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Title:	9TCS10xx Component Information		
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1. Crystal specification. The crystal frequency tolerance depends on the accuracy needed. Typical watch crystals used for computer RTCs are 20%.

25.000 MHz crystals

Frequency	25.000 MHz
Tolerance over Temp.	20 PPM (+/- .002%)
Operating Mode and Type	Fundamental, AT cut
Circuit of Operation	Parallel Resonate, 8pF Load Capacitance (CL)
ESR	50 ohms or less
Operating Temperature	Zero C to 70 C
Maximum power dissipation	300 uWatt
Typical drive power	50 uWatt
Package	3.2 x 2.5 mm Glass sealed.

Some manufactures require greater than 1 second per day accuracy. In this case 10 ppm crystals must be specified.

25.000 MHz crystals

Frequency	25.000 MHz
Tolerance over Temp.	10 PPM (+/- .001%)
Operating Mode and Type	Fundamental, AT cut
Circuit of Operation	Parallel Resonate, 8pF Load Capacitance (CL)
ESR	50 ohms or less
Operating Temperature	Zero C to 70 C
Maximum power dissipation	300 uWatt
Typical drive power	50 uWatt
Package	3.2 x 2.5 mm Glass sealed.

Example crystal. Hosonic E3SB25.0000F08B11A1

2. Transistor for Thermal Sensor.
   The 9TCS108x is designed to interface with remote sensors such as diode connected transistors and substrate thermal diodes in a CPU or GPU. Actual diodes are not suitable to be used for this application. Using CPU and GPU substrate diodes may require changing the values in registers 10 and 11.

   MMBT3904 general purpose surface mount transistors are generally used for the remote sensor. If MMBT3906 pnp transistors are used the collector maybe grounded. In some devices the substrate may be die attach bonded to the collector pin. This will give a more accurate temperature reading.

3. Battery. The coin cell battery used should have built in protection from charging. If it does not external diode protection needs to be incorporated. An example of a suitable battery is an Energizer CR2032. UL certification requires the use of external over current protection. This is satisfied by using a 100 ohm resistor on the + side battery holder connection.