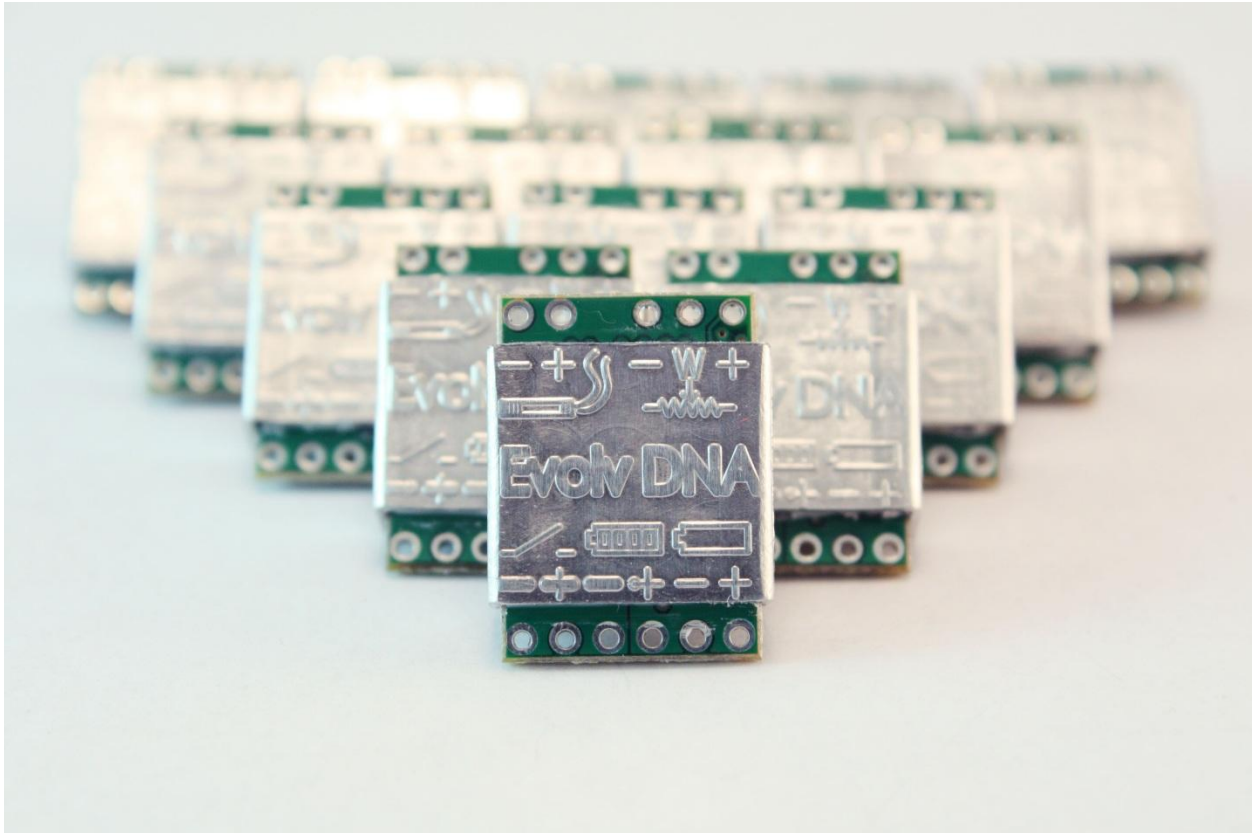


Evolv DNA 12

12 Watt variable power module

Preliminary Datasheet

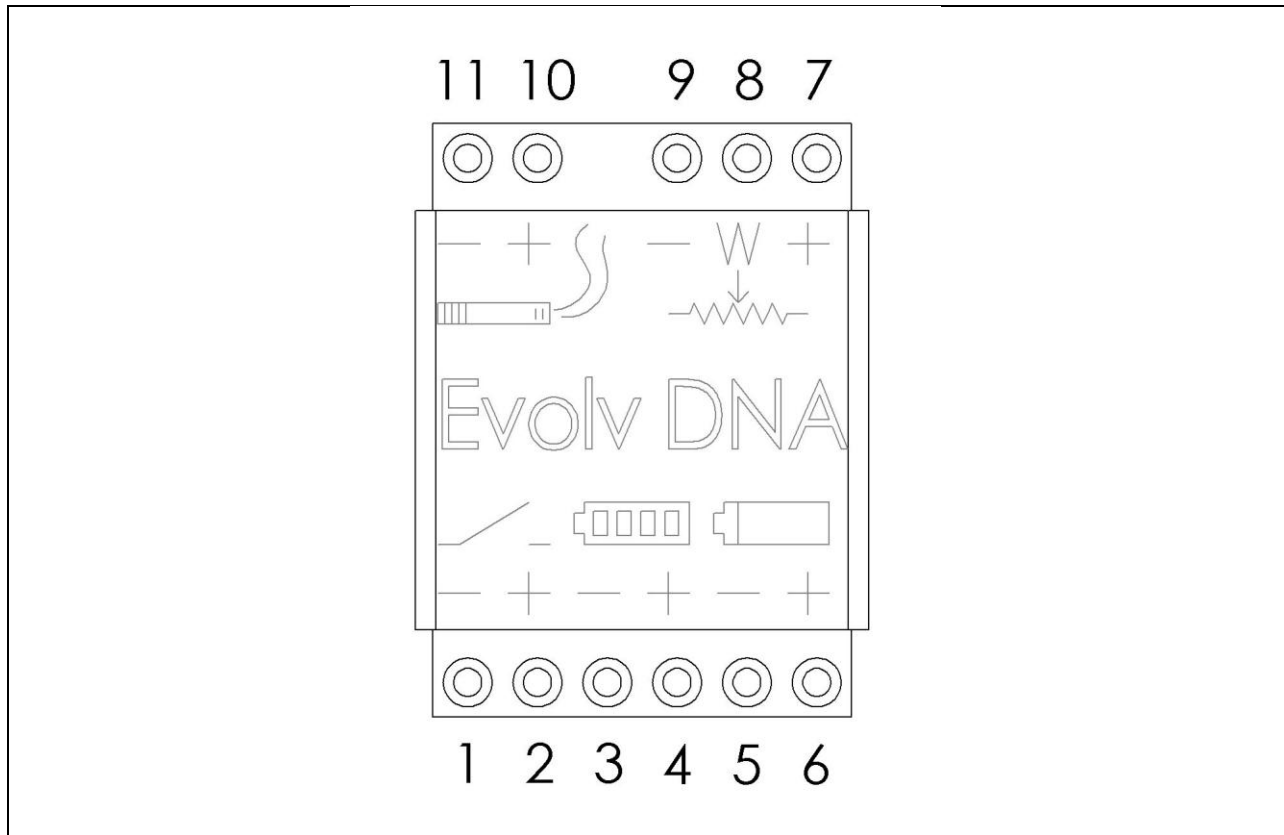


The DNA 12 is a power regulated digital switch-mode DC-DC converter for personal vaporizers.

	Minimum	Typical	Max
Output Power	5 Watts		12 Watts
Output Voltage			6.0 Volts
Output Current			3.5 Amps
Atomizer Resistance	1.1 Ohms	2.5 Ohms	3.3 Ohms
Input Voltage	3.2 Volts	3.7 Volts	4.3 Volts
Input Current	1.5 Amps	3.0 Amps	4.5 Amps
Quiescent Current	120 uA	220uA	350uA
Efficiency		87%	
Weight		5g	
Footprint		.65" x .85"	
Thickness		.32"	

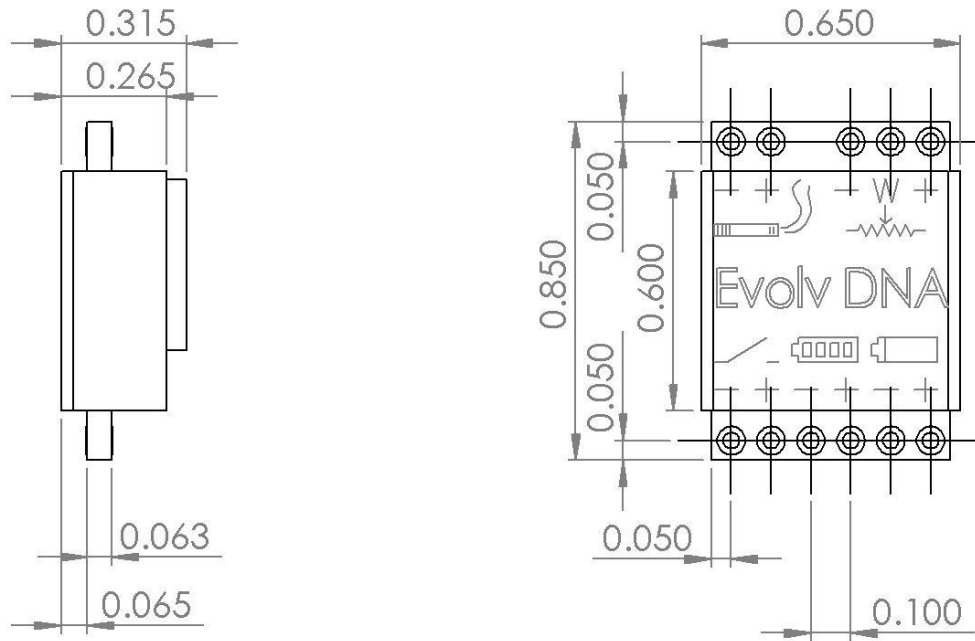
Pinout

The DNA 12 requires an external switch to activate and a potentiometer to set the power level. Connections are also provided for battery input, optional input from an accessory charger and output to the atomizer.



Pin Number	Pin Name	Function
1	Switch -	Negative side of the activation switch.
2	Switch +	Positive side of the activation switch.
3	Charger -	Negative side of the charger board connection. Optional.
4	Charger +	Positive side of the charger board connection. Optional.
5	Battery -	Negative side of the battery.
6	Battery +	Positive side of the battery.
7	Potentiometer +	Positive side of the potentiometer.
8	Potentiometer W	Wiper (center pin) of the potentiometer.
9	Potentiometer -	Negative side of the potentiometer.
10	Output +	Positive side of the power output. Connect to atomizer.
11	Output -	Negative side of the power output. Connect to atomizer.

Mechanical Dimensions



The mounting holes for the DNA 12 are .100" pitch. It can be wired in directly using soldered connections, or socketed with standard .1" hardware.

In a metal design, it is advantageous to glue the converter's metal heat spreader to the case with a thermal glue such as Loctite 383. A wood or plastic mod should be mounted with the heat spreader away from the case. The regulator will also fit inside most round designs.

Recommended wire sizes			
	Minimum size	Recommended size	Maximum size
Battery	22 gauge	20 gauge	20 gauge
Output	24 gauge	20 gauge	20 gauge
Charger	26 gauge	24 gauge	20 gauge
Potentiometer	28 gauge	24 gauge	20 gauge
Switch	28 gauge	24 gauge	20 gauge

It is important to use appropriately sized wire when using the DNA. Too small wire will not perform well, and significantly undersized wire can burn out.

External component recommendations

The DNA 12 is a self-contained power regulator which requires external components for user interface. A potentiometer is used to set the desired power level, and normally open switch or button is used to activate the device.

Switch:

Use a momentary on, normally open type switch or button. A standard pushbutton switch is appropriate. The switch is a logic function – all power switching is handled with transistors inside the DNA module, so the switch does not need to be rated for power. A waterproof or processed sealed switch is recommended.

Potentiometer:

Use a standard linear taper potentiometer. Resistances between 1k and 10k ohms are recommended. To reverse the direction of turn for adjustment, reverse the Potentiometer – and Potentiometer + connections. Any type of potentiometer can be made to work – shaft, shaftless, slide, etc.

Battery:

A single cell rechargeable lithium chemistry battery is recommended. Either a lithium ion or a lithium polymer type can be used. Any battery used should be rated for a **MINIMUM** of 5 amps continuous discharge current. High C rated lithium polymer or IMR cylindrical cells are strongly preferred.

Charger:

Evolv offers an accessory DNA Charger which is USB powered and provides a 500 milliamp charge current. The use on an onboard charger is optional – a removable battery will also work.

Protective features and error states

In an error state, the red error LED will illuminate. All error indications will clear themselves once the error is cleared.

Current limit:

The DNA 12 will shut down temporarily if the output current rises above 3.5 amps. This also protects the unit from damage if the atomizer shorts out.

Low battery:

To prevent battery damage, the DNA 12 will shut off if the battery voltage dips below 3.1 volts (loaded) for more than .25 seconds.

Overvoltage:

In the event an atomizer of too high resistance to allow the desired power setting is attached, the output voltage will be limited to 6.0 volts.

Overheat:

DNA 12 has a temperature sensor onboard. If the board temperature rises above 80C, the error light will illuminate and the output will remain off until the board temperature drops.

High resistance:

If the DNA 12 senses an output resistance of more than 10 ohms, it will assume there is no atomizer connected and remain in a low power sleep state.