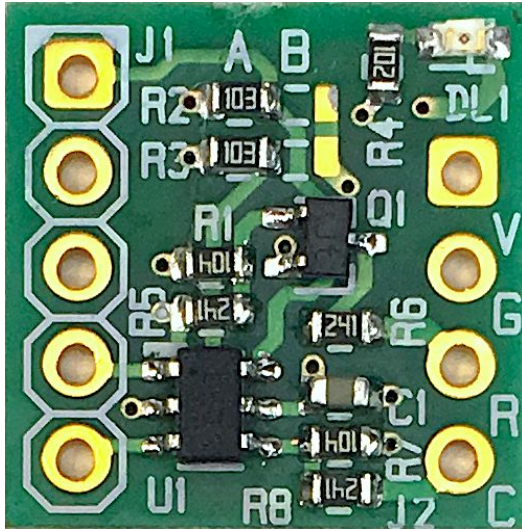


External System Timer For Watchdog and System Monitoring Purposes

Datasheet



Features

- Applicable for most IoT systems
- Selectable Time Intervals from 1.5s to 15h
- Simple Configuration Interface
- Wide Temperature Range: -40°C to 125°C
- Power Supply Voltage from 1.8 to 5.5V
- Low Current Consumption of 300nA (typ) at 1.8V
- 2.54mm / 0.1" Breadboard Compatible PCB
- Small Sized Board 14 x 14 mm / 0.6 x 0.6"
- Watchdog Functionality
- Manual Reset
- Clear Pulse Width Protection
- Easy To Retrofit On Existing Systems
- Cost Effective

Applications

- Remote IoT Sensors
- Battery Powered Systems
- Always On Systems
- Long Time Interval Transmission Systems
- Non-time-critical Solutions

Description

EWTM-01 module is a complete external timer system featuring configurable time intervals that can be set up to 15 hours. The interval is configured with logical levels of 2 pins. The configuration is applied after power on and remains unchanged until the next power cycle.

EWTM-01 can be used for monitoring proper operation of remote IoT systems that transmit data on long time intervals and remote or in-place restart is difficult or impossible.

EWTM-01 can be used similarly to the classical watch-dog timer, or as an external trigger of periodic transmission.

Table 1. Device Summary

Part Number	Power Supply [V]
EWTM-01	2.3 - 5.5
EWTM-01L	1.8 - 3.6

1.Pinout Description

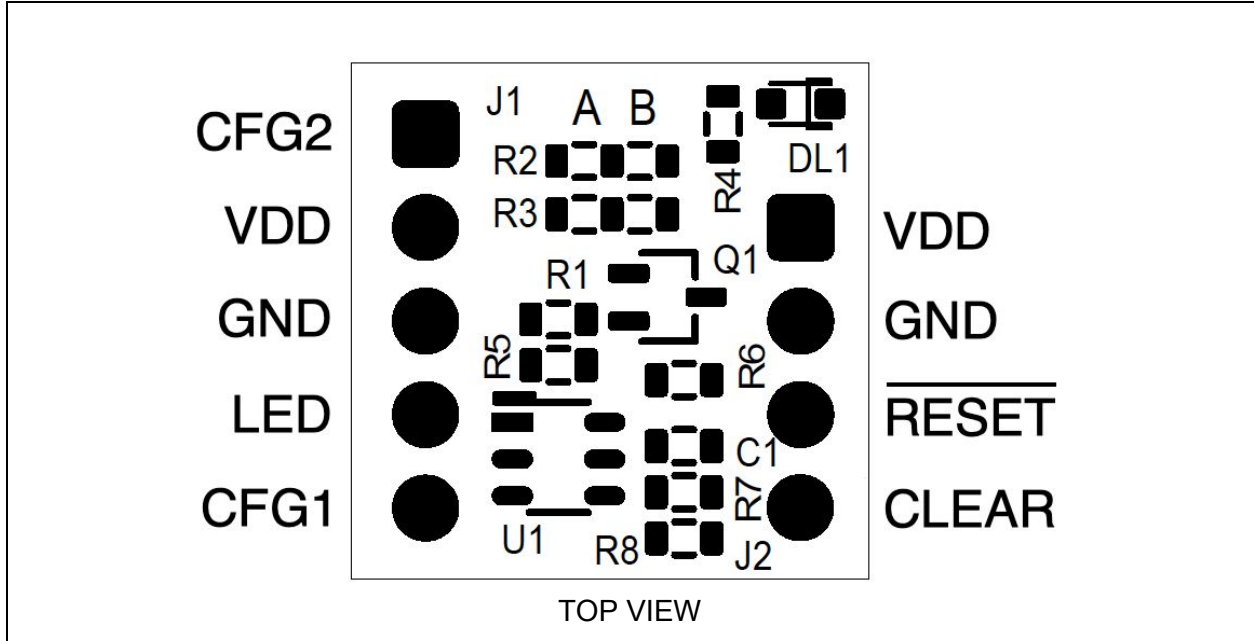


Table 2. J1 - Pin Description

Pin	Description
VDD	Power Supply
GND	Ground
RESET	Reset, low active (open collector)
CLEAR	Clear, high active
CFG1	Configuration pin 1
CFG2	Configuration pin 2

2. Functionality

Table 3. Timing Parameters

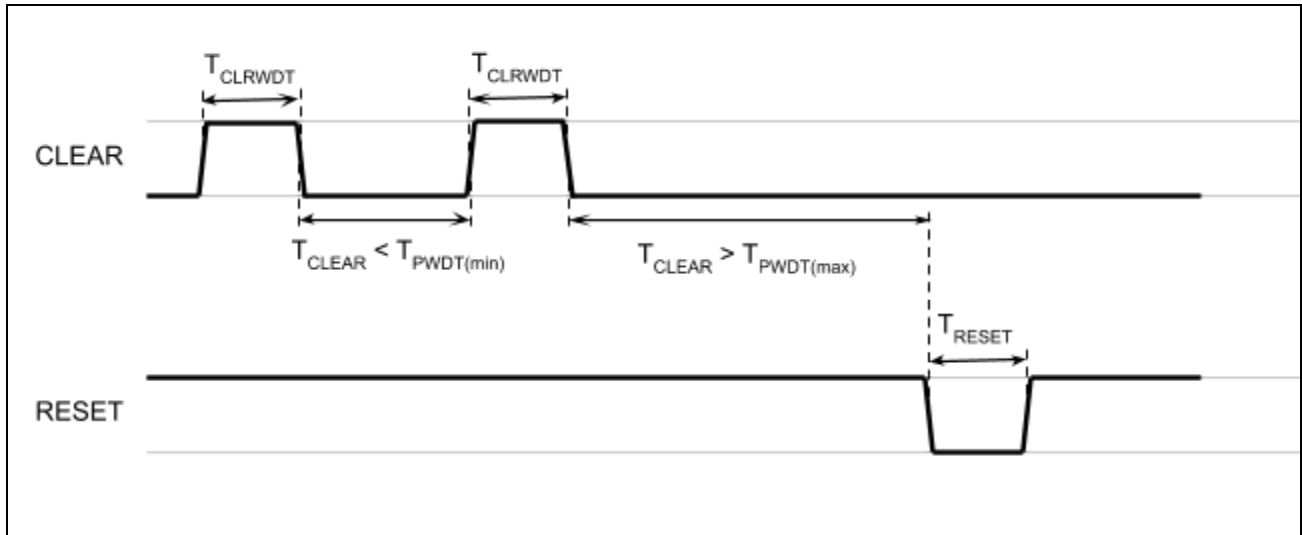
Parameters	Characteristic	Min $t > 70^{\circ}\text{C}$	Typ $t = 25^{\circ}\text{C}$	Max $t < -10^{\circ}\text{C}$	Units	Conditions
T_{PWDT}	Programmable Watch-Dog Timer Period	13	15	17	s	CFG0 = 0; CFG1 = 0 R2: Pos A; R3: Pos A
		13	15	17	min	CFG0 = 1; CFG1 = 0 R2: Pos B; R3: Pos A
		80	90	100	min	CFG0 = 0; CFG1 = 1 R2: Pos A; R3: Pos B
		13	15	17	h	CFG0 = 1; CFG1 = 1 R2: Pos B; R3: Pos B
T_{CLRWDT}	CLEAR WDT pulse width	100	-	8000	μs	-
T_{RESET}	RESET pulse width	-	100	-	ms	-

2.1. Reset caused by timeout

EWTM-01 generates reset signal by pulling RESET pin to low for T_{RESET} interval if there is no CLEAR pulse within the programmed interval T_{PWDT} (see Figure 1). The WDT interval is set externally by configuration pins CFG0 and CFG1 or on-board by resistors R2 and R3.

If external configuration approach is used we recommend unsoldering R2 and R3 in order to avoid any current through them which reduces overall power consumption. The configuration is set on power on and cannot be changed until the next power on cycle.

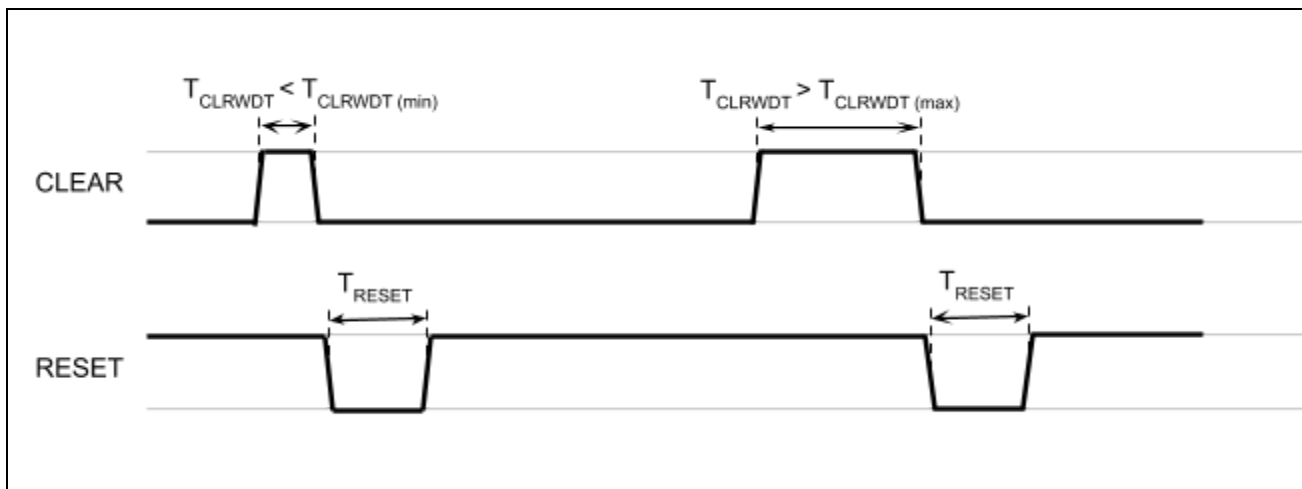
Figure 1. Missing CLEAR pulse causes RESET



2.2. Reset caused by invalid clear pulse

EWTM-01 generates reset signal by pulling RESET pin to low for T_{RESET} interval if the clear pulse is too short $T_{CLRWDT} < T_{CLRWDT(min)}$ or it is too long $T_{CLRWDT} > T_{CLRWDT(max)}$. In the first case it is assumed that there is some accidental glitch in the system and it needs reset while in the second case it is assumed that there is system hang and the pin is set high forever.

Figure 2 - CLEAR pulse invalid length causes RESET

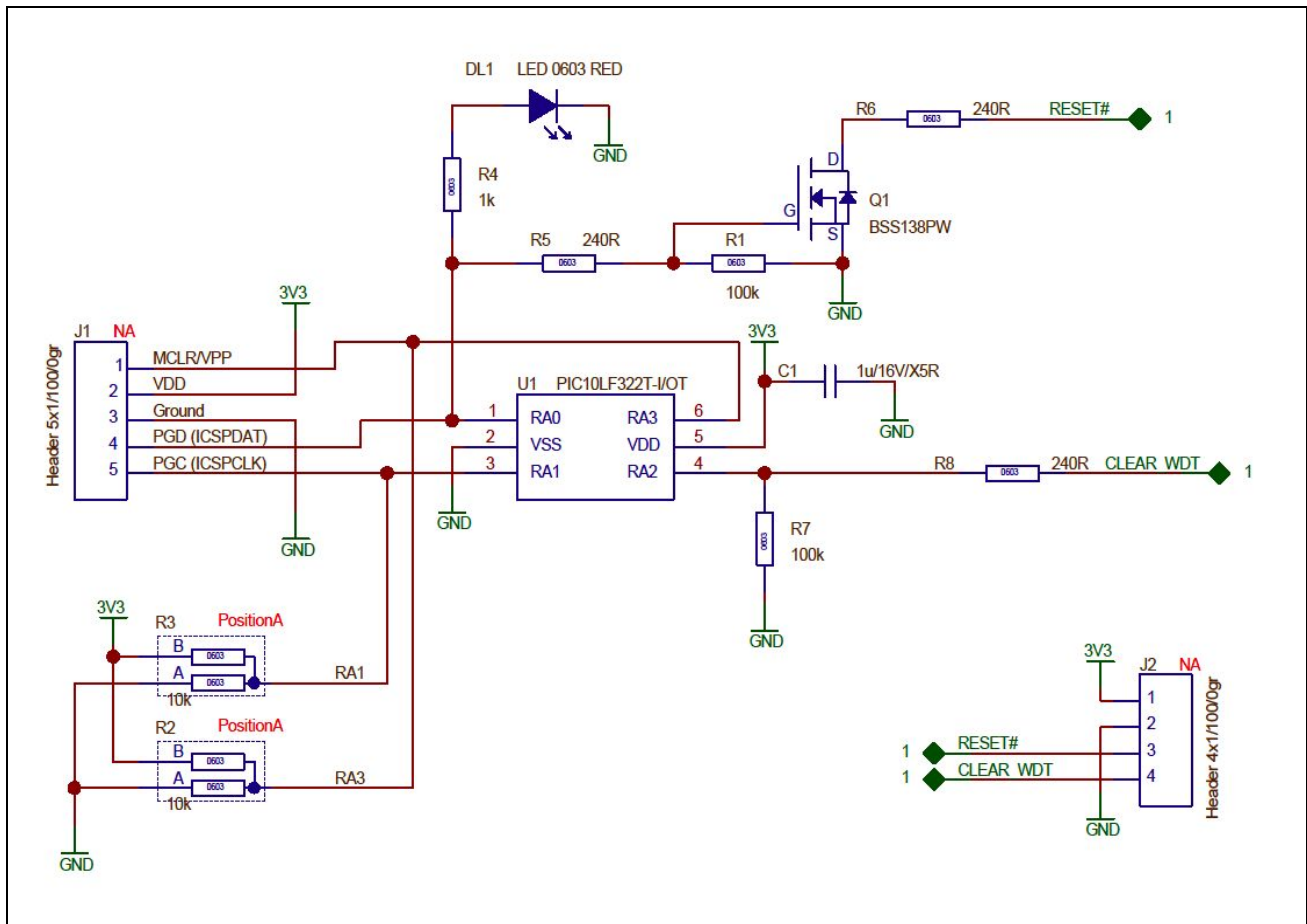


3. Application Hints

3.1. Schematic Diagram

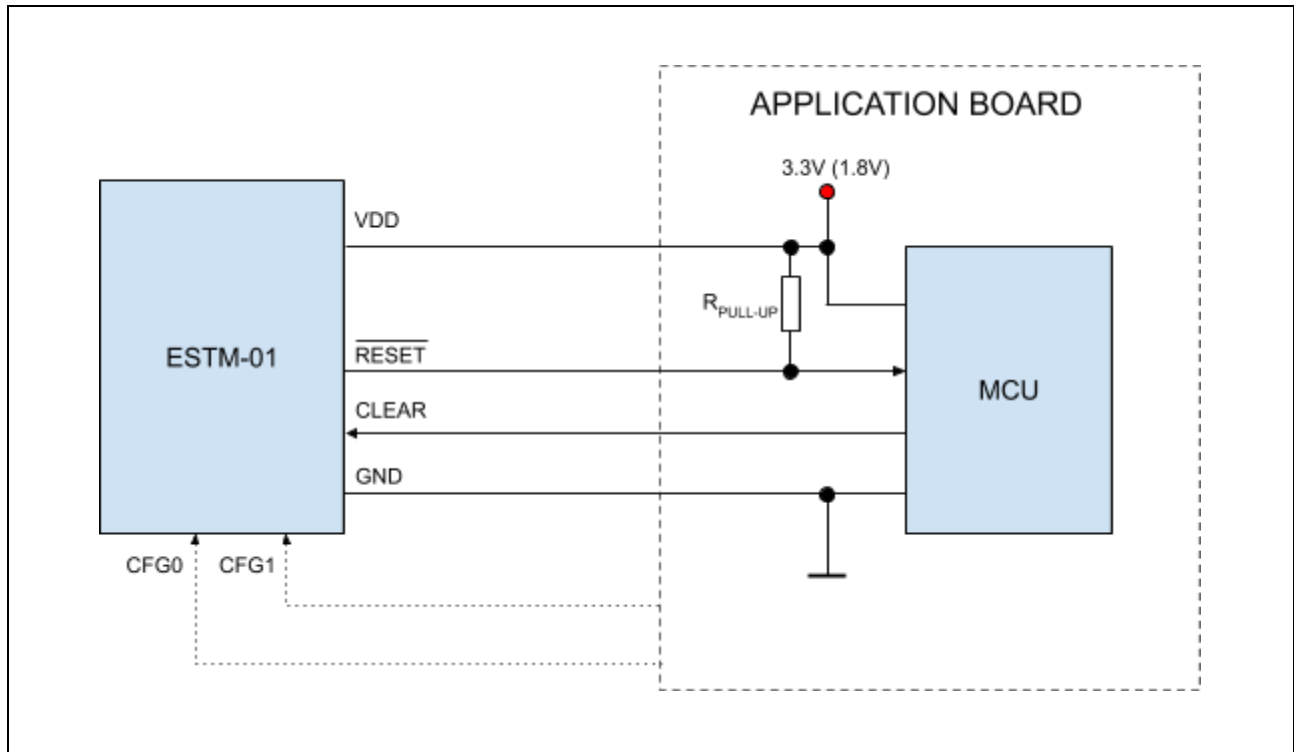
EWTM-01 is based on PIC10LF322 microcontroller and all the logic of the module is implemented inside. The RESET signal is open drain schematic and requires pull-up resistor on the CPU side. Check Figure 4 “How to connect”.

Figure 3. Schematic Diagram



3.2. Module Integration

Figure 4. How to connect EWTM-01



EWTM-01 minimum 4 wires to be connected to the application board as shown on see Figure 4. CFG0 и CFG1 are optional. Pay attention on the CPU power supply voltage when choosing the EWTM-01 module variant.

4. Mechanical Information

EWTM-01 is breadboard-friendly module.

