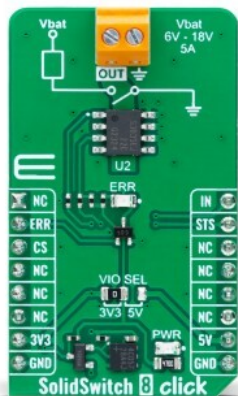


SolidSwitch 8 Click



PID: MIKROE-6064

SolidSwitch 8 Click is a compact add-on board for reliable load control in automotive and industrial applications. This board features the BTS3035EJXUMA1, a smart low-side switch from Infineon. It features a 35mΩ N-channel MOSFET, capable of handling load voltages from 6V to 18V and currents up to 5A, making it suitable for various resistive, inductive, and capacitive loads. The board includes essential protection mechanisms like overtemperature shutdown, overvoltage protection, and current limitation, ensuring reliable operation under demanding conditions. With integrated feedback through an open-drain status pin and a red LED indicator for visual alerts, it enhances diagnostics and safety. SolidSwitch 8 Click is ideal for applications where it can replace electromechanical relays, fuses, and discrete circuits, providing efficient load management for high-efficiency systems in automotive and industrial sectors.

How does it work?

SolidSwitch 8 Click is based on the BTS3035EJXUMA1, a single-channel smart low-side power switch from Infineon. This 35mΩ device uses an advanced N-channel vertical power MOSFET design, which is monolithically integrated, ensuring high reliability and compactness. Engineered with automotive-grade quality, the BTS3035EJXUMA1 is ideal for robust 12V automotive applications. Still, it can manage a versatile range of load types - including resistive, inductive, and capacitive loads - with a maximum voltage range from 6V to 18V and load currents up to 5A. This Click board™ offers a practical solution for controlling loads with varying characteristics and can replace traditional electromechanical relays, fuses, and discrete circuits in numerous applications. Its design enables reliable switching and precise load management, making it suitable for high-efficiency automotive and industrial systems.

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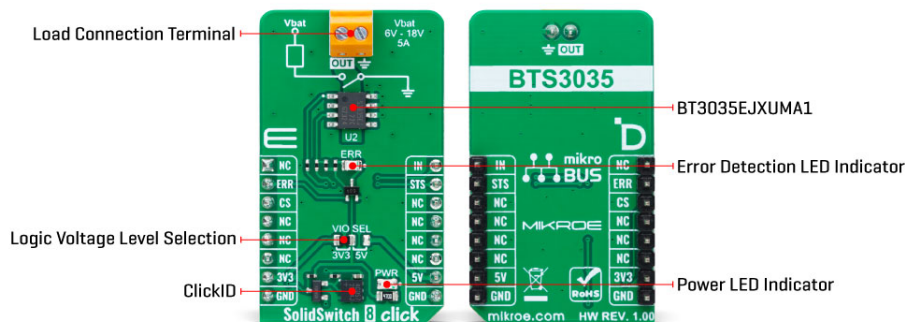
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ISO 9001: 2015 certification of quality management system (QMS).



The BTS3035EJXUMA1 has comprehensive protection features, enhancing its reliability across various applications. These include an overtemperature shutdown with automatic restart, active clamp overvoltage protection, and current limitation, all safeguarding the device under demanding operating conditions. Additionally, it has a low output leakage current when in the OFF state, electrostatic discharge (ESD) protection, and full AEC-Q100 qualification, ensuring resilience in automotive environments.

SolidSwitch 8 Click establishes its connection with the host MCU through specific pins on the mikroBUS™ socket, which controls the operation of the onboard BTS3035EJXUMA1 IC. The IN pin is the TTL logic control signal, where a HIGH logic level enables the smart power switch to manage its load. Additionally, the STS pin functions as an open-drain feedback status output, providing real-time monitoring and alerting the MCU in case of detected anomalies, such as an overtemperature condition.

For immediate visual feedback, the onboard ERR red LED indicates any detected operational anomaly controlled through the ERR pin on the mikroBUS™ socket. This LED activation provides an accessible visual alert for users, enhancing diagnostics and safety by signaling issues directly on the board.

This Click board™ can operate with either 3.3V or 5V logic voltage levels selected via the VIO SEL jumper. This way, both 3.3V and 5V capable MCUs can use the communication lines properly. Also, this Click board™ comes equipped with a library containing easy-to-use functions and an example code that can be used as a reference for further development.

Specifications

Type	Relay
Applications	Ideal for applications where it can replace electromechanical relays, fuses, and discrete circuits in automotive and industrial sectors
On-board modules	BTS3035EJXUMA1 - 35mΩ single channel smart low-side power switch from Infineon
Key Features	Single-channel low-side power switch, based on 35mΩ N-channel MOSFET, broad load control range, protection features, diagnostics and feedback, TTL logic control signal,

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	automotive-grade quality, and more
Interface	GPIO
Feature	ClickID
Compatibility	mikroBUS™
Click board size	M (42.9 x 25.4 mm)
Input Voltage	3.3V or 5V

Pinout diagram

This table shows how the pinout on SolidSwitch 8 Click corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin	mikroBUS				Pin	Notes
	NC	1	AN	PWM	16	IN	Input Control
Error LED Control	ERR	2	RST	INT	15	STS	Status Feedback
ID COMM	CS	3	CS	RX	14	NC	
	NC	4	SCK	TX	13	NC	
	NC	5	MISO	SCL	12	NC	
	NC	6	MOSI	SDA	11	NC	
Power Supply	3.3V	7	3.3V	5V	10	5V	Power Supply
Ground	GND	8	GND	GND	9	GND	Ground

Onboard settings and indicators

Label	Name	Default	Description
LD1	PWR	-	Power LED Indicator
LD2	ERR	-	Error LED Indicator
JP1	VIO SEL	Left	Logic Voltage Level Selection 3V3/5V: Left position 3V3, Right position 5V

SolidSwitch 8 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	3.3	-	5	V
Maximum Load Voltage	6	-	18	V
Maximum Load Current	-	-	5	A

Software Support

We provide a library for the SolidSwitch 8 Click as well as a demo application (example), developed using MIKROE [compilers](#). The demo can run on all the main MIKROE [development boards](#).

Package can be downloaded/installed directly from NECTO Studio Package Manager (recommended), downloaded from our [LibStock™](#) or found on [MIKROE github account](#).

Library Description

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This library contains API for SolidSwitch 8 Click driver.

Key functions

- `solidswitch8_set_err_pin` This function sets the err pin state to the selected level of SolidSwitch 8 Click.
- `solidswitch8_set_in_pin` This function sets the in pin state to the selected level of SolidSwitch 8 Click.
- `solidswitch8_get_sts_pin` This function reads the state of the status pin of SolidSwitch 8 Click.

Example Description

This example demonstrates the use of SolidSwitch 8 Click by switching state of the switch.

The full application code, and ready to use projects can be installed directly from NECTO Studio Package Manager (recommended), downloaded from our [LibStock™](#) or found on [MIKROE github account](#).

Other MIKROE Libraries used in the example:

- MikroSDK.Board
- MikroSDK.Log
- Click.SolidSwitch8

Additional notes and informations

Depending on the development board you are using, you may need [USB UART click](#), [USB UART 2 Click](#) or [RS232 Click](#) to connect to your PC, for development systems with no UART to USB interface available on the board. UART terminal is available in all MIKROE [compilers](#).

mikroSDK

This Click board™ is supported with [mikroSDK](#) - MIKROE Software Development Kit. To ensure proper operation of mikroSDK compliant Click board™ demo applications, mikroSDK should be downloaded from the [LibStock](#) and installed for the compiler you are using.

For more information about mikroSDK, visit the [official page](#).

Resources

[mikroBUS™](#)

[mikroSDK](#)

[Click board™ Catalog](#)

[Click boards™](#)

[ClickID](#)

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Downloads

[SolidSwitch 8 click example on Libstock](#)

[SolidSwitch 8 click 2D and 3D files v100](#)

[BTS3035EJXUMA1 datasheet](#)

[SolidSwitch 8 click schematic v100](#)

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