

REV.NO.

登録 REGIST.	Supply Specification		名称 TITLE	仕番 SPEC. NO.
版 年月日 DATE	作成部門 SECTION	作成年月日 DATE	CRYSTAL OSCILLATOR	TN4-21909
1 H17.7.11	46006	'05.07.11		
2	<p style="text-align: center;">SPECIFICATION</p> <p>1. MODEL TG-5010LH-02A</p> <p>2. ELECTRICAL SPECIFICATIONS</p> <p>2.1 Output frequency 26 MHz</p> <p>2.2 Supply voltage DC + 2.4V +/- 0.1V</p> <p>2.3 Current drain 1.5 mA max.</p> <p>2.4 Output level 0.6 Vp-p min. / Clipped sinewave ( DC-coupled )</p> <p>2.5 Harmonics -12 dBc max. / 2nd , -10 dBc max. / others</p> <p>2.6 Load 10 kΩ // 10 pF ± 10% each</p> <p>2.7 Operating temperature range -30°C ~ +75°C</p> <p>2.8 Storage temperature range -40°C ~ +85°C</p> <p>2.9 Frequency stability</p> <p>2.9.1 vs. Temperature ± 3.0 ppm max. / -30°C ~ +75°C ( Referenced to +25°C )</p> <p>2.9.2 vs. Supply voltage ± 0.3 ppm max. / DC + 2.4V +/- 0.1V</p> <p>2.9.3 vs. Load ± 5Hz max. / 10kΩ //(10pF~40pF)</p> <p>2.9.4 vs. Aging ± 1.0 ppm max. / year</p> <p>2.10 Frequency control</p> <p>2.10.1 Frequency control range ± 9.0 ppm ~ ± 20.0 ppm / Vcont=+1.1V ± 0.8V , positive slope</p> <p>2.10.2 Input impedance 100kΩ min.</p> <p>2.11 Frequency tolerance ± 1.5 ppm max. / Vcont=+1.1V,+25°C±2°C ( before reflow soldering ) ± 2.5 ppm max. / Vcont=+1.1V,+25°C±2°C ( 1 hour after 2 reflow soldering )</p> <p>2.12 Start up time 3ms max./ To be within ±1.0ppm of preset frequency</p> <p>2.13 SSB phase noise -105dBc/Hz max. @100Hz offset (-115dBc/Hz typ.) -125dBc/Hz max. @1kHz offset (-135dBc/Hz typ.)</p> <p>2.14 Frequency drift rate F0 ± 1.5Hz max. It is the amount of frequency change from 2s to 10s after a power supply ON (F0 : Oscillation frequency in a stationary state)</p>			
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作成 DRAW Y.MARUYAMA		改版記号 DESCRIPTION		

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3. ENVIRONMENTAL TEST

After the following test, electrical characteristics specifications should be satisfied.

- 3.1. High Temp. test                      Carry out +85°C neglect for 1000 hours. ( However, carry out electrical characteristics measurement after leaving it in room temperature and humidity for 2 hours )
- 3.2. Low Temp. test                        Carry out -40°C neglect for 1000 hours. ( However, carry out electrical characteristics measurement after leaving it in room temperature and humidity for 2 hours )
- 3.3. High Temp. bias test                 Carry out +50°C and 95% RH neglect for 48 hours in a state of operation. (electrical characteristics specifications should be satisfied in chamber.)
- 3.4. Low Temp. bias test                 Carry out -30°C and 0% RH neglect for 48 hours in a state of operation. (electrical characteristics specifications should be satisfied in chamber.)
- 3.5. Thermal shock test                 Carry out 100 cycles (1 cycle: 30min. at -40°C and 30min. at +85°C). ( However, carry out electrical characteristics measurement after leaving it in room temperature and humidity for 2 hours )
- 3.6. Moisture test                         Carry out +85°C and 85% RH neglect for 120 hours.( However, carry out electrical characteristics measurement after leaving it in room temperature and humidity for 2 hours )
- 3.7. Fall test                                It puts on 100g of false loads, and falls 5 cycles from a height of 1.5m on an iron board.
- 3.8. ESD test                                Guaranteed performance  
Human model        : 1000V



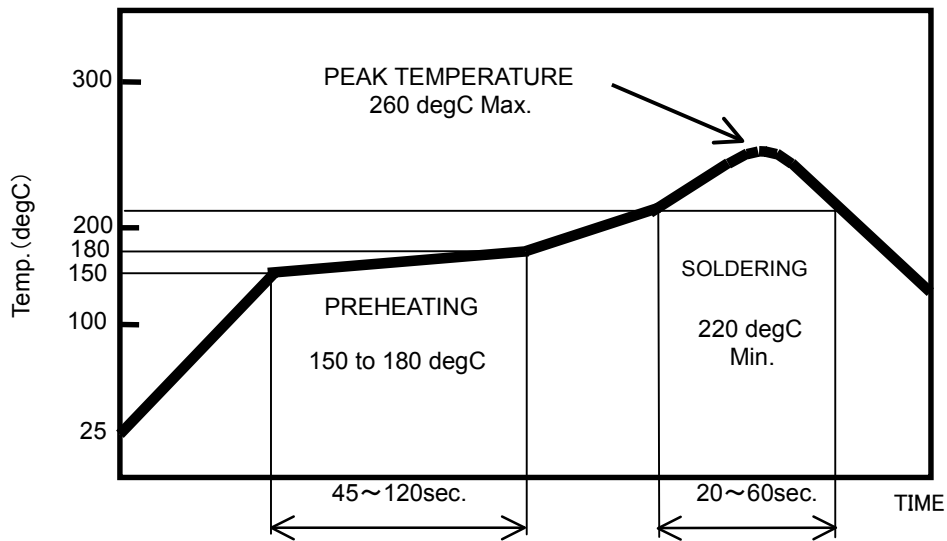
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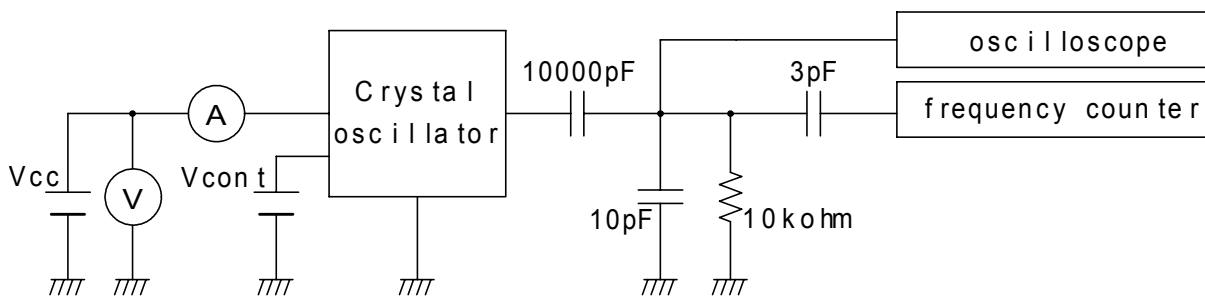
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#### 4. REFLOW SOLDERING PROFILE



SOLDER TEMPERATURE PROFILE

#### 5. TEST CIRCUIT



\*Note Total fixture and probe capacitance=10pF

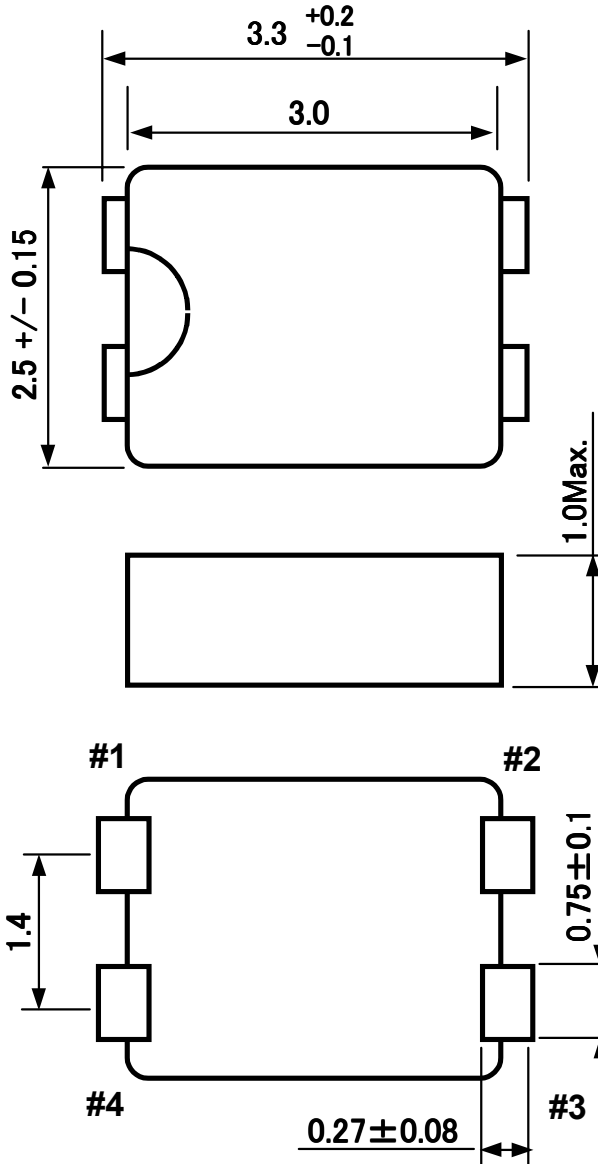
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## 6. OUTLINE DRAWING



Pin No.	Terminal
#1	Vcont
#2	GND
#3	OUT
#4	Vcc

Terminal treatment : Solder-Plating (Pb-Free)

Unit : mm

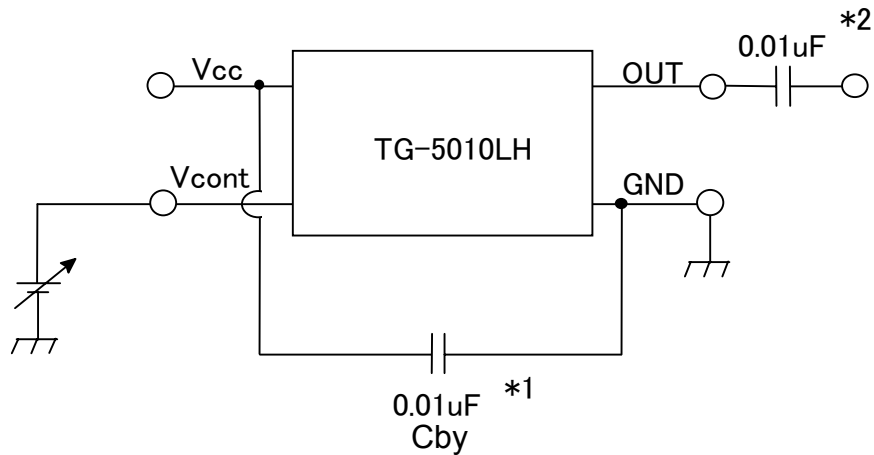
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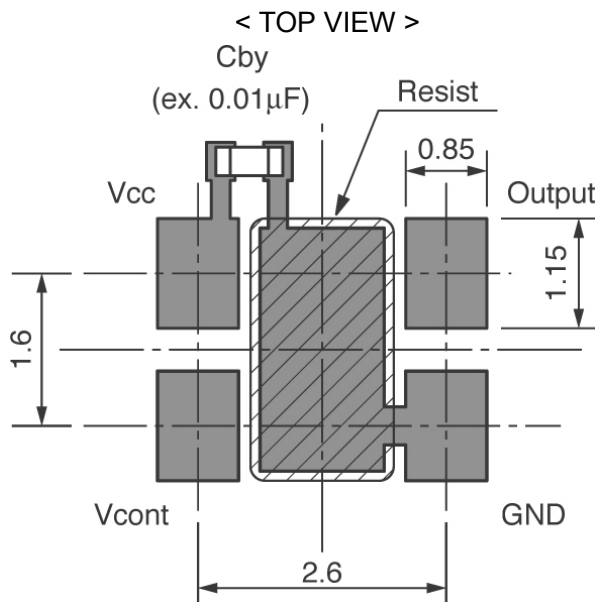
### 7. CONNECTION



Cby: bypass capacitor

- \*1 Please connect capacitor(recommendation:0.01  $\mu$  F) between "Vcc" and "GND" terminal.
- \*2 Please connect capacitor(recommendation:0.01  $\mu$  F) between "OUT" terminal and load.
- \*3 This product has one chip LSI. Do not supply over +6V or negative voltage under -0.3V to "Vcc" terminal. Do not supply over Vcc+0.3V or negative voltage under -0.3V to "Vcont" terminal. Do not open "Vcont" terminal. Do not supply any voltages to "OUT" terminal.
- \*4 Do not supply any voltages in any way which differs from the above connection figure.

### 8. RECOMMENDATION FOOT PATTERN



- ※ Please connect Cby(bypass capacitor) quite near by "Vcc" terminal.
- ※ It is desirable to draw GND pattern under TCXO.

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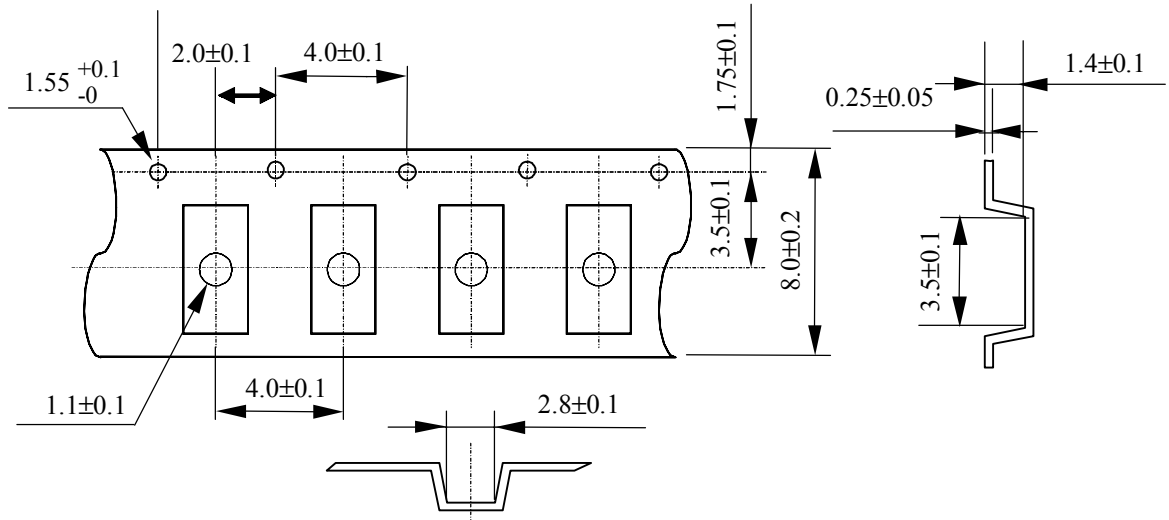
### 9. TAPE & REEL PACKAGING SPECIFICATION

#### 9.1. Material of packaging

Embossed tape : PS

Cover tape : PET+PE

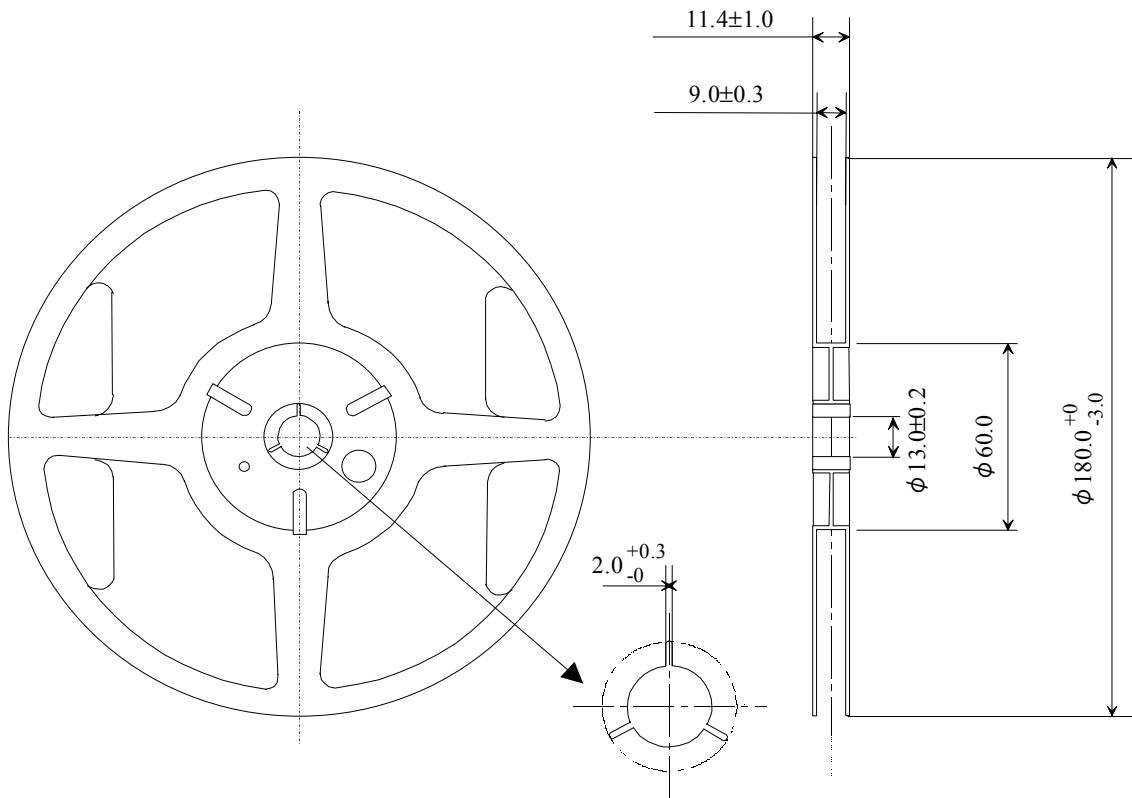
#### 9.2. Embossed tape dimension & Outline drawings



[Size in mm]

#### 9.3. Reel dimension & Outline drawing

Material of the Reel : PS



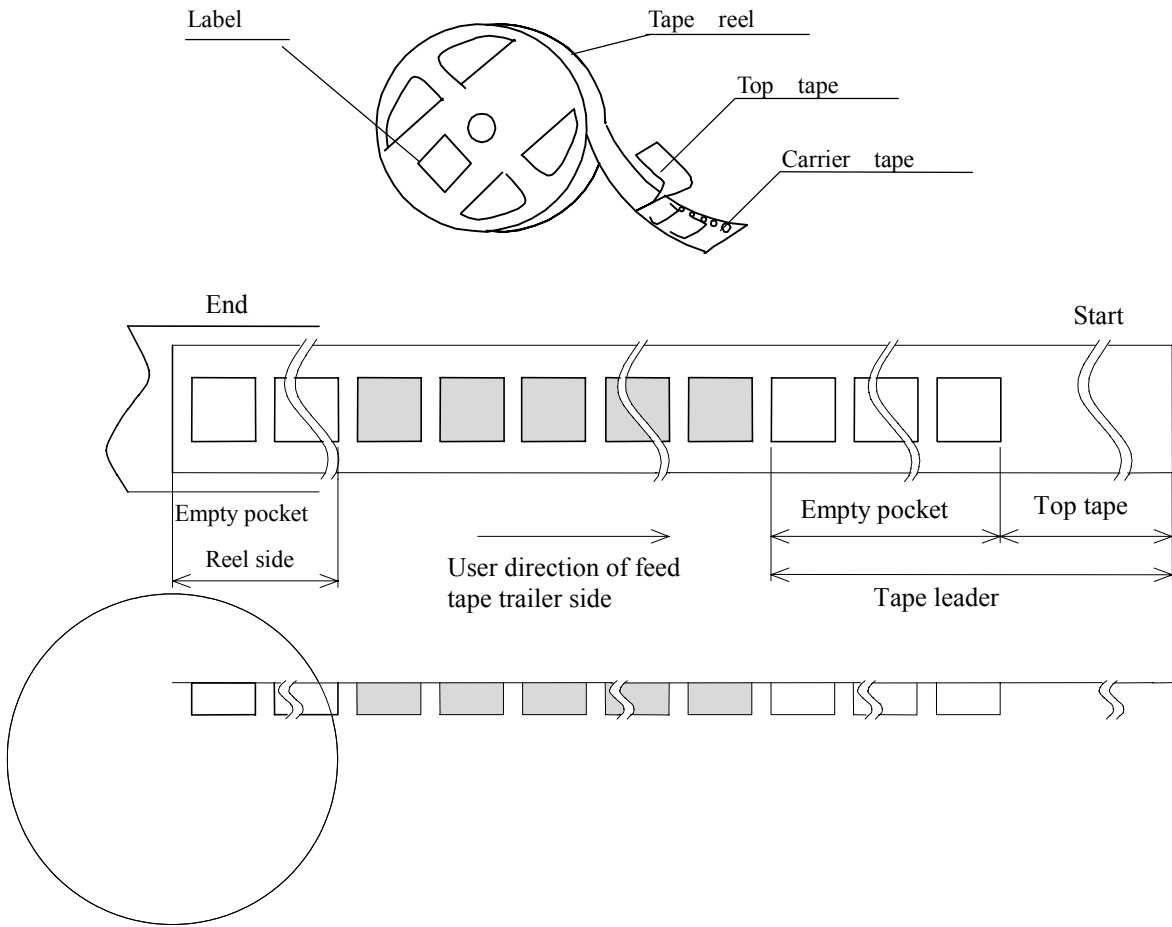
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### 9.4. Taping package



Item		Empty space	Note
Tape leader	Top tape	Min. 1000mm	Top tape shall be fixed using tape and/or polyethylene seal.
	Carrier tape	Min. 160 mm	
Tape trailer	Top tape	Min. 0 mm	Tape end point shall be fixed using tape or hooked in core area.
	Carrier tape	Min. 160 mm	

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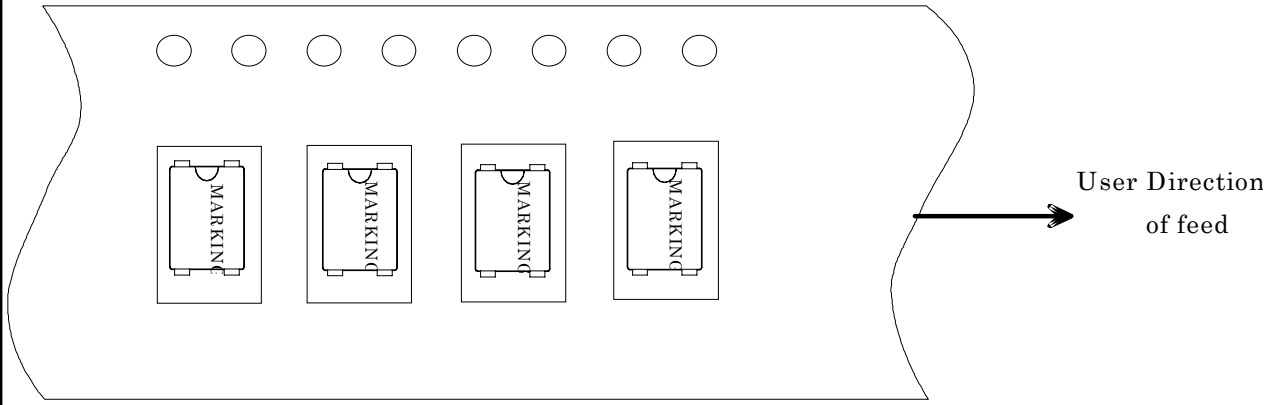
9.5. Quantity of components

2000pcs/reel(MAX.)  
500pcs/reel(MIN.)

※ The above quantity is our standard packing size.  
In case of an odd sum as per the purchased quantity, the packing quantity might be below our standard minimum packing size.

9.6. Oscillator orientation

: TOP VIEW



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