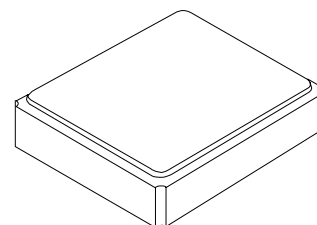


## Features:

1. 3.3V Operation / PECL Output
2. Enable / Disable Function (8-Pad)
3. Main application: WLAN, SONET/SDH/DWDM, Gigabite Ethernet, Storage Area Network, Digital Video
4. Surface mount 7.0mmx5.0mm crystal oscillator
5. Moisture Sensitivity Level (MSL) : Level-1

**122.880000 MHz**  
**VCXO**



SM7050-8

## Electrical Characteristics:

|    | Parameters                   | SYM.    | Electrical Spec. |         |      |        | Notes                                     |
|----|------------------------------|---------|------------------|---------|------|--------|-------------------------------------------|
|    |                              |         | Min.             | Typical | Max. | Unit   |                                           |
| 1  | Nominal Frequency            | FL      | 122.880000       |         |      | MHz    |                                           |
| 2  | Holder Type                  |         | -                |         |      |        | 7.0 * 5.0 * 1.8 mm , 8pads , SMD Type     |
| 3  | Input Voltage                | Vcc     |                  | 3.3     |      | V      | D.C ± 10 %                                |
| 4  | Output Wave Form             |         |                  |         |      |        | Square Wave (PECL)                        |
| 5  | Output Voltage High " 1 "    | Voh     | 2.135            |         | 2.5  | V      | VDD - 1.165 ( min. ) , VDD - 0.8 ( max. ) |
| 6  | Output Voltage Low " 0 "     | Vol     | 1.3              |         | 1.75 | V      | VDD - 2.0 ( min. ) , VDD - 1.55 ( max. )  |
| 7  | Frequency Stability          | F_opr   | -25              |         | 25   | ppm    | Over Operating Temperature                |
| 8  | Frequency Deviation Range    | Pulling | ±100             |         |      | ppm    | Control Voltage Range : 0V ~ 3.3V         |
| 9  | Current Consumption          | IDD     |                  | 100     |      | mA     | measured with terminating resistors       |
|    | Current with output disabled | Iop     |                  | 99      |      | mA     |                                           |
| 10 | Output Voltage Swing         | Vsw     | 595              |         | 930  | mV     |                                           |
| 11 | Duty Cycle                   | tw/t    | 45               |         | 55   | %      | at 50 % waveform                          |
| 12 | Rise Time & Fall Time        | Tr , Tf |                  |         | 0.4  | n Sec. | ( 20% ~ 80 % ) waveform                   |
| 13 | Star -up Time                | ST      |                  | 5.0     | 10.0 | m Sec. |                                           |
| 14 | Load                         | Load    |                  | 50      |      | Ω      | Into VDD - 2V or Thevenin equivalent      |
| 15 | RMS phase Jitter             | J       |                  | 0.2     | 0.5  | ps     | Fj = 12 kHz ~ 20 MHz                      |
| 16 | Linearity                    |         |                  | 5       | 10   | %      |                                           |

|    |                                 |                                                                                                                                                                                           |                |       |        |         |            |        |
|----|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------|--------|---------|------------|--------|
| 17 | Frequency change polarity       |                                                                                                                                                                                           | Positive slope |       |        |         |            |        |
| 18 | Operating Temperature           | T <sub>opr</sub>                                                                                                                                                                          | -40            |       | 90     | °C      |            |        |
| 19 | Storage Temperature             | T <sub>stg</sub>                                                                                                                                                                          | -55            |       | 105    | °C      |            |        |
| 20 | Aging                           | F <sub>aging</sub>                                                                                                                                                                        | -3             |       | 3      | ppm     | first year |        |
| 21 | Phase Noise (100Mhz) (dBc / Hz) | 10 Hz                                                                                                                                                                                     | 100 Hz         | 1k Hz | 10k Hz | 100k Hz | 1M Hz      | 10M Hz |
|    |                                 | -43                                                                                                                                                                                       | -84            | -113  | -133   | -143    | -151       | -156   |
| 22 | Tri-state function on Pad 2     | <b>Tri - State enable high.</b><br><b>No connection or 70% of VDD min. is applied to Tri - State pad to enable output.</b><br><b>30% of VDD max. to disable output ( high impedance )</b> |                |       |        |         |            |        |

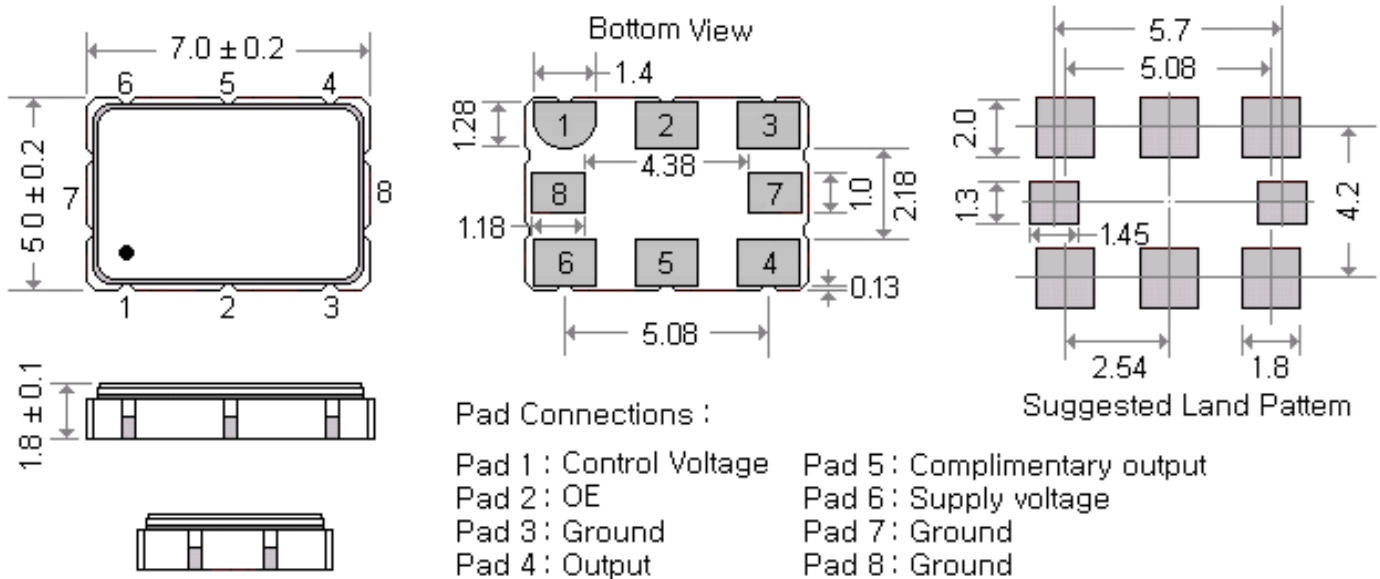


**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

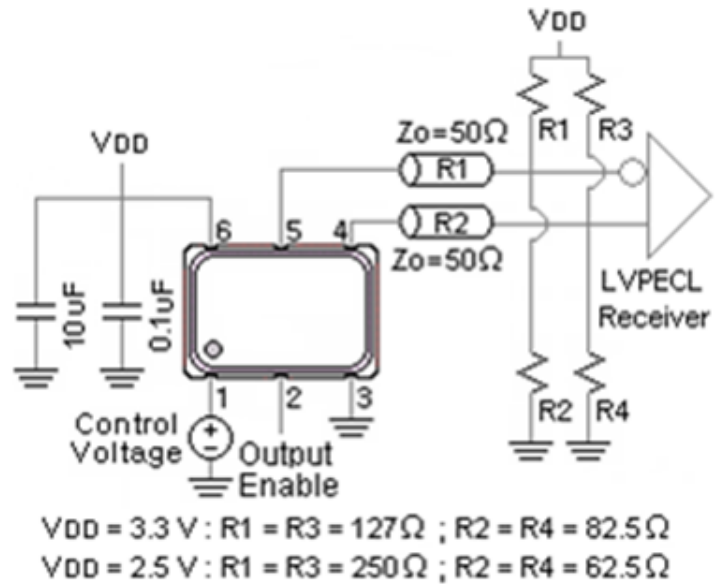
**NOTES:**

1. The design, manufacturing process, and specifications of this device are subject to change.
2. US or International patents may apply.
3. RoHS compliant from the first date of manufacture.

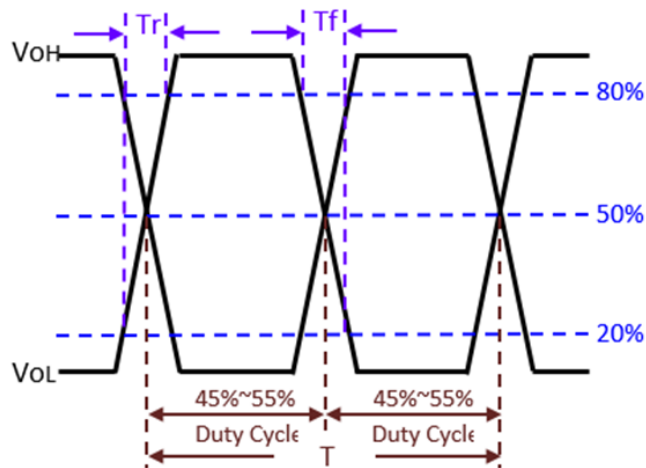
## Mechanical Dimensions: (Unit: mm)



## Test Circuit

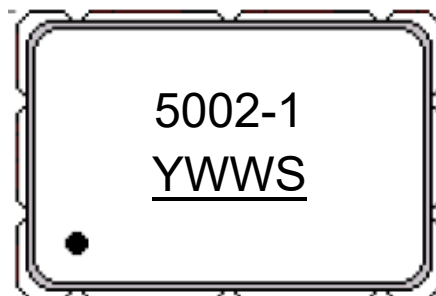


## Output Waveform :



## Marking :

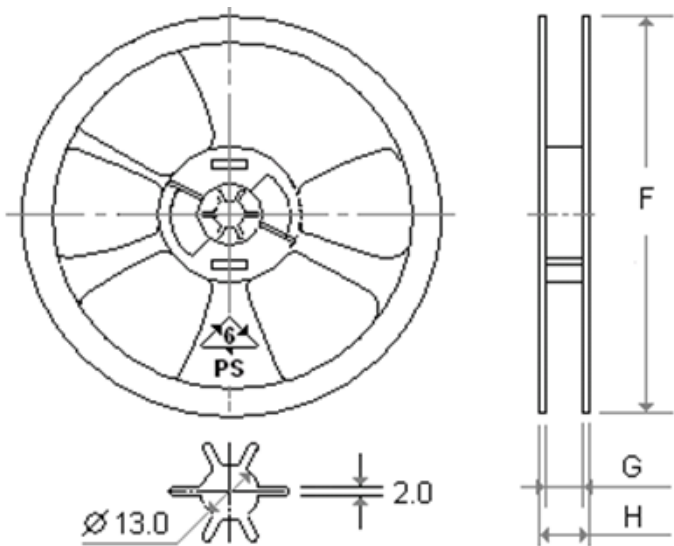
Y = Year, WW = Week, S = Shift



# Reel Dimensions

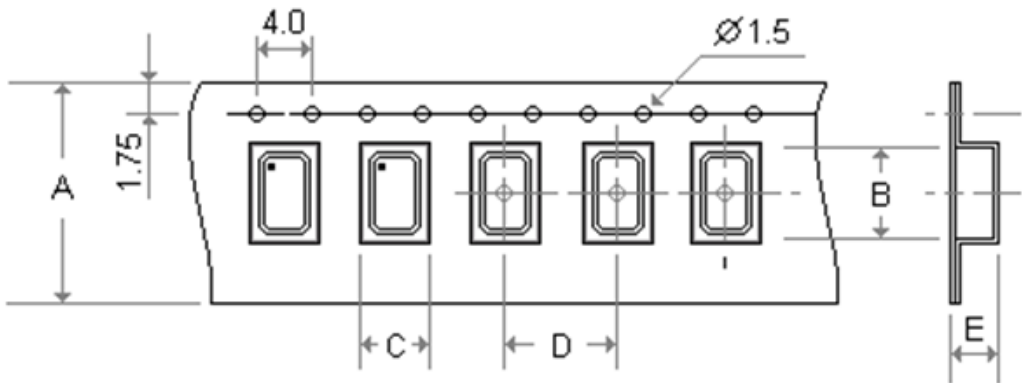
Tape and Reel Standard per ANSI/EIA-481

Reel Count: 7" = 1000



| F   | G    | H    |
|-----|------|------|
| 180 | 16.0 | 20.5 |

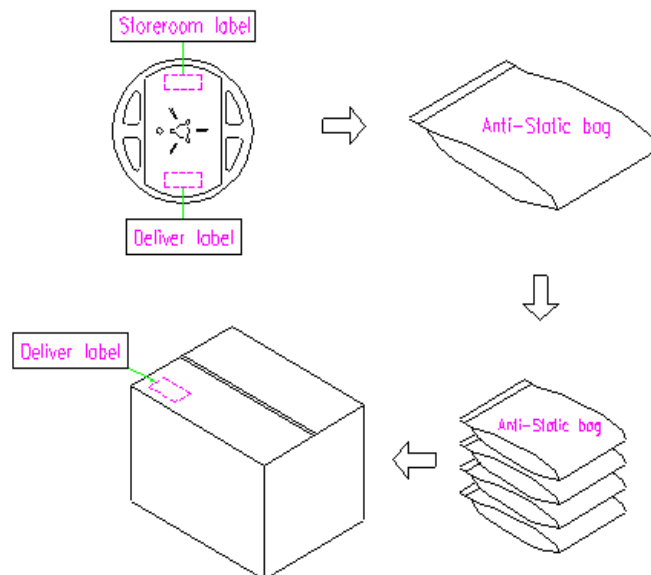
# Tape Dimensions



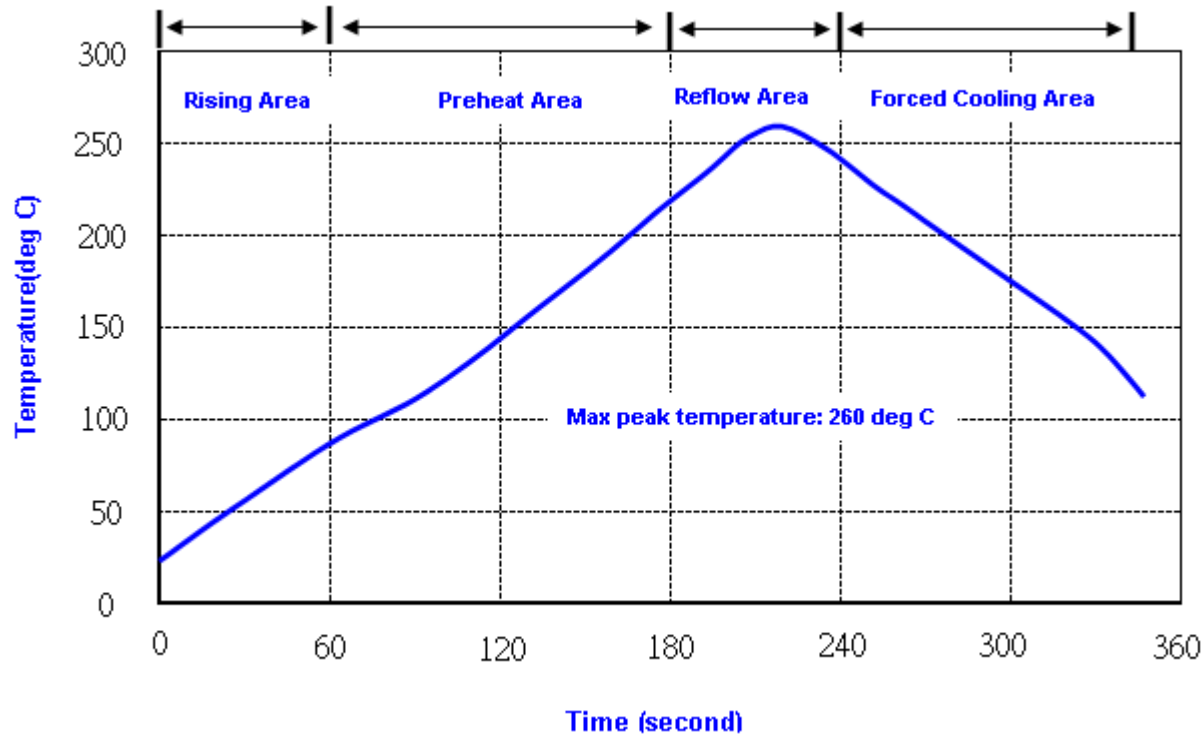
| A    | B   | C   | D   | E   |
|------|-----|-----|-----|-----|
| 16.0 | 7.9 | 5.4 | 8.0 | 2.4 |

## Packing Quantity/Packing:

1K pcs maximum per reel



## Reflow Profile:



Note: 1. Max peak temperature: 260 $\pm$ 5 deg C; Time: 10 $\pm$ 2 sec  
2. Temperature: 217 $\pm$ 5 deg C; Time: 90~100 sec

## Reliability Specifications

| Test name                                | Test process / method                                                                                                                                                          | Reference standard            |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| <b>Mechanical characteristics</b>        |                                                                                                                                                                                |                               |
| resistance to Soldering heat (IR reflow) | Temp./ Duration : 265°C /10sec ×2 times<br>Total time : 4min.(IR-reflow)                                                                                                       | EIAJED-4701<br>-300(301)M(II) |
| Vibration                                | Total peak amplitude : 1.5mm<br>Vibration frequency : 10 to 2000 Hz<br>Sweep period : 20 minute<br>Vibration directions : 3 mutually perpendicular<br>Duration : 2 hr / direc. | MIL-STD 202G<br>method 204    |
| Mechanical Shock                         | directions : 3 impacts per axis<br>Acceleration : 3000g's, +20/-0 %<br>Duration : 0.3 ms (total 18 shocks)<br>Waveform : Half-sine                                             | MIL-STD 202G<br>method 213    |
| Solderability                            | Solder Temperature:265±5°C<br>Duration time: 5±0.5 seconds.                                                                                                                    | J-STD-002                     |
| <b>Environmental characteristics</b>     |                                                                                                                                                                                |                               |
| Thermal Shock                            | Heat cycle conditions<br>-40 °C (30min) ←→ 85 °C (30min)<br>* cycle time : 10 times                                                                                            | MIL-STD 883G<br>method 1010.8 |
| Humidity test                            | Temperature : 85 ± 2 °C<br>Relative humidity : 85%<br>Duration : 96 hours                                                                                                      | MIL-STD 202G<br>method 103    |
| Dry heat<br>( Aging test )               | Temperature : 125 ± 2 °C<br>Duration : 168 hours                                                                                                                               | MIL-STD 202G<br>method 108A   |
| Cold resistance<br>(Low Temp Storage)    | Temperature : -40 ± 2 °C<br>Duration : 96 hours                                                                                                                                | IEC 60068-2-1                 |