NCH6300HV High Voltage DC-DC Power Booster

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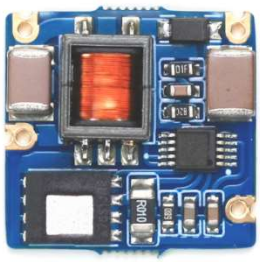
The Light Never Fades

Official Website	www.omnixie.com www.omnixie.cn	Version 2.1.0.3 06/01/2022
Electronics Design	Mr. Yan, Zeyuan	



Thank you for purchasing an Omnixie® product!

Below you will find information on how to get the most from your power booster. Please read the following information carefully before using this product. If you have any questions regarding these instructions, please contact us for further explanation.

Features

NCH8200HV high voltage power supply module is miniature step-up DC-DC converter with high efficiency and low heat, operation from 2.5 to 15VDC input with an output of 170v, designed for Nixie tube, Magic eye etc, especially suitable for Lithium battery or USB power supply, pin pitch is suitable for universal board and breadboard.

⚠ WARNING

- High voltage is present on the board when energized. Please do not touch the circuit board or the components with bare hands when the power is connected.
- Overload prohibited! Keep the input voltage/output current in the specified range.
- When used in an enclosed environment, be sure to add proper ventilation for heat dissipation.
- Indoor use only.

Technical Specifications

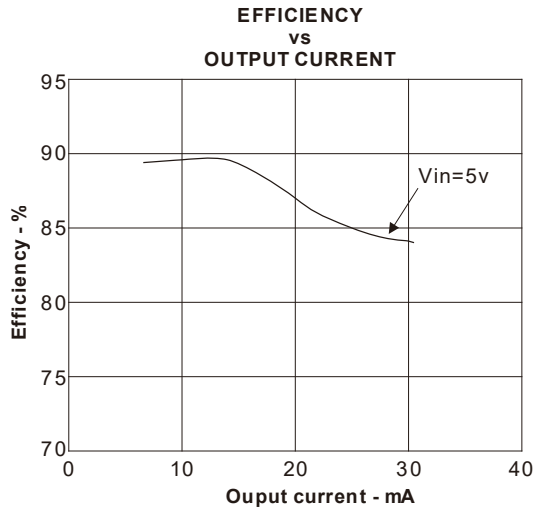
Electronic Specifications

Specification	Symbol	Min	Typ	Max	Units
Input voltage	V_{IN}	2.50	5.00	15.00	Volts
Output voltage (Io = 10mA)	V_{OUT}	---	170	---	Volts
Output current (V_{IN} = 2.7V V_{OUT} = 170V)	I_{OUT}	0	---	10	mAmps
Output current (V_{IN} = 3.0V V_{OUT} = 170V)		0	---	12	mAmps
Output current (V_{IN} = 3.7V V_{OUT} = 170V)		0	---	20	mAmps
Output current (V_{IN} = 5.0V-15V V_{OUT} = 170V)		0	---	30	mAmps
Shutdown current (V_{IN} = 5V V_{OUT} = 170V)	I_{OFF}	---	8	---	mAmps
Operating frequency	F_{sync}	---	100	---	kHz
Efficiency (V_{IN} = 2.5-15VDC, 50%-80% rated load)	Efficiency	---	86	89.65	%

Notes:

1. **No input reverse polarity protection is provided.**

Efficiency curve (V_{IN} = DC 5V)

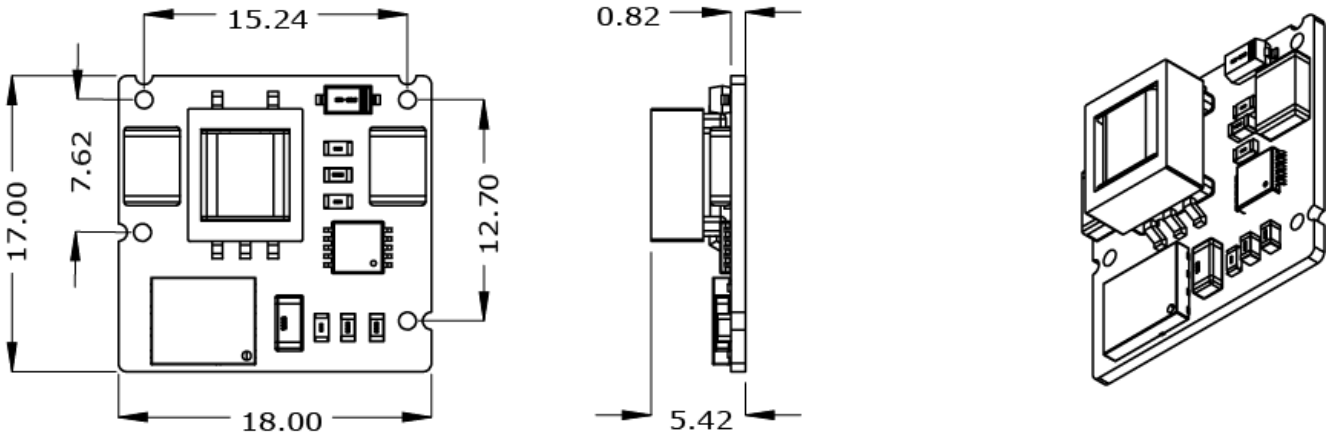


Typical connection

Note:

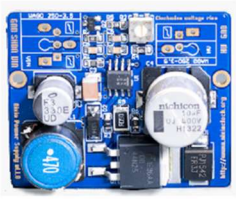
1. **Recommended input capacitor if the module is located far from the power.**
2. **Module will generate heat, be sure the board is well heat dissipation.**

Module outline



Pin pitch of NCH8200HV is suitable for universal board or breadboard Unit: mm

Omnixie® Power Booster Product Line Comparison

	 6100	 6300	 8200
DC INPUT VOLTAGE	10-24V	3.7-15V	2.5-15V
DC OUTPUT VOLTAGE	85-235V	100-230V	170V Fixed
OUTPUT CURRENT (V_{in}=12V, V_{out}=170V)	35-55mA	70-100mA	30mA
TYPICAL EFFICIENCY	80%	86%-92.5%	86%-89%
Li-Ion Battery Input	NO	YES	YES
OUTPUT ADJUSTABLE	YES	YES	NO
OUTPUT ENABLE PIN	YES (LOW/NC = ENABLE)	YES (HIGH = ENABLE)	NO
CONNECTION METHODS	WIRE TERMINAL; 0.1" PITCH HEADER	WIRE TERMINAL; 0.1" PITCH HEADER	INDIVIDUAL PINS
BREADBOARD COMPATIBLE	YES	YES	YES
MOUNTING HOLES	2	0	0
WIDTH	1.77in/45mm	45mm	0.71in/18mm
HEIGHT	1.46in/37mm	1.18in/30mm	0.67in/17mm
THICKNESS	0.59in/15mm	0.61in/15.6mm	0.24in/6mm
RELEASE DATE	AUG, 2012	NOV, 2020	JUL, 2017
CURRENT STATUS	DISCONTINUED	ACTIVE	ACTIVE
Retail Price	~~$30~~	$30	$30

Troubleshooting

- No high voltage output
  1. Power off the module. Check V_{IN} and HV_{OUT} are NOT short to ground.
  2. Check the input voltage is on.
  3. Check the input voltage polarity is correct.

- HV Output cannot reach expected current
  1. Check all wires are thick enough to minimize the voltage drop over wires. This is VERY CRITICAL, especially when you use Lithium battery as power source.
  2. Enable the module first, before turn on the tubes.
  3. Let it cool down for a minute before retry.

- Overheat of the IC on the module
  1. Power off the module. Check V_{IN} and HV_{OUT} are NOT short to ground.
  2. Power on, and check the output current does not exceed the maximum.
  3. Add a head sink on the IC, or a cooling fan nearby to help heat dissipation.

Guarantee

Omnixie® products are warranted to be free from any defect in workmanship or materials and to be function as expected provided used according to the instructions for one (1) year. This warranty does not cover malfunction due to alteration or accident.

Contact

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