

|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                   |
|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| <b>SPECIFICATION SHEET NO.</b>          | S0422 – RF25M00000S302                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                   |
| <b>ORIGINAL MFG/PART NO.</b>            | TGS Crystals/COM2231AGI01 TLF-25M000                                                                                                                                                                                                                                                                                                                                                                                                               |                                                   |
| <b>NEXTGEN PART CODE</b>                | RF25M00000S302                                                                                                                                                                                                                                                                                                                                                                                                                                     | Indicate This Code For <a href="#">RFQ</a> /Order |
| <b>DATE</b>                             | Apr. 22, 2025                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                   |
| <b>REVISION</b>                         | A4                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Updated With Most Recent Data                     |
| <b>DESCRIPTION AND MAIN PARAMETRICS</b> | <p>SMD Crystal Oscillator, Case 2520 Type, 4 Pads, RF series,<br/> Case Dimension L2.5*W2.0*H0.9mm<br/> 25.000MHz, Supply Voltage 3.3V, Tolerance <math>\pm 25\text{ppm}</math> @25°C<math>\pm 3^\circ\text{C}</math><br/> Symmetry 45/55; Output Waveform HCMOS, Output Load 15pF<br/> Tri-State (Output Enable) Via Pin 1<br/> Operating Temp. Range -40°C ~+85°C<br/> Package in Tape/Reel, 3000pcs/Reel<br/> REACH/RoHS/RoHS III Compliant</p> |                                                   |
| <b>CUSTOMER</b>                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                   |
| <b>CUSTOMER PART NUMBER</b>             |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                   |
| <b>CROSS REF. PART NUMBER</b>           |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                   |
| <b>MEMO</b>                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                   |

|                               |                                                                                     |                                                                                      |
|-------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <b>VENDOR APPROVE</b>         |                                                                                     |                                                                                      |
| Issued/Checked/Approved       |  |  |
| Effective Date: Apr. 22, 2025 |                                                                                     |                                                                                      |

|                         |
|-------------------------|
| <b>CUSTOMER APPROVE</b> |
|                         |
| Date:                   |

## MAIN FEATURE

- SMD Package, Seam Sealed, 2520 Type, 4 Pads
- Case Dimension L2.5\*W2.0\*H0.9mm
- Low Noise And Low Current
- Industry Standard
- Reflow Profile Condition 260 °C Max.
- Tristate Function – Enable/Disable or Tri-State (Output Enable) Via Pin 1
- Cross More Competitor's Part
- REACH/RoHS/RoHS III Compliant



*Image shown is a representation only. Exact specifications should be obtained from the product dimension.*

## APPLICATION

- PDA, PND, DSC, Smart phone, WiLAN, Bluetooth and more
- Communication Electronics



## ELECTRICAL CHARACTERISTICS

- See Page 6 ~ Page 8 For Different Part Code.
- All Products Parameters are Subject To NextGen Components' Final Confirmation.

## HOW TO ORDER

- Please Follow Up Part Code Guide And Indicate NextGen Part Code RF25M00000S302 For RFQ and Order.

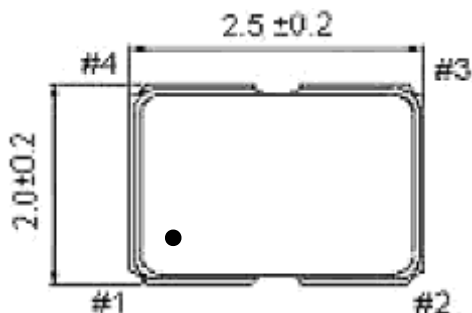
## PART CODE GUIDE

**RFQ**  
[Request For Quotation](#)

| CODE  | NAME                              | KEY SPECIFICATION OPTION                                                        |
|-------|-----------------------------------|---------------------------------------------------------------------------------|
| RF    | Series Code                       | SMD Crystal Oscillator 2520 Type, 4Pads, Case Dimension<br>L2.5*W2.0*H0.9mm     |
| 25M0  | Frequency Range Code              | 25M0: 25.000MHz or Custom Frequency Range                                       |
| 0000S | Internal Control Code             | Letter A~Z, a~z or Digits (0~9)                                                 |
| 302   | Parameters Code                   | Special Parameters Code Letter A~Z, a~z or Digits (0-9)                         |
| XX    | Special/Custom<br>Parameters Code | Blank: N/A<br>XX: Letter A~Z, a~z or Digits (0~9) for Special/Custom Parameters |

**DIMENSION** - Unit: mm, Case Dimension L2.5\*W2.0\*H0.9mm

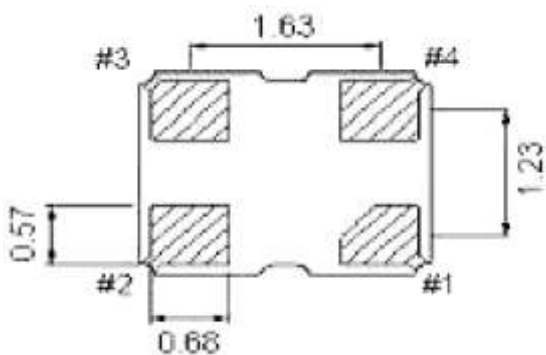
Top View



Side View



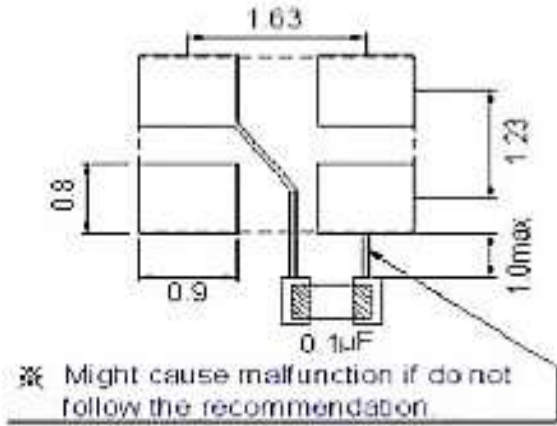
Bottom View



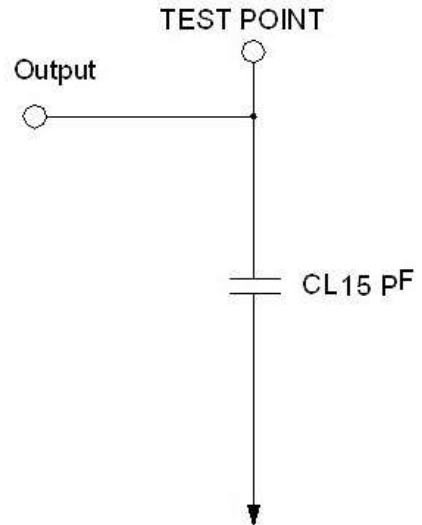
#### Pin Function

- # 1 Tristate Enable Via #1
- #2 Ground
- #3 Output
- #4 VDD

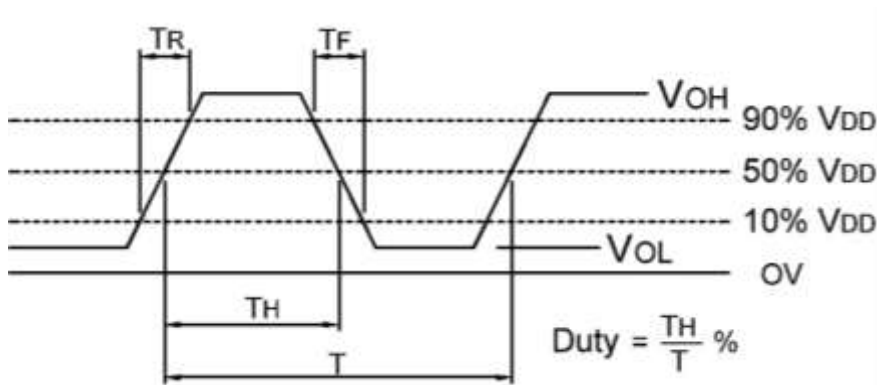
**SUGGESTED LAYOUT**– Unit: mm, For Reference



**CIRCUIT PRINCIPLE** – For Reference



**OUTPUT WAVEFORM** - HCMOS LOAD



## GENERAL SPECIFICATION

| PARAMETER             |         | SYMBOL        | VALUE                                          |      |          | UNIT  | CONDITION                     |
|-----------------------|---------|---------------|------------------------------------------------|------|----------|-------|-------------------------------|
|                       |         |               | MIN.                                           | TYPE | MAX.     |       |                               |
| Frequency Range       |         | F0            | 0.032768                                       | -    | 125.00   | MHz   | Please specify                |
| Frequency Tolerance   |         | $\Delta F/F0$ | $\pm 20$                                       | -    | $\pm 50$ | ppm   | at 25°C $\pm 3^\circ\text{C}$ |
| Tristate Function     |         | INH N         | Disable or Tri-State (Output Enable) Via Pin 1 |      |          |       | Please specify                |
| Operating Temp. Range |         | TOPR          | -40                                            | -    | +85      | °C    |                               |
| Storage Temp. Range   |         | TSTG          | -55                                            | -    | +125     | °C    |                               |
| Power Supply          | Voltage | VDD           | 1.65                                           |      | 3.45     | V     | Please specify                |
|                       | Current | IDD           | -                                              | -    | 1.5      | mA    | @ Max. Supply Voltage         |
| Output Level          |         | VOH           | 90% Vdd                                        | -    | -        | V     | Output High(Logic "1")        |
|                       |         | VOL           | -                                              | -    | 10% Vdd  | V     | Output Low(Logic "0")         |
|                       |         | Load          | 15, 30, 50                                     |      |          | pF    | Please specify                |
| Output Waveform       |         |               | HCMOS                                          |      |          |       | Please specify                |
| Duty Cycle            |         | Duty          | 45                                             | -    | 55       | %     |                               |
| Start-up Time         |         | Tosc          | -                                              | -    | 2.0      | mSec. |                               |
| Rise/ Fall time       |         | Tr/Tf         | -                                              | -    | 50       | nSec. |                               |
| Aging                 |         | FA            | -3                                             | -    | +3       | ppm   | Frequency drift in 1st year   |

**ELECTRICAL PARAMETERS** – FOR DIFFERENT PART CODE- Ta = 25°C

| PART CODE                      | FREQUENCY RANGE | SUPPLY VOLTAGE | FREQUENCY TOLERANCE | OUTPUT WAVEFORM | OUTLOAD | TRISTATE FUNCTION         |
|--------------------------------|-----------------|----------------|---------------------|-----------------|---------|---------------------------|
|                                | MHz             | V              | ppm @25°C           |                 | pF      |                           |
| RF4M096000S300                 | 4.096000        | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RF12M00000S302                 | 12.000000       | 3.3            | ±25                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RF12M00000S300                 | 12.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RF12M28800S302                 | 12.288000       | 3.3            | ±25                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RF14M18750S300                 | 14.187500       | 3.3            | ±20                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RF16M00000S302                 | 16.000000       | 3.3            | ±25                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RF20M00000S302                 | 20.000000       | 3.3            | ±25                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RF24M00000S302                 | 24.000000       | 3.3            | ±25                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RF24M00000S300                 | 24.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RF24M57600S302                 | 24.576000       | 3.3            | ±25                 | HCMOS           | 15      | Tri-State (Output Enable) |
| <a href="#">RF25M00000S302</a> | 25.000000       | 3.3            | ±25                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RF25M00000S300                 | 25.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RF26M00000S302                 | 26.000000       | 3.3            | ±25                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RF27M00000S302                 | 27.000000       | 3.3            | ±25                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RF27M00000S300                 | 27.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RF40M00000S302                 | 40.000000       | 3.3            | ±25                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RF48M00000S302                 | 48.000000       | 3.3            | ±25                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RF48M00000S300                 | 48.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RF49M15200S102                 | 49.152000       | 1.8            | ±25                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RF49M15200S302                 | 49.152000       | 3.3            | ±25                 | HCMOS           | 15      | Tri-State (Output Enable) |

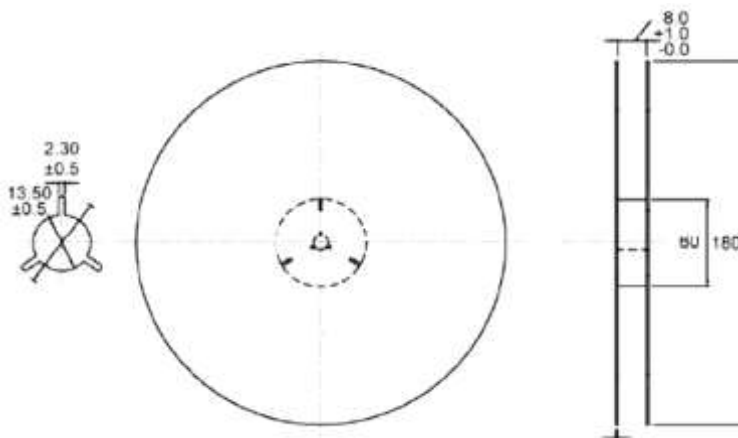
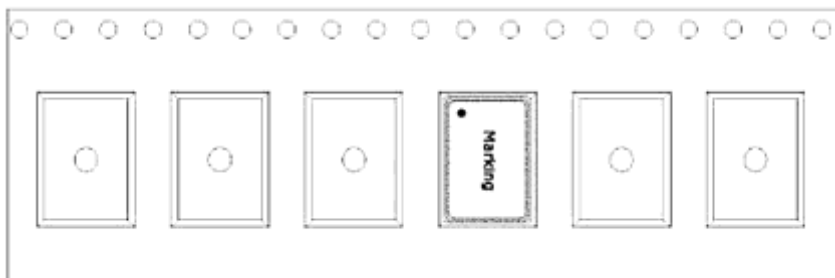
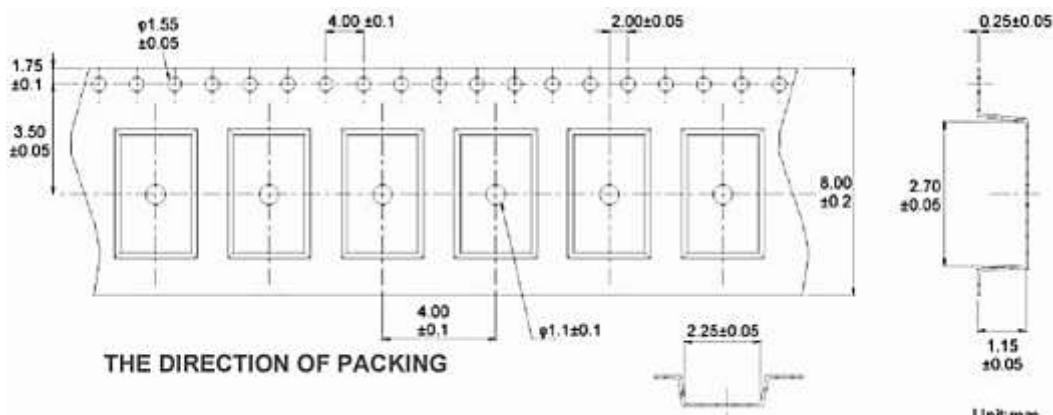
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**SUGGESTED REFLOW PROFILE** - For Reference Only


| PROFILE FEATURE                                      |                                  | PB-FREE ASSEMBLY  |
|------------------------------------------------------|----------------------------------|-------------------|
| Average Ramp-up Rate ( $T_L$ Max to $T_p$ )          |                                  | 3°C/second Max    |
| Preheat                                              | Temperature Min ( $T_s$ Min.)    | 150°C             |
|                                                      | Temperature Max ( $T_s$ Max.)    | 200°C             |
|                                                      | Time ( $t_s$ Min. to $t_s$ Max.) | 60 ~ 180 seconds  |
| Time maintained above                                | Temperature ( $T_L$ )            | 217°C             |
|                                                      | Time ( $t_L$ )                   | 60 ~ 150 seconds  |
| Peak/Classification Temperature ( $T_p$ )            |                                  | 260 °C            |
| Time within 5°C of actual Peak Temperature ( $t_p$ ) |                                  | 10 seconds Max.   |
| Ramp-down Rate                                       |                                  | 6 °C /Second Max. |
| Time 25 °C to Peak Temperature                       |                                  | 8 Minutes Max.    |
| Suggest reflow times                                 |                                  | 3 Times Max.      |

**TAPE/REEL** -Unit: mm

All Devices are packed in accordance with EIA standard RS-481-2 and specifications, 3000pcs/Reel



## IMPORTANT NOTES AND DISCLAIMER

1. **ROHS COMPLIANCE:** The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU RoHS Directive (EU) 2015/863 EC (RoHS3). RoHS Test Report for this product can be obtained at Download Center.
2. **REACH COMPLIANCE:** REACH substances of high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, REACH Test Report for this product can be obtained at Download Center.
3. All Product parametric performance is indicated in the Electrical Characteristics for the listed herein test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.
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8. *NextGen* requires that customers first obtain an RMA (Returned Merchandise Authorization) number prior to returning any products. Returns must be made within 30 days of the date of invoice, be in the original packaging, unused and like-new condition. At the time of quoting or purchasing, a product may say that it is Non-Cancelable/ Non-Returnable (NCNR). These products are not returnable and not refundable.