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Charger 26 Click





PID: MIKROE-5882

Charger 26 Click is a compact add-on board that provides a single-cell charging solution. This board features the MAX1811, a USB-powered Li+ charger from Analog Devices. The charger uses an internal FET to deliver the battery up to 500mA charging current. It has pre-conditioning that soft-starts a near-dead battery cell before charging. The other safety features include continuous monitoring of voltage and current and initial checking for fault conditions before charging. This Click board™ makes the perfect solution for the development of PDAs, digital still cameras, MP3 players, cell phones, hand-held devices, and more.

Charger 26 Click is supported by a mikroSDK compliant library, which includes functions that simplify software development. This Click board™ comes as a fully tested product, ready to be used on a system equipped with the mikroBUS™ socket.

How does it work?

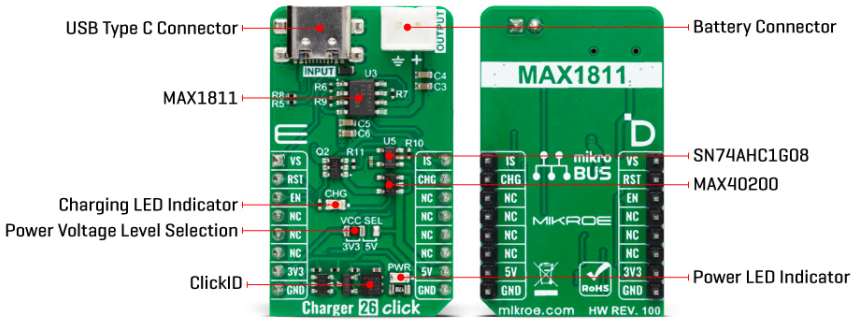
Charger 26 Click is based on the MAX1811, a USB-powered Li+ charger from Analog Devices. The voltage/current regulator of the MAX1811 consists of a voltage control loop, a current control loop, and a thermal control loop. The charger allows you to set the battery regulation voltage to a 4.1V or 4.2 single Li+ cell. It also allows you to set the battery's charging current in either 100mA or 500mA modes. You should note that by charging the battery over the powered USB host, you can select a 500mA mode. An unpowered USB hub is limited to only 100mA.

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Charger 26 Click is equipped with circuits that will recognize if the MAX1811 is powered over the USB. If not, the MAX1811 will be powered over the 5V mikroBUS™ socket rail. This circuit consists of the MAX40200, an ultra-tiny micropower 1A ideal diode with ultra-low voltage drop from Analog Devices, which will hold the 5V rail if there is a VUSB presence. The SN74AHC1G08, a single 2-input positive-AND gate from Texas Instruments, is here to prevent the MAX1811 charger from being powered from the UCB C input connector if the Charger 26 Click is not connected to a development board equipped with the mikroBUS™ socket. The CHG orange LED is here to indicate the charge status. You can connect the single Li+ cell battery over the JST output connector. Before you do so, please double-check the polarity of the battery.

Charger 26 Click uses the GPIO to communicate with the host MCU. You can select a battery regulation voltage over the VS pin, which, with a pull-up resistor, is set to a 4.2V battery regulation set point. You can also select a battery regulation current over the IS pin, which, with a pull-down resistor, is set to 100mA maximum battery regulation current. Besides the CHG LED, the charging status can be monitored over the CHG output pin. The enable EN pin controls the enable input of the MAX1811 charger, which is enabled by default by the pull-up resistor.

This Click board™ can operate with either 3.3V or 5V logic voltage levels selected via the VCC 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	Battery charger
Applications	Can be used for the development of PDAs, digital still cameras, MP3 players, cell phones, hand-held devices, and more
On-board modules	MAX1811 - USB-powered Li+ charger from Analog Devices
Key Features	Charges single-cell Li+ batteries directly from the USB C connector, or over the 5V rail of the mikroBUS™ socket, high overall charging accuracy, selectable charging current and

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	voltage, charging indicator, soft start of near-dead battery, checking for fault conditions, and more
Interface	GPIO
ClickID	Yes
Compatibility	mikroBUS™
Click board size	M (42.9 x 25.4 mm)
Input Voltage	3.3V or 5V,External

Pinout diagram

This table shows how the pinout on Charger 26 Click corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin					Pin	Notes
Voltage Selection	**VS**	1	AN	PWM	16	**IS**	Current Selection
ID SEL	**RST**	2	RST	INT	15	**CHG**	Charging Indication
Enable / ID COMM	**EN**	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	CHG	-	Charging LED Indicator
-	VCC SEL	Left	Logic Level Voltage Selection 3V3/5V: Left position 3V3, Right position 5V

Charger 26 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	3.3	-	5	V
Charger Input Supply Voltage	-	5	-	V
Charging Voltage Range	4.1	-	4.2	V
Charging Current Range	100	-	500	mA

Software Support

We provide a library for the Charger 26 Click as well as a demo application (example), developed using MIKROE compilers. The demo can run on all the main MIKROE development boards.

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

Library Description

This library contains API for Charger 26 Click driver.

Key functions

- charger26_set_vsel Charger 26 select charger voltage function.
- charger26_set_isel Charger 26 select charger current function.
- charger26_get_chg_state Charger 26 chg pin reading function.

Example Description

This example demonstrates the use of Charger 26 Click board™ by enabling the device and then reading and displaying the charger status.

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.Charger26

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

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Downloads

Charger 26 click example on Libstock

MAX1811 datesheet

Charger 26 click schematic

Charger 26 click 2D and 3D files

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