

TCPWM (PWM mode) example project

2.0

Features

- Project uses TCPWM component with PWM mode configuration
- Indicate line output signal behavior on LED
- LED brightness decremented using terminal count interrupt

General Description

This example project demonstrates the TCPWM component usage in the PWM mode.

Development kit configuration

1. Use the CY8CKIT-042 Kit with the default configuration and the CY8CKIT-040 Kit with changed project configuration settings.
2. Build the project and program the hex file on to the target device.
3. Power cycle the device and observe the results on the green color LED.

In order to configure the project for CY8CKIT-040 the following steps should be performed:

1. Change the project's device from PSoC 4200 to PSoC 4000.

Use Device Selector from the project's context menu.

2. Change assignment of the pin component to physical pin.

In the Workspace Explorer window, double-click the project's design-wide resource file and assign the pin for LED_GREEN to P1[1] (see Table 1).

Table 1. Pin assignment of PWMExample project

Pin Name	Development Kit	
	CY8CKIT-042	CY8CKIT-040
LED_GREEN	P0[2]	P1[1]

Project configuration

The example project consists of the following components: TCPWM, Clock, digital output pin, and Interrupt. The TCPWM is used as the Left align PWM mode. The output pins are used to reflect the line signal output behavior. The top design schematic is shown in Figure 1.

Parameters used:

- PWM mode
- Period = 63000u
- Compare = 0u
- PWM align = Left
- Prescaler = 1x
- Interrupt mode = Terminal count

The TCPWM (PWM mode) datasheet example project

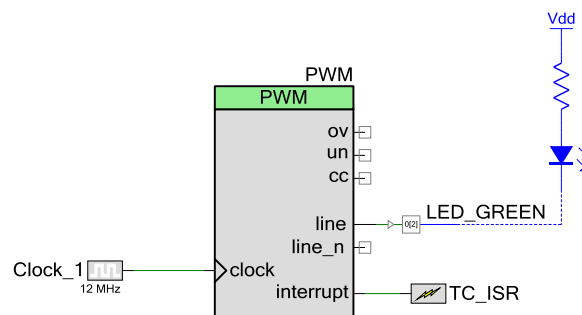


Figure 1. Top design schematic.

The PWM component GUI configuration (Figure 2, Figure 3):

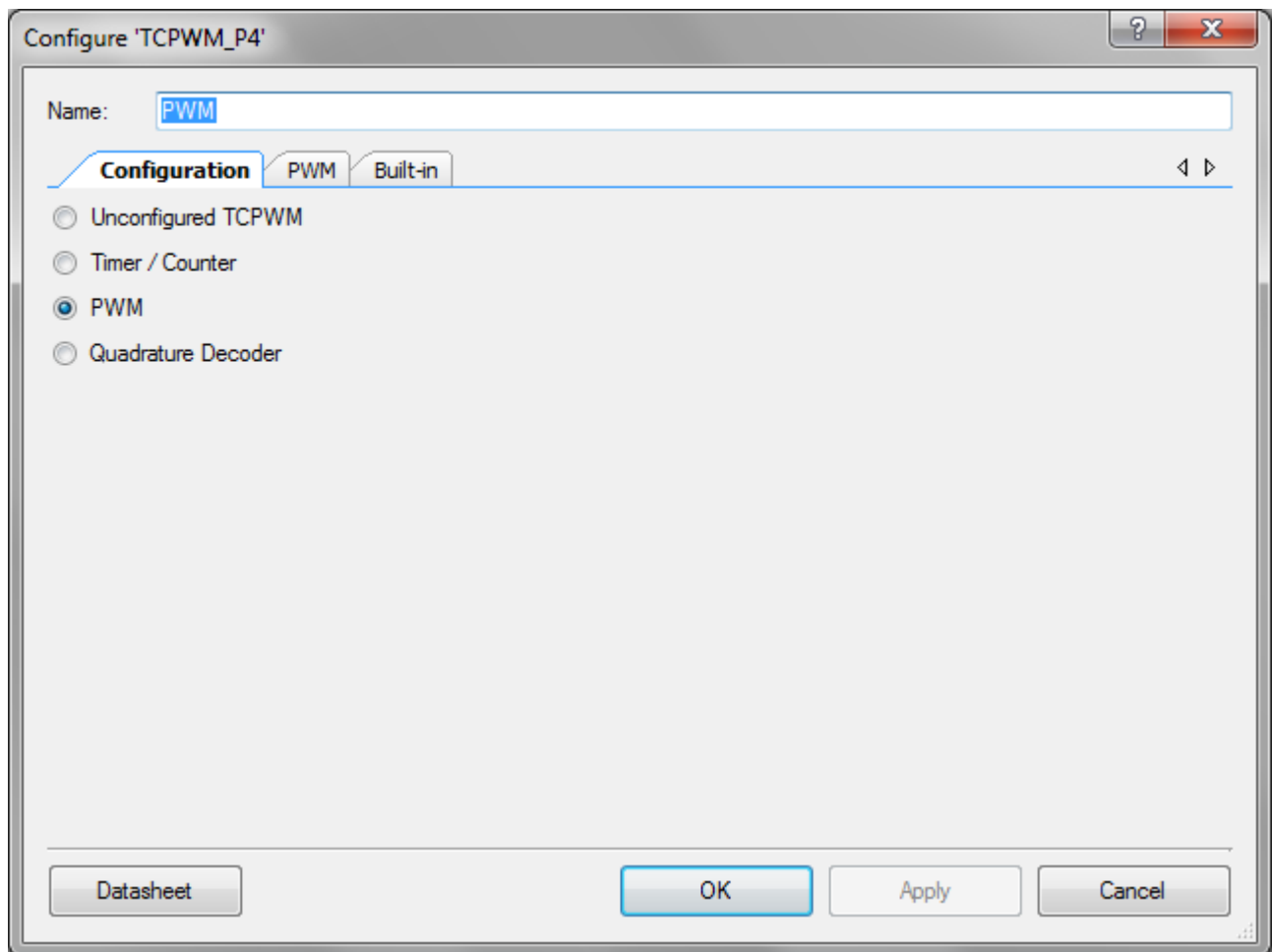


Figure 2. TCPWM Component Configuration Tab

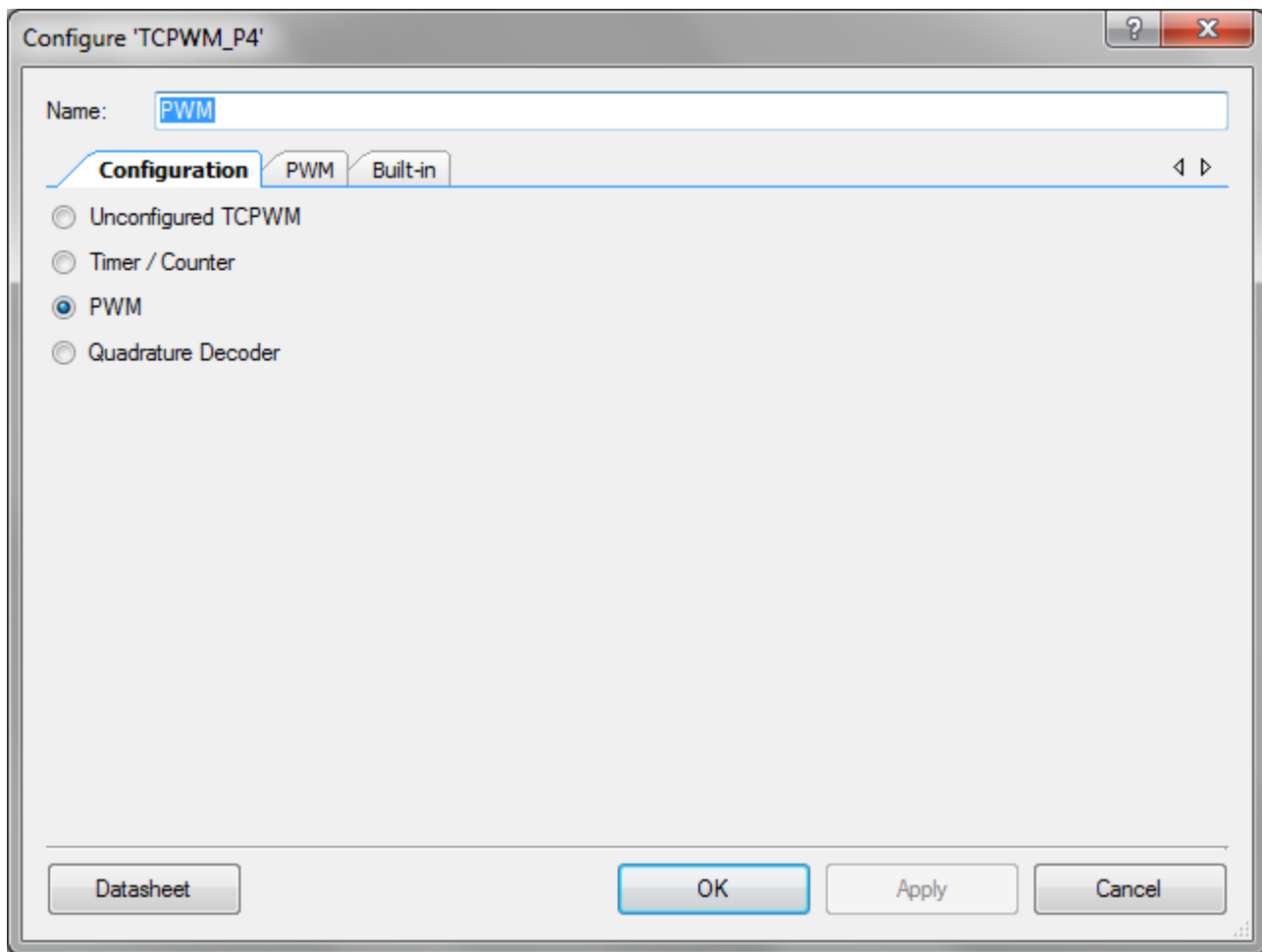


Figure 3. TCPWM Component PWM Tab

Project description

In the project, the TCPWM counts from 0u to 63000u value. The compare value increases by 100u during the terminal count interrupt. When the counter starts, the compare value is 0u; the line output is always 0, so the LED brightness is in high power. After the compare value increases, the duty cycle high state of the line output signal is longer; thus the LED brightness decreases. When the line output is high, the LED brightness is in low power.

Expected results

The green color LED changes its brightness from high to low power lighting (in a cycle).

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