



Speech Controlled DC Switch with Scalable PWM Output

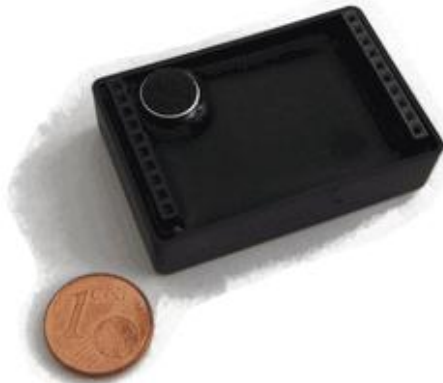


table lamps, alarm clocks or furniture with integrated lighting.

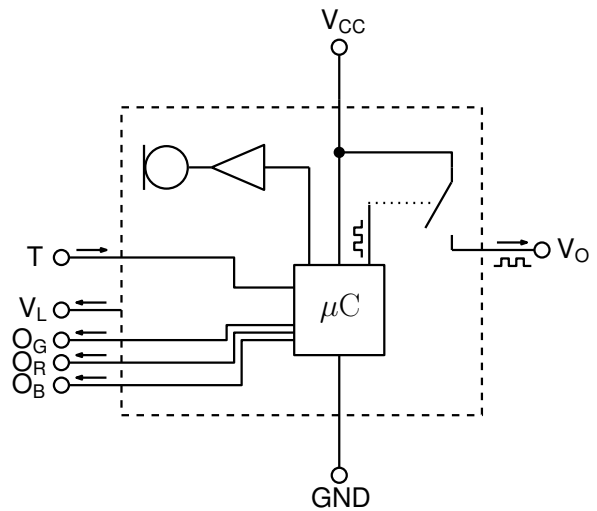


Figure 1: Representative Schematic Diagram

1 Features

- on/off switching by signal and by speech
- programmable speech command
- high-side switched PWM output
- operation between 12 and 30V
- low power consumption
- PWM duty cycle scalable both electronically and by speech in one percent increments
- output switch current up to 3A
- small outline package sealed by epoxy

2 Description

The SB-DC-PWM-1 is an easy to use speech-controlled DC high-side PWM output switch with an load up to 3A. The PWM output can be activated and deactivated by an external push button or with an user definable speech command.

Because of an integrated switching regulator the SB-DC-PWM-1 can operate with a wide voltage input range between 12 and 30V with low power loss.

The SB-DC-PWM-1 is intended to extend the functionality of various consumer electronic devices, such as

3 Connection Diagram

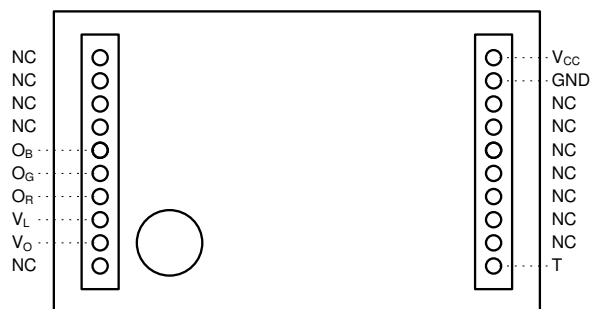


Figure 2: Bottom View



4 Minimum and Maximum Ratings

Rating	Symbol	Min value	Max value	Unit
Power Supply Voltage	V_{CC}	12	30	Vdc
Switch Current	I_O	-	3	A
Status LED Current (Pin V_L)	I_L	-	20	mA
Operating Ambient Temperature Range	T_A	0	70	°C

5 Electrical Characteristics

Rating	Symbol	Typ. value	Unit
Power Dissipation	P_D	0.5	W
Status LED Voltage (Pin V_L)	V_L	3.3	V

6 Typical Application

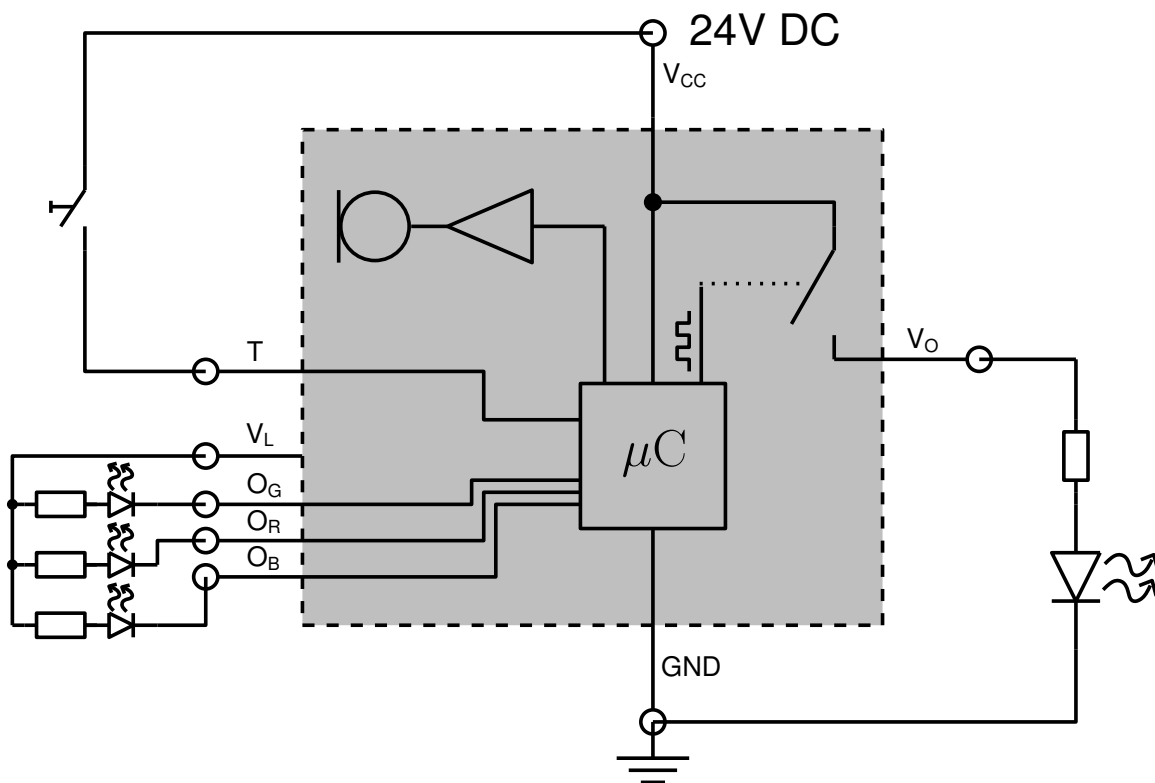


Figure 3: Typical Application: LED Dimmer



7 Operating Instructions

Note: The following explanations relate to the application in Fig. 3.

7.1 Manually Turning the Light On/Off

A short press of the button turns the light on or off. The switch event occurs by releasing the button, thereby increasing or decreasing the light's brightness continuously until the maximum or minimum is reached. A single pass from maximum to minimum brightness and vice versa requires about 3 seconds and can be stopped by another short press of the button.

7.2 Turning the Light On/Off with Speech

Switching with speech commands is similar to switching manually. The switch event occurs upon recognition of a programmed command (see section 7.3). The brightness changes continuously until the final state is reached. The pass can be stopped with the pre-programmed speech command *stop*.

7.3 Programming a New Speech Command

The programmed speech commands are used for both, switching on and off. They should contain at least 5 syllables. The more syllables they have, the lower the likelihood of unwanted false recognition. A recommendable approach is to choose the place of installation or the name of the targeted device as the command (for example "switch living room light", "toggle workroom light", "switch table light"). The maximal permitted command length is 2 seconds.

Command Recording: Push button for about 3 seconds, after which the LED O_G goes on. Now the user can say the desired speech command. Immediately afterwards the finger should be released from the button. The LED O_G starts to blinking.

Variance Training: The user needs to repeat the desired command several times until the LED O_G stops blinking. It is not necessary to push the button during variance training. After each recognition the state of the switch changes. Between each repetition it is necessary to wait at least two seconds, even in the case of a non-recognition. If the variance training fails, the user should delete all programmed speech commands and rerecord the command.

Notes: Everything the device hears during recording will be incorporated into the command. Unintended noise or gaps at the start and end should therefore be avoided. It is also important to speak clearly and plainly, but not abnormally stretched, loud or quiet. A minimum distance of about 50 cm to the microphone should be taken into account.

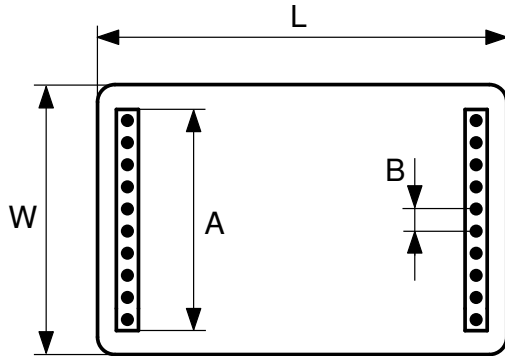
With the described method it is possible to program up to three different commands.

7.4 Deleting all Speech Commands

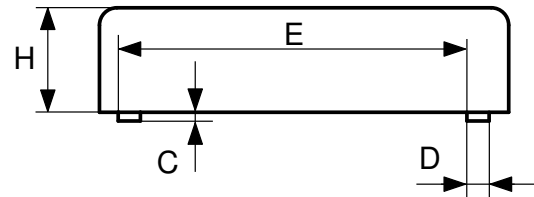
When the button is pressed for about three seconds and released immediately (i.e. as soon as LED O_G is lit), all speech commands are deleted.



8 Package Dimensions



BOTTOM VIEW



SIDE VIEW

Dim	Millimeters	Inches
L	47.0	1.85
W	31.0	1.22
H	12.0	0.47
A	26.0	1.02
B	2.5	0.10
C	1.0	0.04
D	2.5	0.10
E	40.0	1.57



AURINOVO GmbH

Luisenstraße 7
D-14542 Werder (Havel)

+49(0)3327 567082
<http://www.aurinovo.com>