Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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Using the EVK1012A:

This kit is designed for the evaluation and development of applications using the AT42QT1012-TSHR ('QT1012') Integrated Circuit (IC).

Default/shipped setting: User-set Auto-Off Delay set to infinite (J2 Pin1&2 connected by link), Active High Output.

Please visit http://www.atmel.com/singletouch for details of this (and similar) products, which includes links to relevant product datasheets.
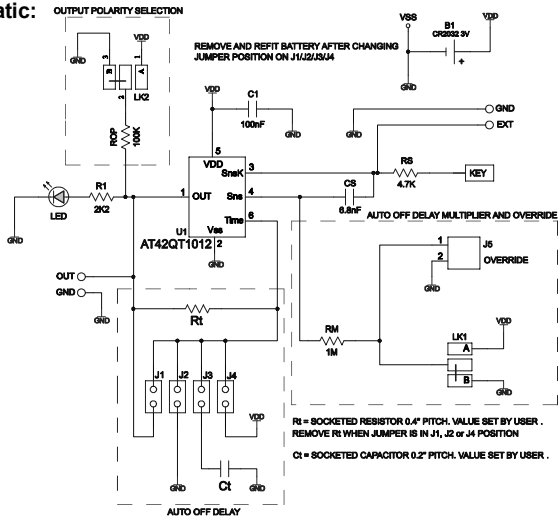
- Insert the battery provided into the battery holder on the EVK1012A board. Ensure that the battery has the correct orientation (negative (-) side to board) or the EVK1012A will not work.
- Touch KEY and the LED will light. Release Touch.
- Touch KEY and the LED will switch off.

If a non-infinite Auto-Off Delay is set and reached (actual time is dependent on Voltage level, Rt and Ct tolerances), the LED will switch off.

The LED will light when KEY is touched if the QT1012 is set to Active High Output.
If QT1012 is changed to give Active Low Output, then the LED will light until KEY touched.

An external power supply can be used instead of a battery.
WARNING: if an external power supply is used then the battery **MUST** be removed.

Schematic:

Configuring the EVK1012A:

The Auto-Off Delay (stated times ~+/10%) and Output Polarity can be set using the table below:
(Remove and refit the battery/power supply when changing Jumper position)

Jumper Position (Pins 1-2)	Auto-Off Delay			
J1 *	60 Minutes	60 Minutes	24 Hours	24 Hours
J2 *	Infinite	15 Minutes	Infinite	6 Hours
J3	User (Rt,Ct)	User (Rt,Ct)	User (Rt,Ct)	User (Rt,Ct)
J4 *	15 Minutes	Infinite	6 Hours	Infinite

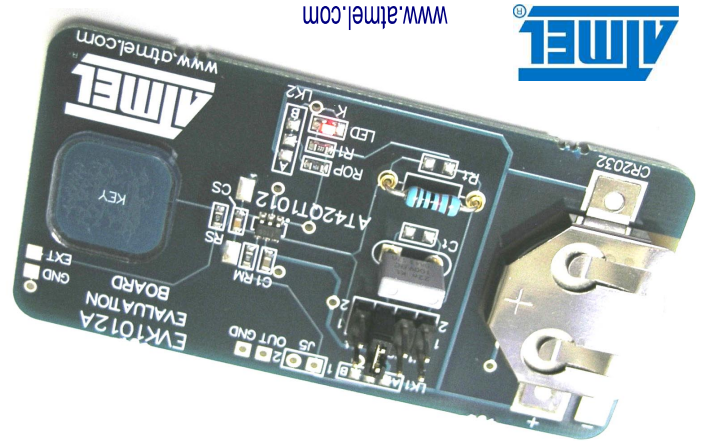|				
Multiplier: (LK1)	x1: (VSS)	x1: (VSS)	x24: (VDD)	x24: (VDD)
Output: (LK2)	Active High: (VSS)	Active Low: (VDD)	Active High: (VSS)	Active Low: (VDD)

* Remove Rt when Jumper is in J1, J2 or J4 positions.

A User electrode can be connected to the QT1012 using EXT and GND pads: The value of Cs may require changing. (Large pads either side of Cs are available for fitting leaded capacitors in parallel).

The EVK1012A can also connect to a User output (using OUT and GND pads).

The Auto-Off Delay can be extended or the QT1012 output can be switched off immediately by pulsing the voltage on the delay multiplier resistor RM through J5.
(Refer to QT1012 Datasheet for further details)

EVK1012A Kit Contents:

1x EVK1012A Evaluation Board		
1x CR2032 Battery, 3V, 235mAh		
2x AT42QT1012-TSHR ICs		
1x EVK1012A User Guide		
Rt (10kΩ, 51kΩ, 150kΩ) & Ct (22nF, 47nF) components		
Packed by:		*Dated:*

EVK1012A USER GUIDE

User-Programmed Auto-Off Delay:

By changing the values of Rt and Ct, the Auto-Off Delay can be changed. Possible Rt and Ct combinations are available using the formula:
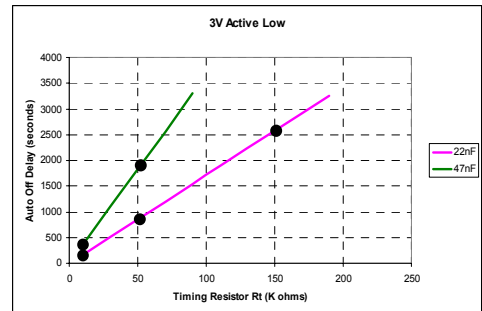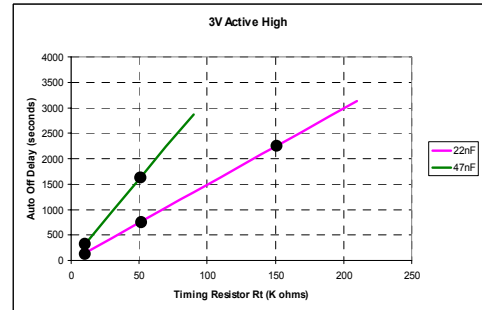
$$Rt * Ct = (Delay * k) / 15,$$

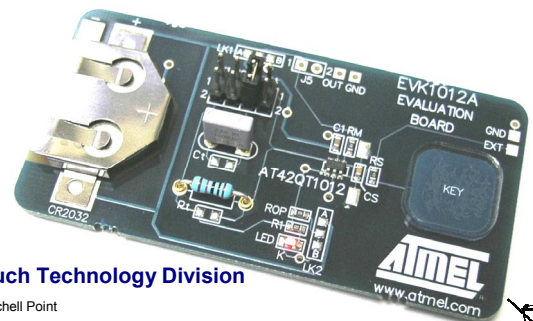where **Rt** is in kOhm and **Ct** is in nF and **k** is constant for a stated voltage and output.

For 3V active high output, **k** = 22.1. For 3V active low output, **k** = 19.25
(Refer to QT1012 Datasheet for further details)

NOTE: (Rt * Ct) / k must be between 4 to 240 for reliable operation.

Possible Rt and Ct Auto-Off Delay options at 3V are shown below:

(The values highlighted on the charts can be achieved using supplied kit components)

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