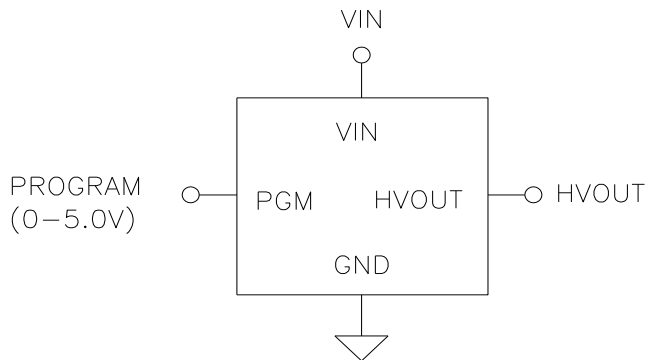
The devices operate directly from 5VDC or 12VDC \pm 0.5VDC input. Output voltage is independent of input power voltage and is proportional to the programming voltage (0 to 5V produces 0 to full scale output) and features excellent linearity. Adjustment pads are available to calibrate the unit to \pm 5% outside of factory settings. The output power rating is 1W. The **RK Series** is very stable over a wide operating temperature range.

The **RK Series** is available with alternate output voltages. Consult sales for additional information.



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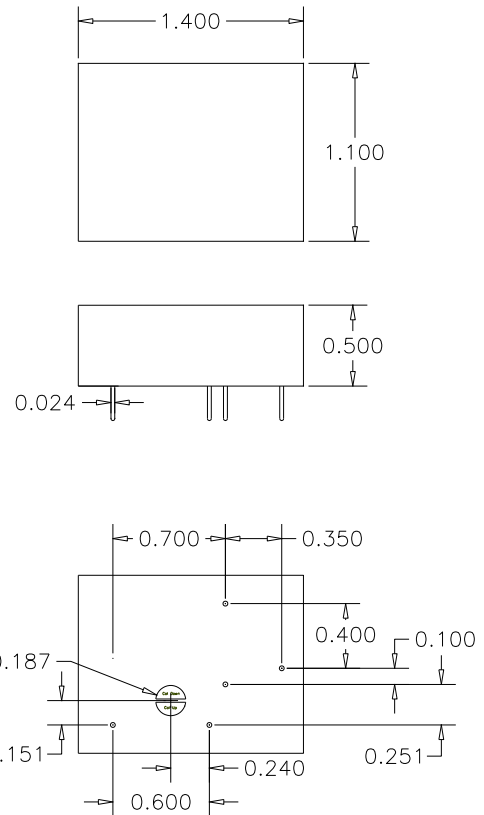
APPLICATION SCHEMATIC



ELECTRICAL CHARACTERISTICS

Input Voltage (VIN)	5V or 12V \pm 0.5V
Programming Voltage:	0 to 5V (produces 0 to rated output)
Programming Input Impedance:	>10k Ω
Output Tolerance at No Load:	\pm 5%
Oscillator Frequency:	50kHz to 100kHz
Load Regulation:	<0.5%
Line Regulation:	0.01%
Output Ripple at Full Load:	<1%
Calibration Adjustment:	Cal Up and Cal Down pads are active when attached to GND. \pm 5% voltage adjustment typical.
Efficiency:	60% typical at full load

DIMENSIONS



PIN #	FUNCTION
1	VIN
2	GND
3	PROGRAM
4	HVOUT
5	CASE GND

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Model Selection Guide

MODEL	Input Voltage	Output Voltage	MAX Output Current	Input Current No Load	Input Current Max Load
RK0505	5V	0 to +500V	2mA	<35mA	<350mA
RK0505N	5V	0 to -500V	2mA	<35mA	<350mA
RK0510	5V	0 to +1kV	1mA	<35mA	<350mA
RK0510N	5V	0 to -1kV	1mA	<35mA	<350mA
RK0512	5V	0 to +1.2kV	833 μ A	<35mA	<350mA
RK0512N	5V	0 to -1.2kV	833 μ A	<35mA	<350mA
RK0520	5V	0 to +2kV	500 μ A	<35mA	<350mA
RK0520N	5V	0 to +2kV	500 μ A	<35mA	<350mA
RK1205	12V	0 to +500V	2mA	<35mA	<350mA
RK1205N	12V	0 to +500V	2mA	<35mA	<350mA
RK1210	12V	0 to +1kV	1mA	<35mA	<350mA
RK1210N	12V	0 to -1kV	1mA	<35mA	<350mA
RK1212	12V	0 to +1.2kV	833 μ A	<35mA	<350mA
RK1212N	12V	0 to -1.2kV	833 μ A	<35mA	<350mA
RK1220	12V	0 to +2kV	500 μ A	<35mA	<350mA
RK1220N	12V	0 to -2kV	500 μ A	<35mA	<350mA

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