



TCXO SPECIFICATION



Customer: _____
Customer P/N: _____
TKD P/N: TC20A026000GECN003
Part Name: SMD TCXO 2016
Product Description: 26.000000MHz
Issue Date: 2022/7/13

CUSTOMER'S APPROVAL

(PLEASE RETURN A COPY WITH APPROVAL)

TKD Science and Technology Co.,Ltd
泰晶科技股份有限公司

| Approved | Checked | Designer |
|---------------|-----------|---------------|
| Zhong YuanHua | Zhan Chao | Wang ShuangXi |

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| Rev. | Description of Revision History | Date | Designer | Checked By |
|------|---|------------|---------------|---------------|
| A | New revision | 2020/12/21 | Zhan Chao | Zhong YuanHua |
| B | Dimension tolerance and other optimizations | 2021/9/8 | Wang ShuangXi | Zhong YuanHua |
| C | Drawing revision and other optimizations | 2022/7/13 | Wang ShuangXi | Zhan Chao |



TCXO SPECIFICATION

- 1.Description : 2016 TCXO
- 2.Nominal Frequency : 26.000000MHz
- 3.Electrical Specifications :

| Item | Parameters | | Condition | Electrical Specifications | | | |
|------|-----------------------------|------------------------|------------------------------|---------------------------|------|------|------------------|
| | | | | MIN | TYP | MAX | UNITS |
| 1 | Nominal Frequency | | | 26.000000 | | | MHz |
| 2 | Frequency Stability | Vs.Temperature (Note1) | @-30℃ ~ 85℃ | -0.5 | | 0.5 | ppm |
| | | | @-40℃ ~ -30℃ | -3.0 | | 3.0 | ppm |
| | | Vs.Load | ±10% | -0.1 | | 0.1 | ppm |
| | | Vs.Supply Voltage | Standard Vcc±5% | -0.1 | | 0.1 | ppm |
| 5 | Operating Temperature Range | | | -40 | | 85 | ℃ |
| 6 | Frequency Tolerance | | After 2 times reflow (Note2) | -2.0 | | 2.0 | ppm |
| 7 | Supply Voltage | | | 1.68 | 1.80 | 3.08 | Vcc |
| 8 | Current Consumption | | | | | 2.0 | mA |
| 9 | Output Level | | | 0.8 | | | V _{p-p} |
| 10 | Output Waveform | | | Clipped Sine wave | | | |
| 11 | Standard Output Load | | | 10kΩ // 10pF | | | |
| 12 | Duty Cycle | | | 40 | 50 | 60 | % |
| 13 | Hysteresis | | | -0.5 | | 0.5 | ppm |
| 14 | Harmonics | | | | | -8.0 | dBc |
| 15 | Aging | | 1 Year | -1.0 | | 1.0 | ppm |
| | | | 2 Years | -1.5 | | 1.5 | ppm |
| | | | 5 Years | -2.5 | | 2.5 | ppm |
| | | | 10 Years | -5.0 | | 5.0 | ppm |
| 16 | Phase Noise | @1 Hz offset | Typical value at 25℃±5℃ | | | -50 | dBc/Hz |
| | | @5 Hz offset | | | | -73 | dBc/Hz |
| | | @10 Hz offset | | | | -80 | dBc/Hz |
| | | @100 Hz offset | | | | -106 | dBc/Hz |
| | | @1 kHz offset | | | | -134 | dBc/Hz |
| | | @10 kHz offset | | | | -145 | dBc/Hz |
| | | @100 kHz offset | | | | -150 | dBc/Hz |
| 17 | Frequency Slope (Note3) | | @-20℃ ~ 65℃ | -0.05 | | 0.05 | ppm/℃ |
| | | | @-30℃ ~ 85℃ | -0.1 | | 0.1 | ppm/℃ |
| | | | @-40℃ ~ -30℃ | -0.35 | | 0.35 | ppm/℃ |
| 18 | Storage Temperature | | | -40 | | 85 | ℃ |

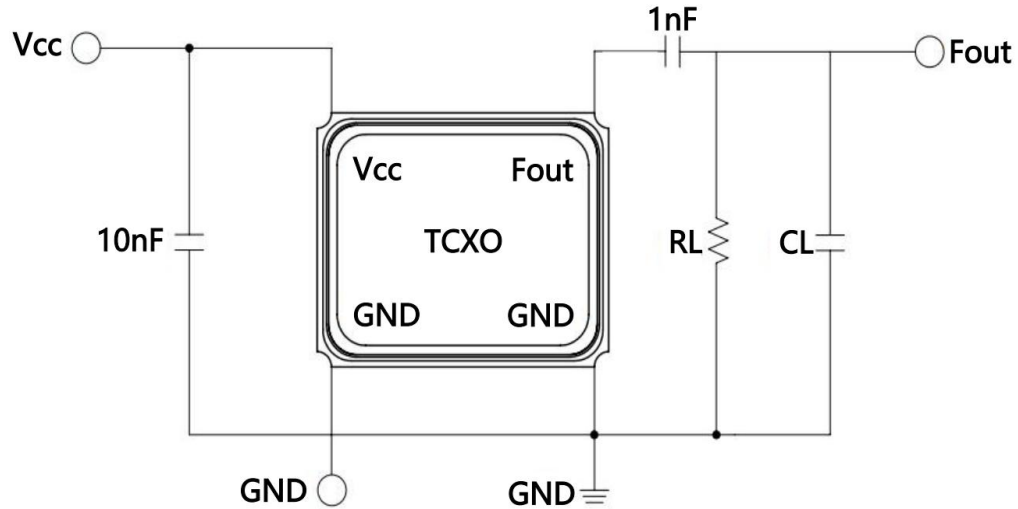
Note1 Refer to frequency at 25±2℃

Note2 Refer to nominal frequency

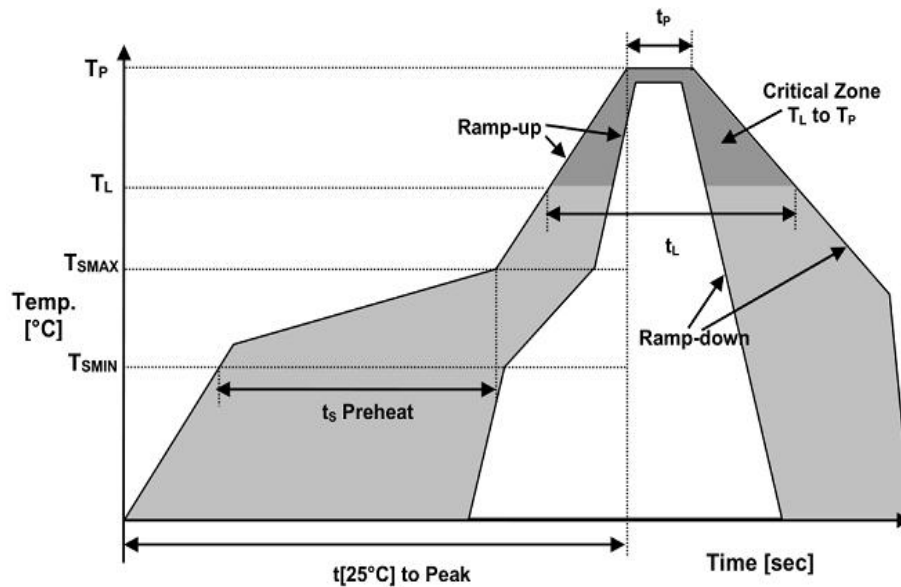
Note3 Temperature variation 2℃/step,from low to high



4.Test Circuit



5.Recommended Reflow Profile

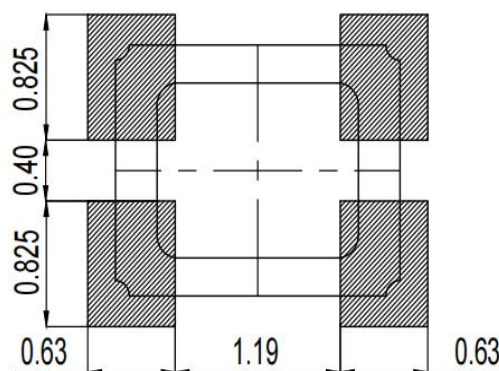
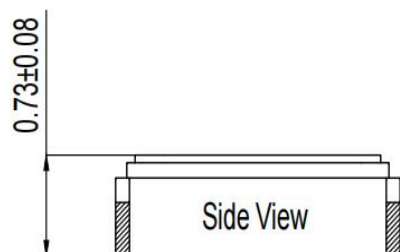
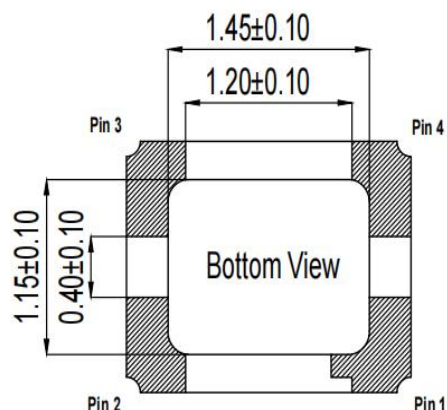
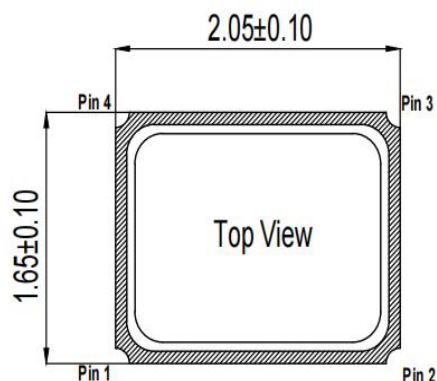


| Reflow Profile | | |
|--|-------------------------------|-------------|
| Temperature MIN Preheat | T_{SMIN} | 150°C |
| Temperature MAX Preheat | T_{SMAX} | 200°C |
| Time ($T_{SMIN} - T_{SMAX}$) | t_s | 60-180sec |
| Temperature | T_L | 217°C |
| Peak Temperature | T_P | 260°C |
| Ramp-up Rate | R_{UP} | 3°C/sec max |
| Ramp-Down Rate | R_{DOWN} | 6°C/sec max |
| Time within 5°C of Peak Temperature | t_p | 10sec |
| Time $t[25^\circ\text{C}]$ to Peak Temperature | $t[25^\circ\text{C}]$ to Peak | 480sec |
| Time | t_L | 60-150sec |



6.Product Dimensions

Units: mm



Pin Connection

| Name | Connection |
|-------|------------|
| Pin 1 | GND |
| Pin 2 | GND |
| Pin 3 | Fout |
| Pin 4 | Vcc |



7.Product Identification (Marking)

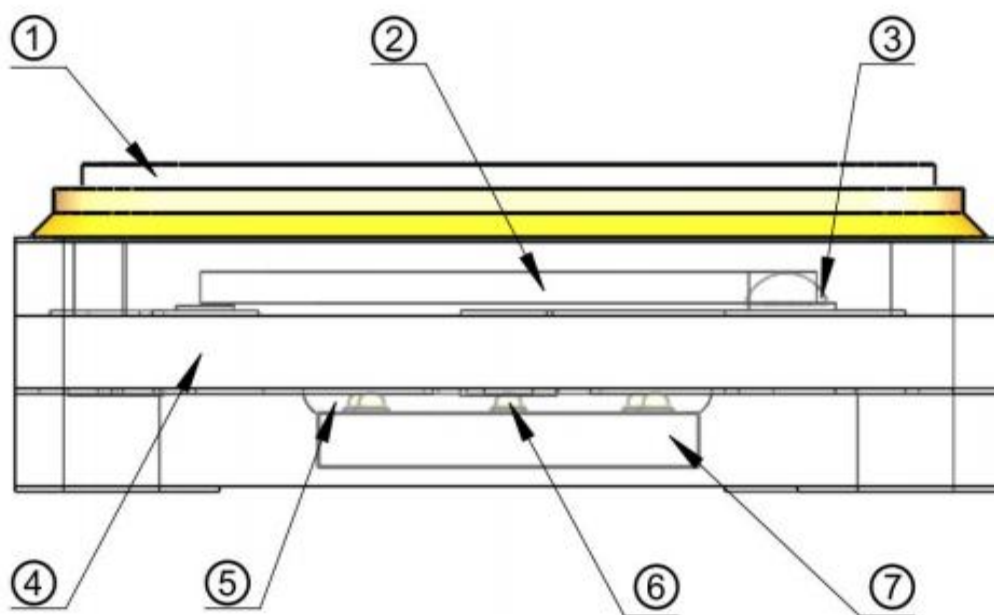
| | |
|----------------------------------|--|
| T: TKD Logo | |
| 260: Frequency Code | |
| A: Frequency Discrimination Code | |
| ●: Pin1 Index | |
| D: Date Code | |
| ####: TCXO Lot Code | |

Date Code

| Year | | 2019 | 2020 | 2021 | 2022 |
|-------|-----|------|------|------|------|
| | | 2023 | 2024 | 2025 | 2026 |
| | | 2027 | 2028 | 2029 | 2030 |
| | | 2031 | 2032 | 2033 | 2034 |
| Month | JAN | a | n | A | N |
| | FEB | b | p | B | P |
| | MAR | c | q | C | Q |
| | APR | d | r | D | R |
| | MAY | e | s | E | S |
| | JUN | f | t | F | T |
| | JUL | g | u | G | U |
| | AUG | h | v | H | V |
| | SEP | j | w | J | W |
| | OCT | k | x | K | X |
| | NOV | l | y | L | Y |
| | DEC | m | z | M | Z |

※ This date code will be cycled every four years.

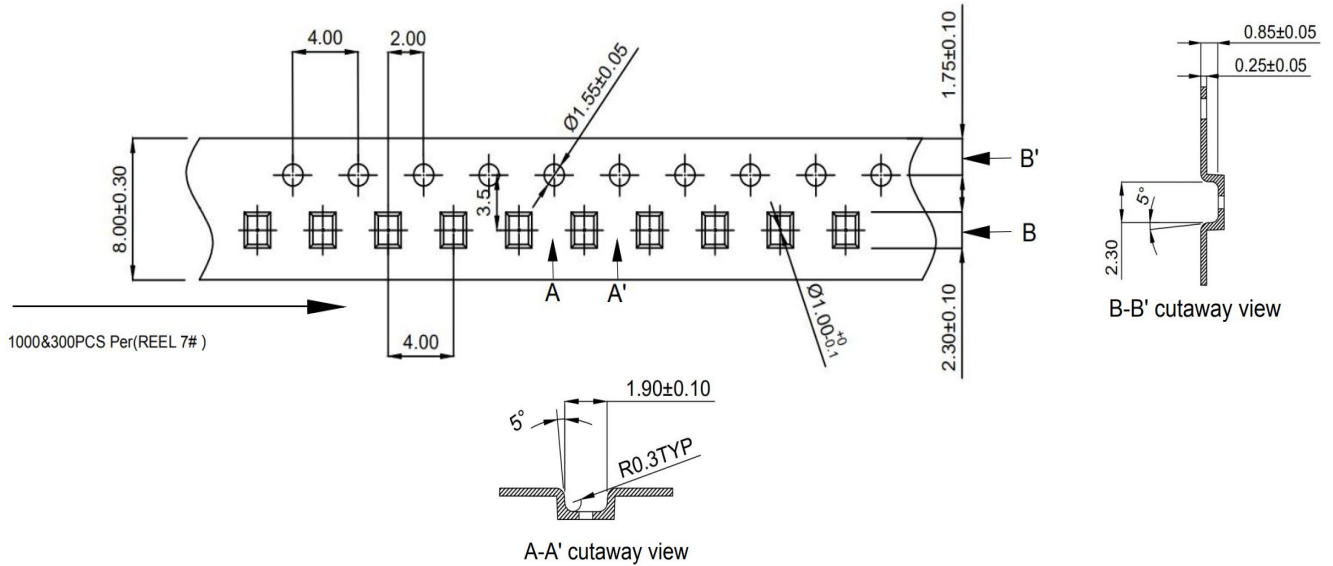
8. Structure Diagram



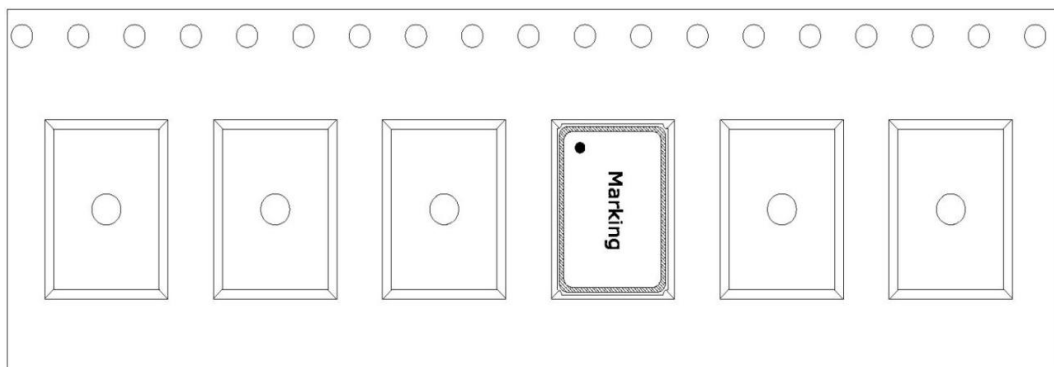
| No. | Components | Materials |
|-----|---------------------|---------------------|
| ① | Lid | Fe-Ni-Co Alloy |
| ② | Crystal Blank | SiO ₂ |
| ③ | Conductive Adhesive | Ag+Silicone resin |
| ④ | Base | Ceramic+Noble Metal |
| ⑤ | Underfill | Epoxy |
| ⑥ | Bump | Au |
| ⑦ | IC | Si |

9.Package Information

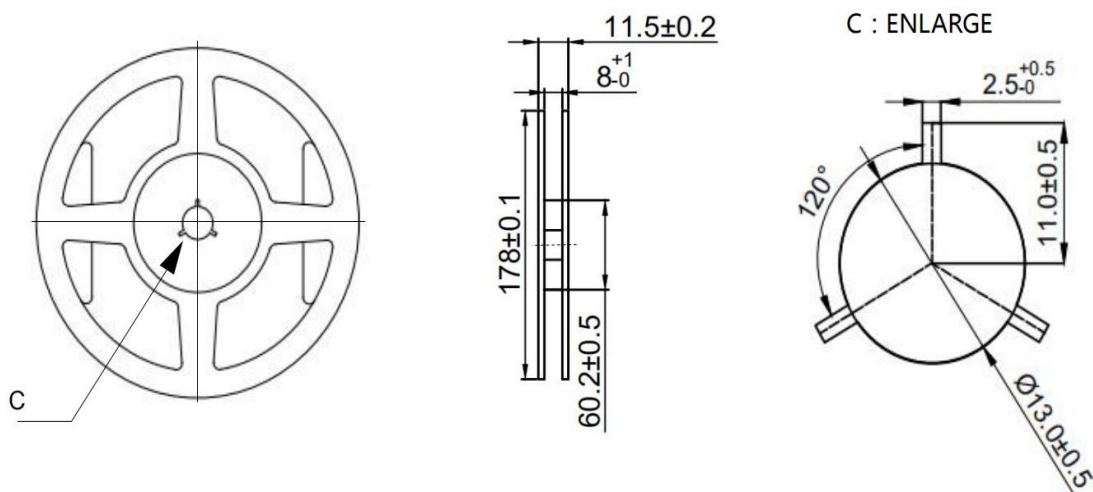
Tape (Carrier) Dimensions



The Direction of Packing



Reel Dimensions





Handling Instructions

1. Cautions for Handling

a) Prevention against electrostatic breakdown

Your full attention to static electricity is still requested.

b) Direction

Before mounting the crystal oscillator on board, Please confirm the direction to make sure the GND terminal and the terminal of power supply are not taken wrongly.

2. Prevention against Vibration and Shock

While the product is being transported or mounted onto board, if undue shock and vibration exceeding the specification is put on, there is risk that the built-in crystal blank is broken.

When undue shock and vibration exceeding the specification is put on the product, please be sure to make confirmation of the product's characteristics.

3. Soldering

In order to assure the reliability of the crystal oscillator, please use the product under the recommended conditions.

4. Surface mounting

a) This product is surface-mounting device.

So, Please pay attention to the following things.

b) Extreme deformation of board may make pattern off, the electrode of terminals off and solder broken. Full attention is requested especially when splitting the board with the oscillator mounted where the camber of the board occurs.

c) In case that automatic mounter is used, please choose the type with small shock generation and make confirmation of the shock before use.

5. Cleaning

Because cleaning will cause change to all characteristics, cleaning is forbidden.

6. Store keeping (method and duration)

Long-time storage in the high/low temperature and high humidity leads to deterioration of solderability. So, please keep the product in the temperature of +5~+35 and humidity of 45~70%.

Moreover, please keep the product in the circumstance with measures against static electricity.

The storage life is 6 months before the pack is opened and please use it within 168 hours after the pack is opened.

(Please keep it with desiccator etc. when you exceed 168 hours after the bag is opened. Please use it after confirming the product solderability.)