



SPECIFICATION

NO.

PAGE

DATE

2/10

I. SCOPE

This specification relates to the voltage controlled crystal oscillator to be supplied by CITIZEN WATCH CO., LTD. (following as CITIZEN) .

NOTICE

1.If something that is ambiguously defined or undefined in this specification happened, the customer and CITIZEN would discuss and take necessary steps by mutual consent.

2.Product test data can't be attached to this specification.

3.This product is not authorized for use as critical component in life support devices or systems.

II. SPECIFICATION

1. ABSOLUTE MAXIMUM RATING

Parameter		CSX750VB/CSX750VC
Supply Voltage	Vmax	-0.5V to +7.0V
Storage Temperature	Tstg	-45°C to +90°C
Output Current	Iout	10mA Max.
Input Control Voltage	Vc_m	-0.5V to Vdd+0.5V
Solder Heat Resistance Of The Outer Lead	Tsol	Max.240°C x Max.10 seconds x 2times Max.200°C x Max. 3 minutes

2. OPERATING RANGE

Parameter		CSX750VB	CSX750VC
Supply Voltage	Vdd	3.3V±5%	5.0V±10%
Operating Temperature	Topr	-10°C to 70°C or -40°C to 85°C	
Input Control Voltage	Vc	0.0V to Vdd	
Output Load	CL	30pF Max.	

3. FREQUENCY CHARACTERISTICS

Parameter		CSX750VB	CSX750VC
Stability (note1)	dF0	±50ppm Max.	
Pullability (note2)	Fpull	±90ppm Min.	±100ppm Min.
Linearity	Ldev	±15% Max.	±10% Max.
Modulation Band Width	Fmod	10kHz Min.	

note1) Frequency Stability includes initial tolerance, temperature characteristics, input voltage characteristics, load characteristics, shock, vibration, reflow and 1st year aging.

note2) Vc=1.65V±1.65V (CSX750VB) Vc=2.5V±2.0V (CSX750VC)

#### 4. ELECTRICAL CHARACTERISTICS

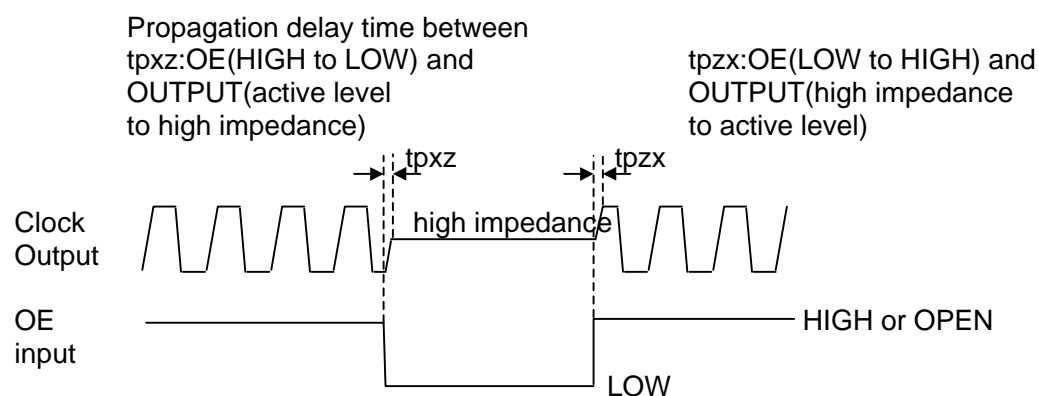
(Ta=25°C load=30pF Vc=Vdd/2)

Parameter	Conditions	CSX750VB	CSX750VC
Start Up Time (note)      tosc		4msec Max.	
Power Supply Current      Idd	No Load	11mA Max.	30mA Max.
Disable Current            Iinh	No Load	5mA Max.	20mA Max.
Rise Time                    tr	20% to 80%Vdd	5ns Max.	
Fall Time                    tf	80% to 20%Vdd	5ns Max.	
Duty Cycle                  duty	50%Vdd	45% to 55%	
Output HIGH Voltage      Voh	Ioh = -0.8mA	Vdd-0.4V Min.	
Output LOW Voltage        Vol	Iol = 3.2mA	0.4V Max.	
OE Input HIGH Voltage    Vih		Vdd x 0.7 Min.	
OE Input LOW Voltage    Vil		Vdd x 0.3 Max.	
Output Disable Time        tpxz	See 5.	100ns Max.	
Output Enable Time        tpzx		100ns Max.	

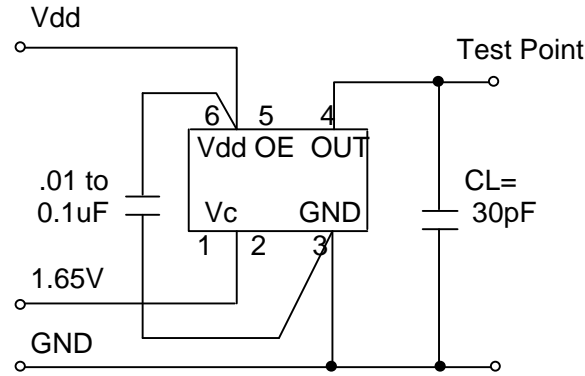
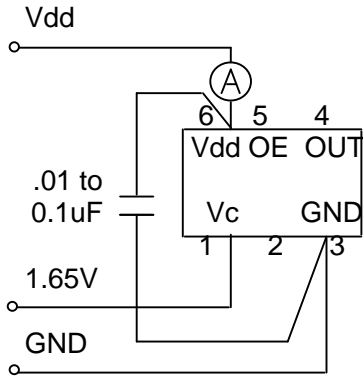
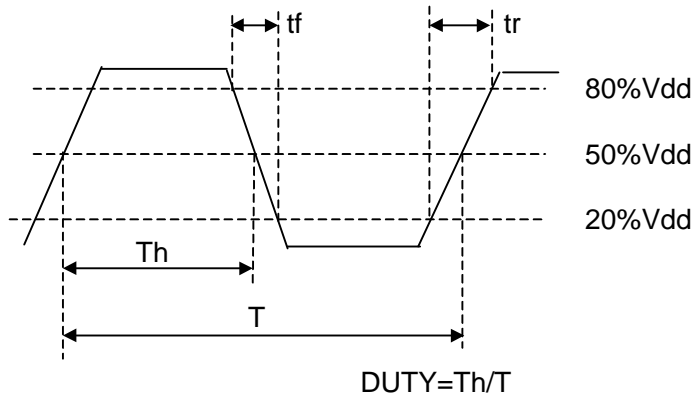
note) Vc must be kept ground level or left open when starting up.

#### 5. THREE STATE OUTPUT OPERATION

OE Input	Clock Output	
HIGH or OPEN	Active	enable
LOW	High impedance	disable



NOTE: A disable clock output does not synchronize with OE,  
because internal quartz oscillator is continuous.

SPECIFICATION	NO. DATE	PAGE 4/10
<p>6. TEST CIRCUIT</p> <div data-bbox="239 347 523 383" data-label="Text"> <p>[CMOS LOAD] (30pF)</p> </div>  <div data-bbox="922 347 1206 383" data-label="Text"> <p>[SUPPLY CURRENT]</p> </div>  <div data-bbox="239 772 649 806" data-label="Text"> <p>[MEASUREMENT CONDITION]</p> </div> <ol style="list-style-type: none"> <li>1. Oscilloscope <ul style="list-style-type: none"> <li>Impedance: No less than 1Mohm</li> <li>Capacitance: No more than 5pF</li> <li>Band width: No less than 500MHz</li> <li>The length of GND lead of the probe should be as short as possible.</li> </ul> </li> <li>2. The CL includes the probe capacitance.</li> <li>3. Grounding should be single point grounding.</li> <li>4. Supply impedance should be as low as possible. <ul style="list-style-type: none"> <li>0V to 90%Vdd rise time is no less than 150us</li> </ul> </li> <li>5. Use the ammeter that internal impedance is small.</li> </ol>		
<p>7. OUTPUT WAVEFORM</p> <div data-bbox="239 1323 520 1359" data-label="Text"> <p>[CMOS LOAD] (30pF)</p> </div> 		

SPECIFICATION	NO.		PAGE
	DATE		5/10

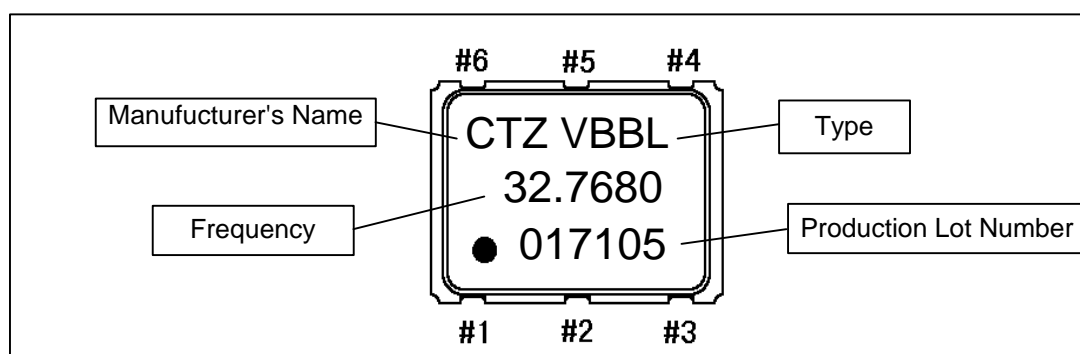
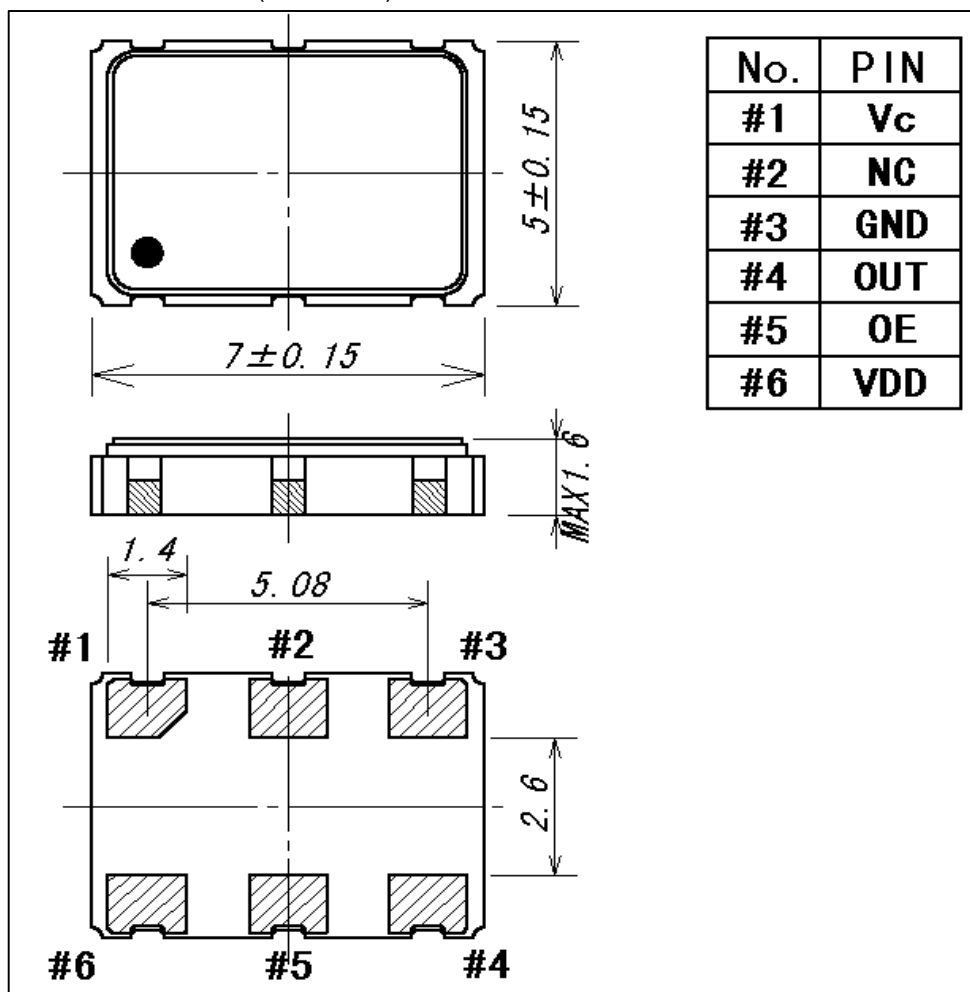
8. ENVIRONMENTAL AND MECHANICAL CHARACTERISTICS

The following are our reliability test conditions.

Item	Conditions
Shock	MIL-STD-883E 2002.3B
Vibration	MIL-STD-883E 2007.2A
Gross Leak	Leak rate less than 50ppm atm cc /sec of Air
Fine Leak	Leak rate less than 0.01ppm atm cc /sec of Herium

## III. DIMENSIONS AND MARKING

&lt;&lt;Dimensions&gt;&gt; (UNIT mm)



## IV. TAPE AND REEL PACKAGING

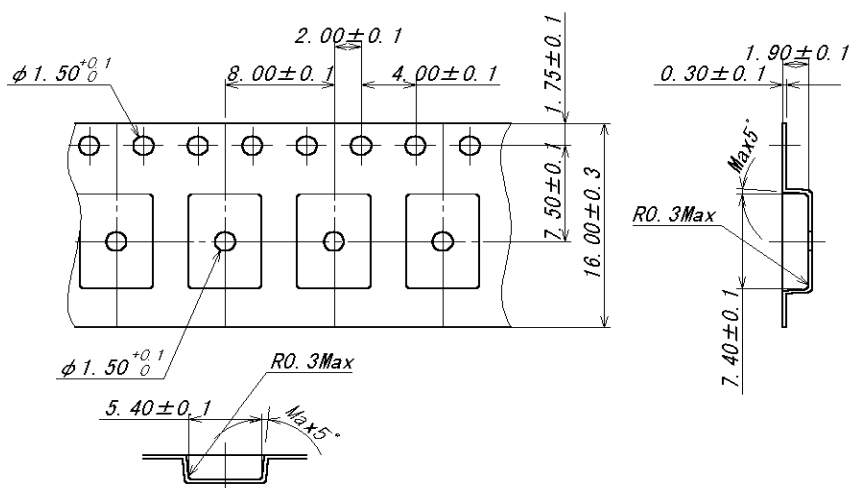
## 1. TAPING SPECIFICATION

Subject to EIA 481A &amp; JIS C 0806

## (1) Tape Dimensions

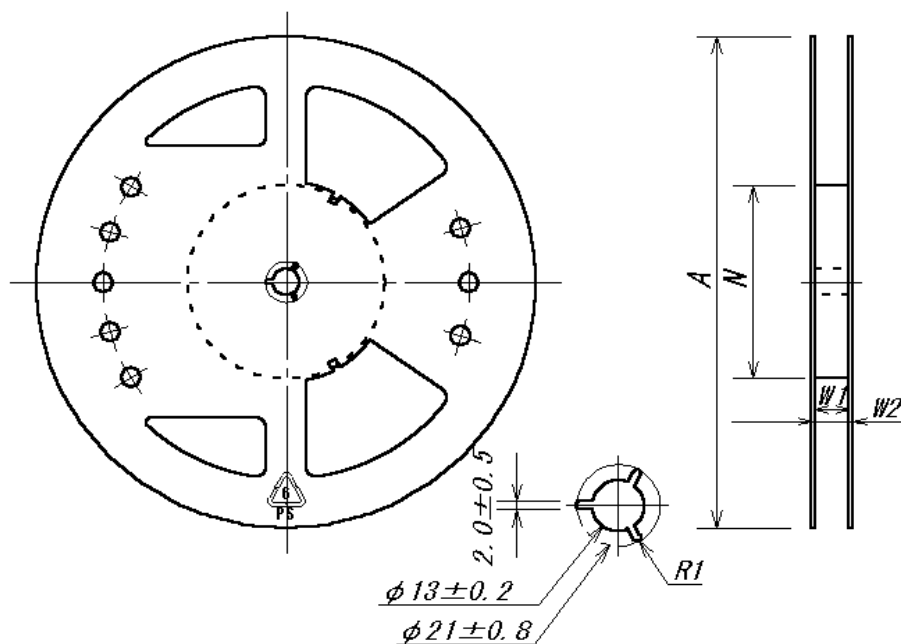
Material of the Carrier Tape : PA-PET conductive coat

Material of the Cover Tape : PE A-PET conductive coat



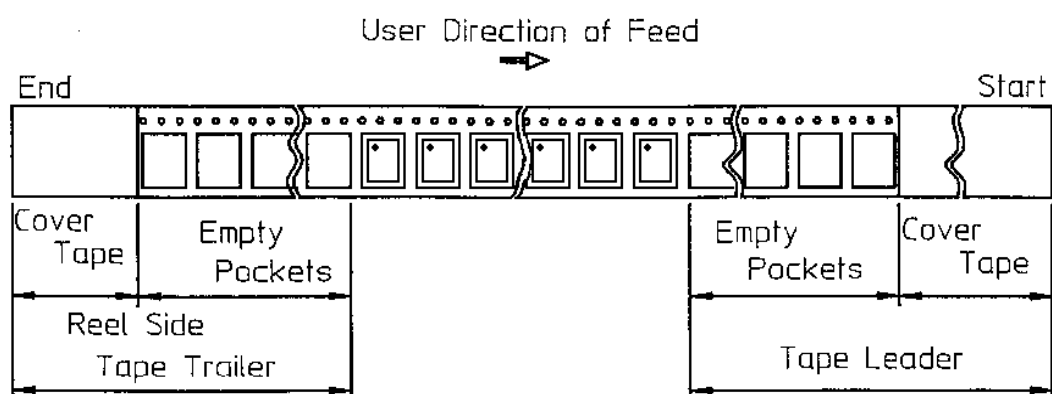
## (2) Reel Dimensions

Material of the Reel : PS



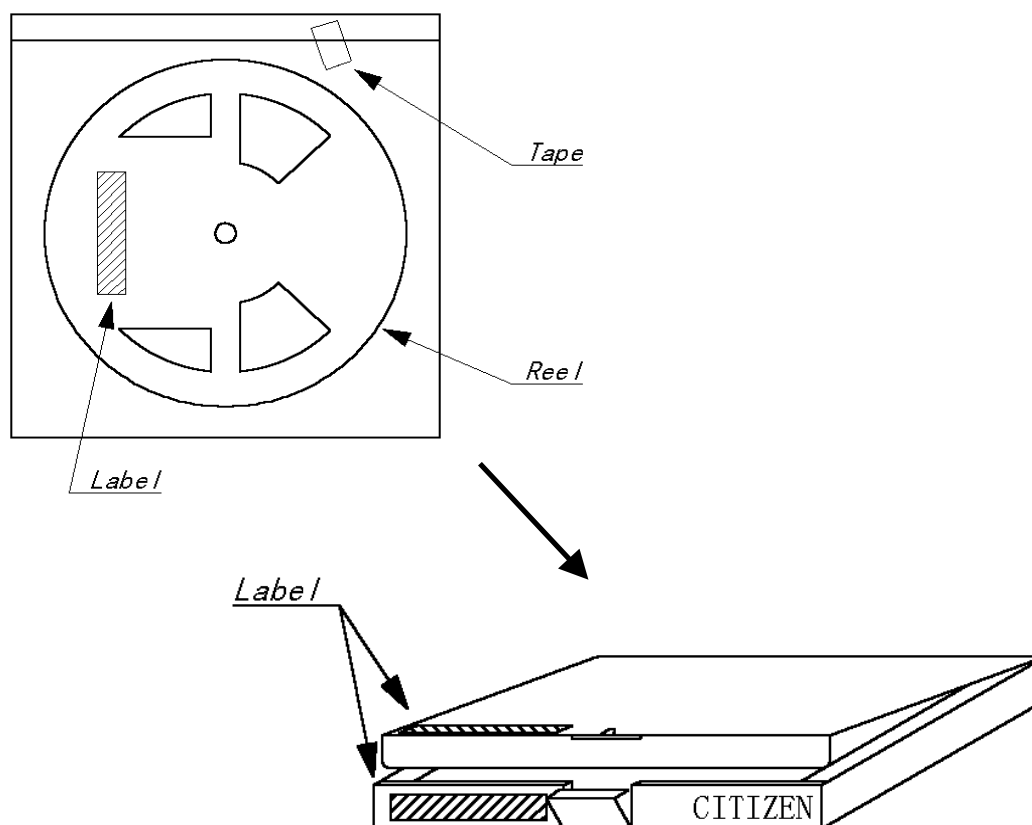
Symbol	A	N	W1	W2
Dimension(mm)	254+/-2	100+/-1	17.5+/-1.0	21.5+/-1.0

## (3) Packing



Item		Empty Space
Tape Leader	Cover Tape	Min. 500 mm
	Empty Pockets	Min. 20 Pockets
Tape Trailer	Cover Tape	Min. 0 mm
	Empty Pockets	Min. 40 mm

## 2. INNER CARTON





SPECIFICATION	NO. DATE		PAGE 9/10
<div data-bbox="244 286 502 320" data-label="Section-Header"> <h3>3. OUTER CARTON</h3> </div> <div data-bbox="454 336 1024 907" data-label="Image"> </div> <div data-bbox="244 969 408 1003" data-label="Section-Header"> <h3>4. MARKING</h3> </div> <div data-bbox="276 1003 1129 1294" data-label="List-Group"> <p>(1) Marking Labels are affixed to reel , inner carton and outer carton.      Reel Marking is consist of:</p> <p>(2) Each label contains the following information.</p> <ul style="list-style-type: none"> <li>* Parts name or type</li> <li>* Frequency</li> <li>* Quantity</li> <li>* Manufacturing Date or symbol</li> <li>* Manufacturer's name or symbol</li> <li>* Others(if necessary)</li> </ul> </div> <div data-bbox="244 1328 419 1361" data-label="Section-Header"> <h3>5. QUANTITY</h3> </div> <div data-bbox="328 1395 499 1429" data-label="Text"> <p>2000 pcs/reel</p> </div> <div data-bbox="244 1458 632 1491" data-label="Section-Header"> <h3>6. STORAGE ENVIRONMENT</h3> </div> <div data-bbox="276 1491 1281 1653" data-label="List-Group"> <ul style="list-style-type: none"> <li>* Storage the reel at normal temperature and humidity</li> <li>* Open the packing just before using.</li> <li>* Do not expose the sun.</li> <li>* Do not storage with some erosive chemicals.</li> <li>* Nothing is allowed to put on the reel or carton to prevent mechanical damage.</li> </ul> </div> <div data-bbox="244 1653 422 1686" data-label="Section-Header"> <h3>7. HANDLING</h3> </div> <div data-bbox="276 1686 1145 1720" data-label="List-Group"> <ul style="list-style-type: none"> <li>* Handle with care to prevent the damage of tape, reel and products.</li> </ul> </div>			

SPECIFICATION	NO. DATE		PAGE 10/10
<p>V. NOTES</p> <p>1. HANDLING (ELECTROSTATIC DISCHARGES) This device is made with CMOS circuitry. Please take precautions to prevent damage due to electrical static discharge.</p> <p>(SHOCK RELIABILITY) This device contains a quartz crystal, so please do not give too much shock or vibration. An automatic inserion is available, however, the internal quartz crystal might be damaged in case that too much shock or vibration is given by machine condition. Be sure to check your machine condition in advance.</p> <p>(CLEANING) Since, depending on the cleaning conditions, there is a possibility of damage being caused to the Crystal Osillator, do not fail to test and confirm the results beforehand, using your company's cleaning conditions.</p> <p>(TEMPERATURE AND HUMIDITY) We recomend to store and use device under normal temperature and humidity. When this device is used in high humidity applications, there is a potential problem with condensation. As with other IC's, please take precautions to prevent condensation.</p> <p>2. CIRCUIT DESIGNS (POWER LINES) We recomend placing a 0.01 to 0.1uF capacitor between VDD and GND to obtain stable operation and protect against power line ripple . VDD and GND pattern should be as wide as possible.</p> <p>(OE INPUT LINE) When OE pin is not used, please connect it to VDD.</p> <p>(OUTPUT LINE) As a long output line may cause irregular output, please take care to design that output line is as short as possible, and also keep high level signal source away from this device.</p> <p>(STARTING UP) Vc must be kept ground level or left open when starting up.</p>			