

**SPECIFICATION SHEET**

|                                |                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SPECIFICATION SHEET NO.</b> | Q0816- XF37M40000S409                                                                                                                                                                                                                                                                                                                   |
| <b>DATE</b>                    | Aug. 16, 2023                                                                                                                                                                                                                                                                                                                           |
| <b>REVISION</b>                | A0                                                                                                                                                                                                                                                                                                                                      |
| <b>DESCRIPTION</b>             | <p>MHz SMD Crystal, L3.2*W2.5*H0.7mm, Seam Seal, 4 Pads, CM32 series</p> <p>37.40000MHz, Tolerance +/-10ppm, Load Capacitor 9pF,</p> <p>Frequency stability +/-30ppm @Operating Temp. Range -40°C ~+85°C,</p> <p>ESR 60 ohm Max, Reflow Profile Condition 260 °C Max.</p> <p>Tape/Reel, 3000pcs/Reel</p> <p>RoHS/RoHS III compliant</p> |
| <b>CUSTOMER</b>                |                                                                                                                                                                                                                                                                                                                                         |
| <b>CUSTOMER PART NUMBER</b>    |                                                                                                                                                                                                                                                                                                                                         |
| <b>CROSS REF. PART NUMBER</b>  |                                                                                                                                                                                                                                                                                                                                         |
| <b>ORIGINAL PART NUMBER</b>    | TGS CM32 37M4A10-9-30-40-60 TLF                                                                                                                                                                                                                                                                                                         |
| <b>PART CODE</b>               | XF37M40000S409                                                                                                                                                                                                                                                                                                                          |

**VENDOR APPROVE**

Issued/Checked/Approved



DATE: Aug. 16, 2023

**CUSTOMER APPROVE**

DATE:

08/16/2023

## MAIN FEATURE

- SMD Crystal, Seam Seal, L3.2\*W2.5\*H0.7mm, 4 pads
- Low cost, High precision, High frequency stability
- Reflow Profile Condition 260 °C Max.
- Cross more competitors part
- RoHS/RoHS III compliant



## APPLICATION

- Bluetooth, wireless communication set
- Communication Electronics

## PART CODE GUIDE

**RFQ**

[Request For Quotation](#)

| XF | 37M40000 | S | 409 |
|----|----------|---|-----|
| 1  | 2        | 3 | 4   |

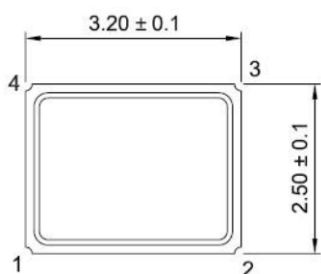
- 1) XF: Part family Code for SMD Crystal, Seam Seal, L3.2\*W2.5\*H0.7mm, 4 pads (CM32)
- 2) 37M40000: Frequency range code for 37.400MHz
- 3) S: SMD type, Package Tape/Reel, 3000pcs/Reel
- 4) 409: Specification code for original part No.: **TGS CM32 37M4A10-9-30-40-60 TLF**

**DIMENSION (Unit: mm)**

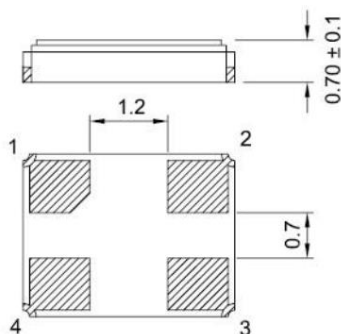
Image for reference



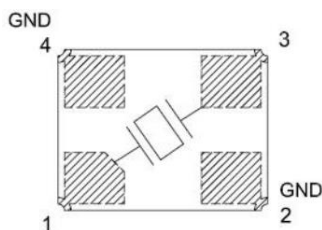
**CM32**



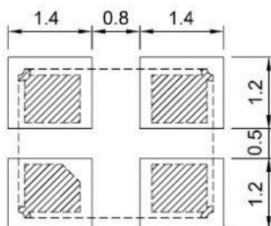
**Marking**  
Frequency Range



**Connection**  
#1 Crystal  
#2 Ground  
#3 Crystal  
#4 Ground



**Recommend Pad Layout**



**SMD CRYSTAL 3225 TYPE 4 PADS**
**ELECTRICAL PARAMETERS**

| Parameter                           | Part No.<br>Symbol      | Units                                            | Value              |         |      | Condition             |
|-------------------------------------|-------------------------|--------------------------------------------------|--------------------|---------|------|-----------------------|
|                                     |                         |                                                  | Min.               | Typical | Max. |                       |
| Original Manufacturer               | TGS                     | TGS Crystals                                     |                    |         |      |                       |
| Holder Type                         | CM32                    | SMD Crystal, Seam Seal, L3.2*W2.5*H0.7mm, 4 pads |                    |         |      |                       |
| Frequency Range                     | 37M4                    | MHz                                              | 37.400             |         |      |                       |
| Mode of Oscillation                 | A                       |                                                  | AT Fundamental     |         |      |                       |
| Frequency Tolerance                 | 10                      | ppm                                              | -10                |         | +10  | @25°C                 |
| Load Capacitance                    | -9                      | pF                                               | 9                  |         |      |                       |
| Stability over Operation Temperance | -30                     | ppm                                              | -30                |         | +30  |                       |
| Operation Temperance                | -40                     | °C                                               | -40                |         | +85  |                       |
| Storage Temperance                  |                         | °C                                               | -55                |         | +105 |                       |
| Equivalent Series Resistance (ESR)  | -60                     | Ω                                                |                    |         | 60   |                       |
| Drive Level                         |                         | μW                                               |                    |         | 300  |                       |
| Shunt Capacitance (C0)              |                         | pF                                               |                    |         | 5.0  |                       |
| Motional Capacitance (C1)           |                         | fF                                               | N/A                |         |      |                       |
| DLD2                                |                         | Ω                                                | N/A                |         |      |                       |
| FLD2                                |                         | ppm                                              | N/A                |         |      |                       |
| RDL2                                |                         | Ω                                                | N/A                |         |      |                       |
| SPDB                                |                         | dB                                               | N/A                |         |      |                       |
| Aging                               |                         | ppm/year                                         |                    |         | ±3   | @1 <sup>st</sup> year |
| Insulation Resistance               |                         | MΩ                                               | 500                |         |      | @100VDC<br>± 15Vdc    |
| Others                              | Package                 | T                                                | Tape/Reel          |         |      |                       |
|                                     | RoHS Status             | LF                                               | RoHS III compliant |         |      |                       |
|                                     | Add Value               |                                                  | N/A                |         |      |                       |
|                                     | Internal Control Code * |                                                  | N/A                |         |      |                       |

Note: 1) Original Part Number: **TGS CM32 37M4A10-9-30-40-60 TLF**

2) \* Internal Control Code- 2 letter or digits; Blank: N/A

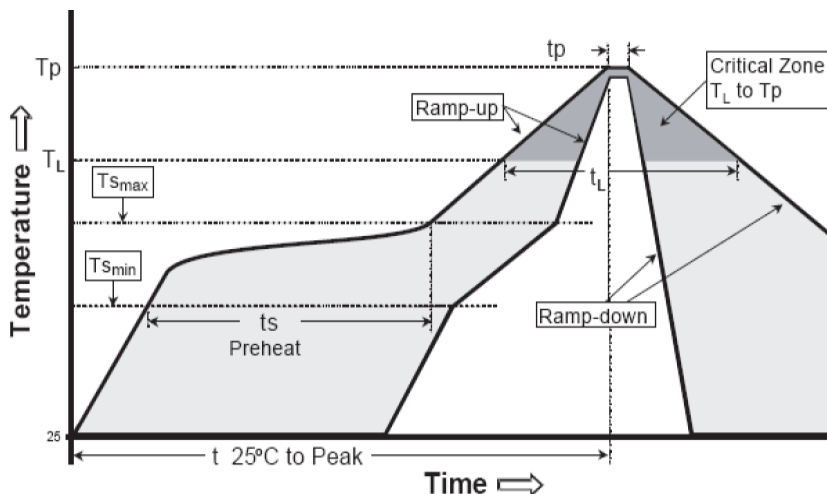
08/16/2023

**SMD CRYSTAL 3225 TYPE 4 PADS**
**RELIABILITY**

| Test Items                                | Test Method And Conditions                                                                                                                                  | Reference Documents                       |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| High Temperature<br>High Humidity Storage | Temperature: 85°C±3°C<br>Relative Humidity:85%RH<br>Time: 96 Hours                                                                                          | JIS C5023                                 |
| High Temperature<br>Storage               | Temperature: 125°C±3°C<br>Time: 96 Hours.                                                                                                                   | MIL-STD-883E<br>Method 1005.8             |
| Low Temperature<br>Storage                | Temperature: -40°C±3°C<br>Time: 96 Hours.                                                                                                                   | MIL-STD-883E<br>Method 1013               |
| Thermal Shock                             | Temperature 1: -55°C±5°C<br>Temperature 2: 85°C±5 °C<br>Temperature change between T1 and T2 5 min<br>10cycles maintain T1 and T2 for 30 minutes each cycle | MIL-STD-202F<br>Method 107<br>Condition A |
| Resistance to Solder<br>Heat              | Solder Temperature: 260°C±5°C<br>Time: 10±1 Seconds                                                                                                         | MIL-STD-202F<br>Method 210E               |
| Solderability                             | The solder pot temperature is 245±5°C , dwell time 5±0.5sec                                                                                                 | J-STD-002B                                |
| Drop Test                                 | 3 Times Free Fall from 50cm height table to 3cm thickness<br>hard wood board                                                                                | J-STD-002B                                |
| Mechanical Shock                          | Half sine wave,1000 G<br>3 Times for all 3 directions(X,Y Z)                                                                                                | MIL STD 202F<br>Method 213B               |
| Vibration                                 | Frequency Range: 10Hz ~ 55Hz<br>Amplitude: 0.75mm<br>2 Hours in each direction, total 6 Hours                                                               | MIL-STD-883E<br>Method 2007.3             |
| Leakage Test                              | Take measurements with a helium<br>Leakage detector<br>Leakage Rates≤1×10 <sup>-3</sup> Pa cm <sup>3</sup> /s                                               | MIL-STD-883E                              |

**SUGGESTED REFLOW PROFILE (For Reference Only)**

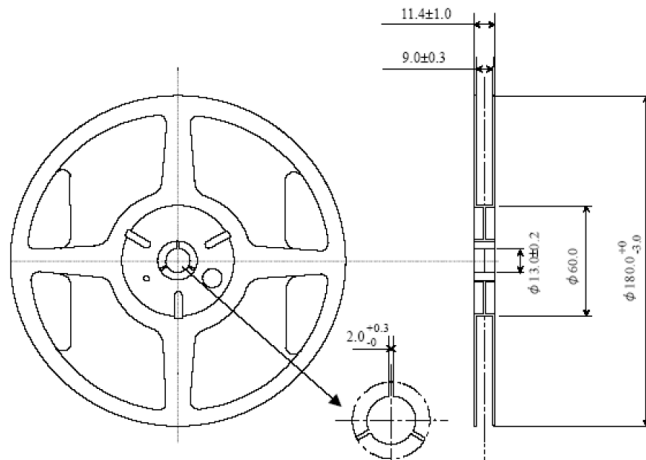
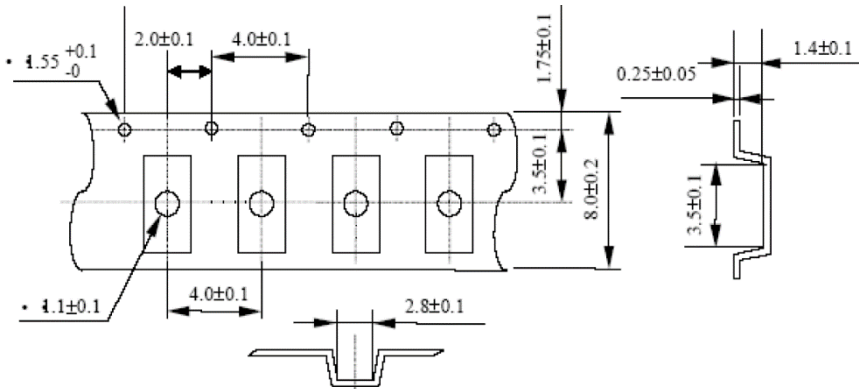
Total time: 200 Sec. Max. Solder melting point: 220°C



| Profile Feature                                      |                           | Pb-Free Assembly  |
|------------------------------------------------------|---------------------------|-------------------|
| Average Ramp-up Rate (Ts Max to Tp)                  |                           | 3°C/second Max    |
| Preheat                                              | Temperature Min (Ts Min.) | 125°C             |
|                                                      | Temperature Max (Ts Max.) | 200°C             |
|                                                      | Time (ts Min. to ts 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 ( $t_p$ ) |                           | 20 ~ 40 seconds   |
| 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



**DISCLAIMER**

NextGen Components, Inc. reserves the right to make changes to the product(s) and or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information

08/16/2023