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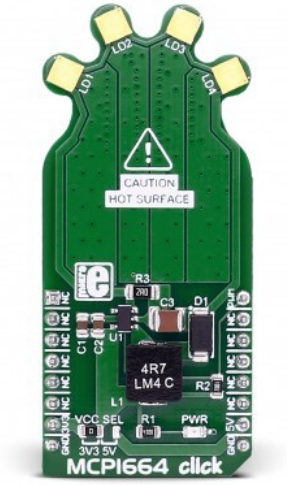
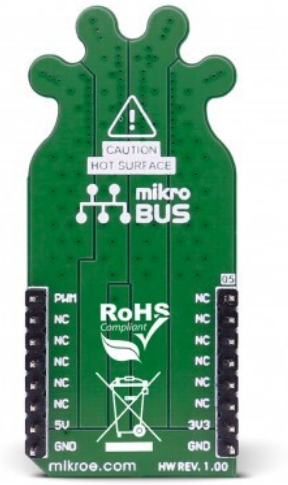
MCP1664 Click





PID: MIKROE-2548

MCP1664 click contains 4 high-power white LEDs. It carries the MCP1664, a high-voltage step-up LED driver from Microchip.

MCP1664 click is designed to run on either 3.3V or 5V power supply. It communicates with the target board microcontroller over the PWM pin on the mikroBUS™ line.

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Note: Don't look directly at the LEDs while they are on, you could damage your eyesight.

How the MCP1664 click works

The click has a power input and a PWM input, so you can set the light intensity at the level you want.

MCP1664 IC features

The MCP1664 is a compact, space-efficient, fixed-frequency, non-synchronous step-up converter optimized to drive multiple strings of LEDs with constant current powered from two and three-cell alkaline or NiMH/NiCd as well as from one-cell Li-Ion or Li-Polymer batteries.

The MCP1664 features an open load protection (OLP) which turns off the operation in situations when the LED string is accidentally disconnected or the feedback pin is short-circuited to GND.

While in Shutdown mode (EN = GND), the device stops switching and consumes 40 nA typical of input current.

Specifications

Type	LED Drivers
Applications	White LED Driver for Backlighting Products, Li-IonBattery LED Lightning Application, etc.
On-board modules	MCP1664 module from Microchip
Key Features	You can set the light intensity
Interface	PWM
Feature	No ClickID
Compatibility	mikroBUS™
Click board size	L (57.15 x 25.4 mm)
Input Voltage	3.3V or 5V

Pinout diagram

This table shows how the pinout on **RN4871 click** corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin		Pin	Notes

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		mikro™ BUS					
	NC	1	AN	PWM	16	**PWM**	PWM input
	NC	2	RST	INT	15	NC	
	NC	3	CS	TX	14	NC	
	NC	4	SCK	RX	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

Maximum ratings

Description	Min	Typ	Max	Unit
Supply Voltage	2.4		5.5	V
Max Out Voltage			32	V
Max Out Current 4.2V Vin 8 LEDs	150			mA
Max Out Current 3.3V Vin 4 LEDs	200			mA
Max Out Current 5.0V Vin 4 LEDs	300			mA

Programming

Code examples for MCP1664 click, written for MikroElektronika hardware and compilers are available on Libstock.

Code snippet

This code snippet shows basic control of light brightness with PWM. The duty cycle is controled with the potentiometer P1.

```
01  uint16_t current_duty;
02   uint16_t adc_rd;
03   void MCU_Init()
04   {
05     TRISC = 0;                          // designate PORTC pins as output
06     LATC  = 0;                          // set PORTC to 0
07     PWM2_Init( 5000 );                  // Initialize PWM2 module at 5KHz
08   }
09   void main()
10   {
11     MCU_Init();
12     current_duty  = 0;
13     PWM2_Start();
14     PWM2_Set_Duty(current_duty);
15     while ( 1 )
// Playing with Potentiometer P1 you can control current PWM duty cycle
16     {
17       adc_rd = ADC_Read(1) & 0x0000FFFF;
// Read 10 - bit ADC value and set newly acquired 8 - bit PWM duty
```

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```
18        current_duty = adc_rd / 4 ;
19        PWM2_Set_Duty(current_duty );      // Set newly acquired duty
20       }
21
22    }
```

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Resources

mikroBUS™

Click board™ Catalog

Click Boards™

Downloads

MCP1664 datasheet

MCP1664 click schematic

MCP1664 click example on Libstock