

**SPECIFICATION SHEET**

|                                |  |
|--------------------------------|--|
| <b>SPECIFICATION SHEET NO.</b> | P1118- XR22M11840S412  |
| <b>DATE</b>                    | Nov. 18, 2022  |
| <b>REVISION</b>                | A0   |
| <b>DESCRIPTION</b>             | SMD Crystal, Ceramic Cover, Glass seal, 5032 Type, 2 pads,<br>22.11840MHz, +/-30ppm, CL 12pF, Stability +/-30ppm @Operating Temp.<br>Range -40°C ~+85°C, ESR 50 ohm Max, Tape/Reel,<br>Reflow Profile Condition 260 °C Max.<br>RoHS/RoHS III compliant, RoHS Annex III lead Exemption (exempt per RoHS<br>EU 2015/863) |
| <b>CUSTOMER</b>                |  |
| <b>CUSTOMER PART NUMBER</b>    |  |
| <b>CROSS REF. PART NUMBER</b>  |  |
| <b>ORIGINAL PART NUMBER</b>    | TGS CMG532 22M1184A30-12-30-40-50TLH   |
| <b>PART CODE</b>               | XR22M11840S412   |

**VENDOR APPROVE**

Issued/Checked/Approved



DATE: Nov. 18, 2022

**CUSTOMER APPROVE**

DATE:

11/18/2022

**SMD CRYSTAL GLASS SEAL 5032 TYPE 2 PADS**

**MAIN FEATURE**

- SMD Crystal, Glass Seal, Ceramic Cover, 5.0\*3.2mm, 2 pads
- Low cost, High precision, High frequency stability
- Reflow Profile Condition 260 °C Max.
- Cross more competitors part
- RoHS/RoHS III compliant, RoHS Annex III lead Exemption (exempt per RoHS EU 2015/863)



**APPLICATION**

- Bluetooth, wireless communication set
- Communication Electronics

**PART CODE GUIDE**

**RFQ**  
Request For Quotation

| XR | 22M11840 | S | 412 |
|----|----------|---|-----|
| 1  | 2        | 3 | 4   |

- 1) XR: Part family Code for SMD Crystal, Glass seal, 5032 type, 2 pads (CMG532)
- 2) 22M11840: Frequency range code for 22.118400MHz
- 3) S: SMD type, Package Tape/Reel, 1000pcs/Reel
- 4) 412: Specification code for original part no. **TGS CMG532 22M1184A30-12-30-40-50TLH**

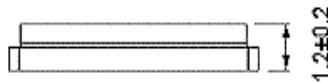
**SMD CRYSTAL GLASS SEAL 5032 TYPE 2 PADS**

**DIMENSION (Unit: mm, Tol. +/-0.15mm)**

Image for reference



CMG532



**Marking 1**

Line 1: Company Code + CL value  
Line 2: Freq. Range+ QC Code (A~Z)

or

**Marking 2**

Line 1: Frequency Range  
Line 2: Unit Code: MHz

Bottom packaging

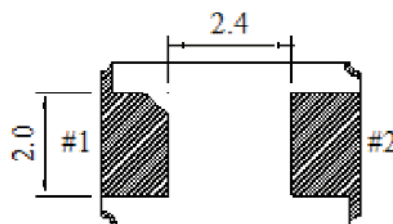


or

**Connection**

#1 Crystal #2 Crystal

Alternative bottom packaging



Recommend Pad Layout



**SMD CRYSTAL GLASS SEAL 5032 TYPE 2 PADS**
**ELECTRICAL PARAMETERS**

| Parameter                            | Part No. Symbol | Units   | Value   |         |      | Condition             |
|--------------------------------------|-----------------|---|---|---------|------|-----------------------|
|                                      |                 |   | Min.  | Typical | Max. |                       |
| Original Manufacturer                | TGS             | TGS Crystals                                      |   |         |      |                       |
| Holder Type                          | CMG532          | SMD Crystal, Glass Seal, L5.0*W3.2*H1.2mm, 2 pads |   |         |      |                       |
| Frequency Range                      | 22M1184         | MHz   | 22.1184   |         |      |                       |
| Mode of Oscillation                  | A               | AT Fundamental                                    |   |         |      |                       |
| Frequency Tolerance                  | 30              | ppm   | -30   |         | +30  | @25°C                 |
| Load Capacitance                     | -12             | pF  | 12  |         |      |                       |
| Stability over Operation Temperature | -30             | ppm   | -30   |         | +30  |                       |
| Operation Temperature                | -40             | °C  | -40   |         | +85  |                       |
| Storage Temperature                  |                 | °C  | -40   |         | +85  |                       |
| Equivalent Series Resistance (ESR)   | -70             | Ω   |   |         | 70   |                       |
| Drive Level                          |                 | μW  |   | 100     | 300  |                       |
| Shunt Capacitance (C0)               |                 | pF  | 0   |         | 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     | LH  | RoHS III compliant, RoHS Annex III lead Exemption (exempt per RoHS EU 2015/863) |         |      |                       |
|                                      | Add Value       |   | N/A   |         |      |                       |
|                                      | Code *          |   | Internal Control Code or N/A  |         |      |                       |

Note: 1) Original Part Number: TGS CMG532 22M1184A30-12-30-40-50TLH

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

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**SMD CRYSTAL GLASS SEAL 5032 TYPE 2 PADS**
**RELIABILITY**

| Test Items                             | Test Method And Conditions  | Reference Documents                       |
|--|---|---|
| High Temperature High Humidity Storage | Temperature: 85°C±3°C<br>Relative Humidity:85%RH<br>Time: 96 Hours  | JIS C5023                                 |
| High Temperature Storage               | Temperature: 125°C±3°C<br>Time: 96 Hours.   | MIL-STD-883E<br>Method 1005.8             |
| Low Temperature 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 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 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 Leakage detector<br>Leakage Rate≤1×10 <sup>-3</sup> Pa cm <sup>3</sup> /s   | MIL-STD-883E                              |

**SMD CRYSTAL GLASS SEAL 5032 TYPE 2 PADS**

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

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



|   |                                    |                   |
|---|------------------------------------|-------------------|
| <b>Profile Feature</b>  |                                    | Pb-Free Assembly  |
| <b>Average Ramp-up Rate (Ts Max to Tp)</b>                        |                                    | 3°C/second Max    |
| <b>Preheat</b>  | <b>Temperature Min (Ts Min.)</b>   | 125°C             |
|   | <b>Temperature Max (Ts Max.)</b>   | 200°C             |
|   | <b>Time (ts Min. to ts Max.)</b>   | 60 ~ 180 seconds  |
| <b>Time maintained above</b>                                      | <b>Temperature (T<sub>L</sub>)</b> | 217°C             |
|   | <b>Time (t<sub>L</sub>)</b>        | 60 ~ 150 seconds  |
| <b>Peak/Classification Temperature (T<sub>p</sub>)</b>            |                                    | 260 °C            |
| <b>Time within 5°C of actual Peak Temperature (t<sub>p</sub>)</b> |                                    | 20 ~ 40 seconds   |
| <b>Ramp-down rate</b>   |                                    | 6 °C /Second Max. |
| <b>Time 25 °C to Peak Temperature</b>                             |                                    | 8 minutes Max.    |
| <b>Suggest reflow times</b>                                       |                                    | 3 Times Max.      |

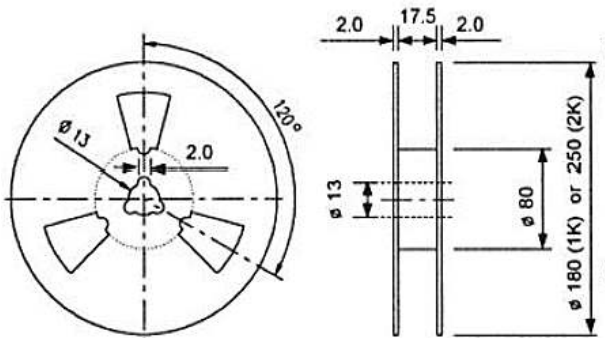
**SMD CRYSTAL GLASS SEAL 5032 TYPE 2 PADS**

**TAPE/REEL (Unit: mm)**

All Devices are packed in accordance with EIA standard RS-481-2 and specifications., 1000pcs/Reel



| Item | Dimension |
|------|-----------|
| A    | 1.70      |
| B    | 5.45      |
| C    | 3.65      |
| D    | 8.00      |
| E    | 12.0      |



**DISCLAIMER**

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