




SPECIFICATION SHEET

| | | |
|---|---|-------------------------------|
| SPECIFICATION SHEET NO. | R0717- YR32K76800S001 | |
| DATE | July 17, 2024 | |
| REVISION | A3 | Updated With Most Recent Data |
| DESCRIPTION AND MAIN PARAMETRICS | <p>KHz SMD Crystals, L3.2*W1.5*H0.9mm, 2 Pads, YR series 32.76800KHz, ±20ppm, CL 12.5pF Operating Temp. Range -40°C ~+85°C, ESR 70 Kohm Max., Reflow Profile Condition 260 °C Max. Tape/Reel, 3000pcs/Reel, RoHS/RoHS III compliant</p> | |
| CUSTOMER | | |
| CUSTOMER PART NO. | | |
| CROSS REF. PART NO. | | |
| ORIGINAL MFG/PART NO. | TGS/CCMM 32K768A20-12.5-40-70T LF | |
| PART CODE | YR32K76800S001 | |

| | | | |
|-------------------------|---|--|---|
| VENDOR APPROVE | | | |
| Issued/Checked/Approved |  |  |  |
| DATE: July 17, 2024 | | | |

| | |
|-------------------------|--|
| CUSTOMER APPROVE | |
| | |
| DATE: | |

KHZ SMD CRYSTALS 3215 TYPE YR SERIES

MAIN FEATURE

- SMD Package, L3.2*w1.5*h0.9mm, 2 Pads
- Industry Standard
- Reflow Profile Condition 260 °C Max.
- Cross More Competitors Part
- REACH/RoHS III Compliant



APPLICATION

- Small Communications Devices And More

HOW TO ORDER

- Please follow up Part Code Guide and Indicate Part Code When You Order Or RFQ.

PART CODE GUIDE

RFQ
Request For Quotation

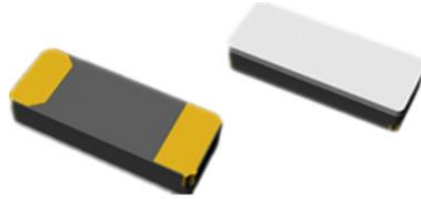
| | | | |
|----|----------|---|-----|
| YR | 32K76800 | S | 001 |
| 1 | 2 | 3 | 4 |

1. YR: Part family Code for KHz SMD crystal L3.2*W1.5*H0.9mm, 2 Pads
2. 32K76800: Frequency Range Code For 32.76800KHz
3. S: SMD type, Package Tape/Reel, 3000pcs/Reel
4. 001: Internal Control Code and Special Parameters Code Letter A~Z, a~z or digits (0-9)

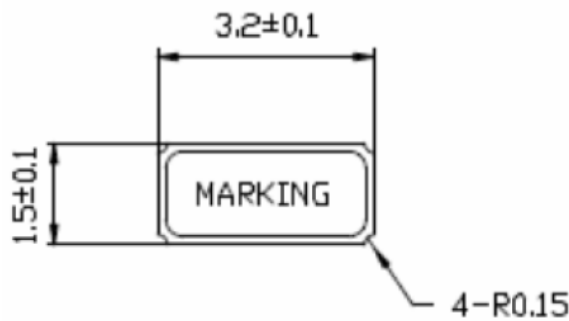
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DIMENSION (Unit: mm)

Image for reference



Top View

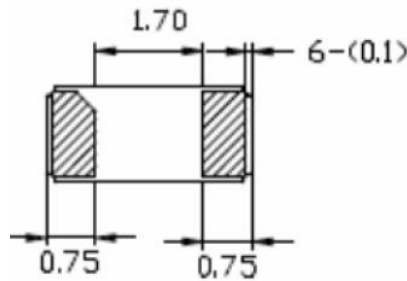


Marking
Frequency Range

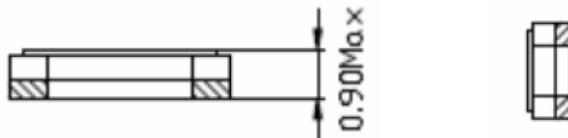
or

Marking
Internal Control Code

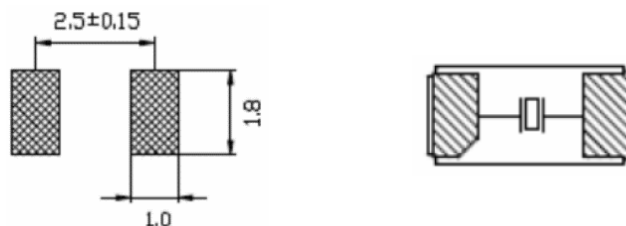
Bottom View



Side View

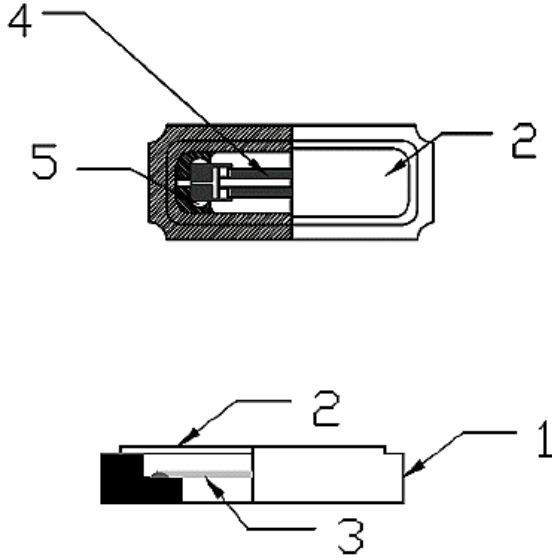


Land Pattern
for reference



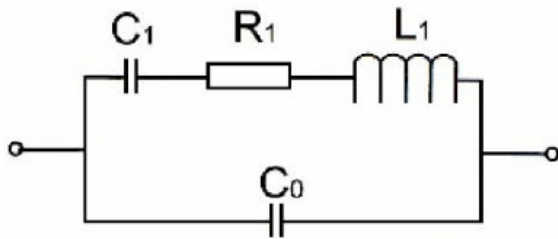
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PRODUCT STRUCTURE



| Item No. | Component Name | Material Name |
|----------|--------------------|------------------|
| 1 | Crystal Case | Ceramic (A1203) |
| 2 | Crystal Cover/Lid | KV (Fe/Co/Ni) |
| 3 | Crystal Chip/Blank | SiO ₂ |
| 4 | Electrode | Cr, Au (Cr+Au) |
| 5 | Adhesive | Resin, Ag |

EQUIVALENT CIRCUIT



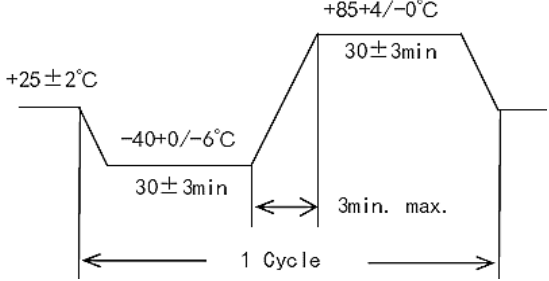
KHZ SMD CRYSTALS 3215 TYPE YR SERIES
ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C

| Part Code | Frequency Range | Frequency Tolerance @ 25°C±3°C | Load Capacitance |
|----------------|-----------------|-----------------------------------|------------------|
| | KHz | ppm | pF |
| YR32K76800S001 | 32.768 | ±20 | 12.5 |
| YR32K76800S003 | 32.768 | ±20 | 7 |
| YR32K76800S004 | 32.768 | ±20 | 6 |
| YR32K76800S005 | 32.768 | ±20 | 9 |

GENERAL ELECTRICAL PARAMETERS

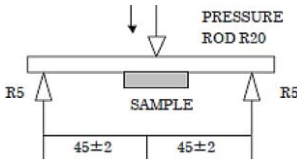
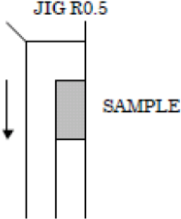
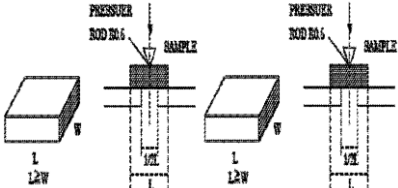
| PARAMETER | UNITS | VALUE | | | CONDITION |
|------------------------------------|---------------------|----------------|---------|-------|------------------|
| | | MIN. | TYPICAL | MAX. | |
| Mode of Oscillation | | AT Fundamental | | | |
| Equivalent Series Resistance (ESR) | KΩ | - | - | 70 | |
| Parabolic Coefficient | ppm/°C ² | -0.04 | - | -0.02 | |
| Drive Level (DL) | μW | - | 0.1 | 0.5 | |
| Shunt Capacitance (C0) | pF | - | 1.1 | 2.0 | |
| Dynamic Capacitance (C1) | fF | - | 4.1 | - | |
| Turnover Temperature | °C | +20 | 25 | +30 | |
| Insulation Resistance | MΩ | 500 | | | @100VDC, ± 15VDC |
| Quality Factor (Q) | K | 13 | - | - | |
| Operation Temperature | °C | -40 | - | +85 | |
| Storage Temperature | °C | -55 | - | +125 | |
| Aging | ppm | -3 | - | +3 | Per Year |

KHZ SMD CRYSTALS 3215 TYPE YR SERIES
RELIABILITY

| TEST ITEMS | TEST METHOD AND CONDITIONS | TEST STANDARD |
|---|---|---------------|
| High Temperature High Humidity Storage | Temperature: $60^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Relative Humidity: 90%~95% RH For Time: 500 ± 12 Hours | A, C, D, G |
| High Temperature Storage | Temperature: $125^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Time: 1000 ± 12 Hours. | B, C, G |
| Low Temperature Storage | Temperature: $-40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Time: 500 ± 12 Hours. | A, C, G |
| Temperature Cycle | The crystal unit shall be subjected to 100 successive change of temperature cycles.  | A, C, G |
| Solderability | The solder pot temperature is $260 \pm 5^{\circ}\text{C}$, dwell time 2 ± 0.6 sec | F |
| Drop Test | Height: 180 cm; Dropped Cycle: 3 cycles; Drop it on to a concrete board for 6 Directions (X,Y,Z), that should be 1 cycle | B, C |
| Vibration | Frequency Range: 10Hz ~ 55Hz Amplitude: $1.5\text{mm} \pm 15\%$; Sweep time: 2~3 Minutes, 2 Hours in each direction, total 6 Hours | A, C |
| Leakage Test | Helium Bombing $5.0 \sim 5.5$ Kg/cm ² ; for 2 hours | E |

KHZ SMD CRYSTALS 3215 TYPE YR SERIES

RELIABILITY

| TEST ITEMS | TEST METHOD AND CONDITIONS | TEST STANDARD |
|---------------------------|---|---------------|
| Terminal Strength | <p>Shall be pressurized at a speed of approx. 0.5mm/sec. in the direction indicated by the arrow unit the bending width reaches 3mm and held for 5 sec.</p>  | B, C |
| Sticking Tendency | <p>A R0.5 Jig shall be used to apply a 10N dead load in the direction indicated by the arrow to the element and retain it for 10 sec.</p>  | B, C |
| Element Assembly Strength | <p>A R0.5 Jig shall be used to apply a 10N dead load in the direction indicated by the arrow to the element and retain it for 10 sec.</p>  | B, C |

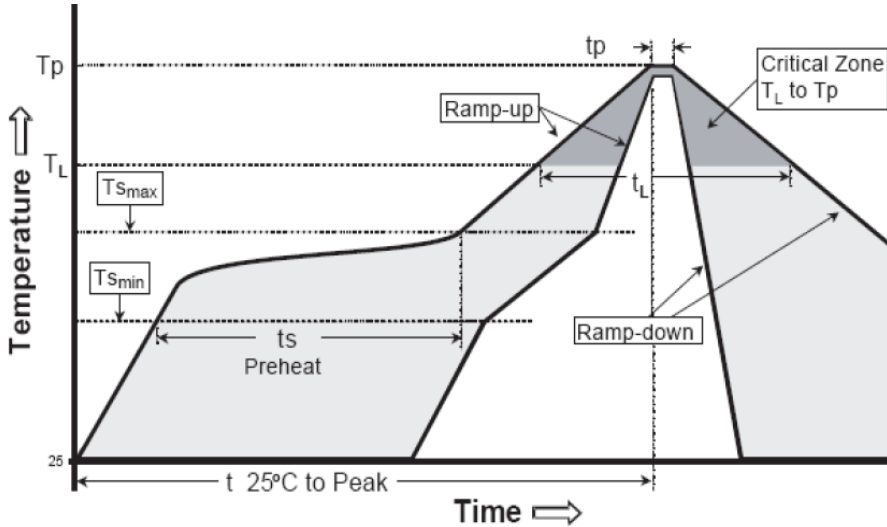
KHZ SMD CRYSTALS 3215 TYPE YR SERIES

TEST STANDARD

| TEST STANDARD SYMBOL | SPECIFICATION | VALUE |
|----------------------|--|---|
| A | Frequency Change permitted | $\Delta F \leq 10 \text{ppm}$ |
| B | Frequency Change permitted | $\Delta F \leq 20 \text{ppm}$ |
| C | Equivalent Series Resistance Change Permitted | $\Delta C I \leq 5 \text{K}\Omega$ or 20% |
| D | Insulation Resistance | $> 500 \text{ M}\Omega$ |
| E | Leak Rate Less than | $< 1 * 10^{-9} \text{ Pa} \cdot \text{m}^3/\text{sec.}$ |
| F | A new uniform coating of solder shall cover a Min 95% of the crystal surface | |
| G | Then $25 \pm 2^\circ\text{C}$ over 2 hours before Testing | |

KHZ SMD CRYSTALS 3215 TYPE YR SERIES

SUGGESTED REFLOW PROFILE (For Reference No. JEDEC J-STD-020D)

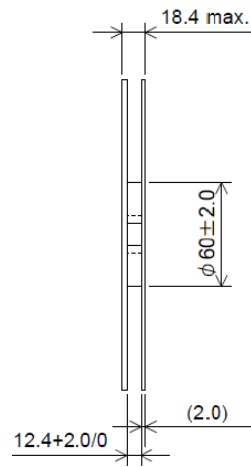
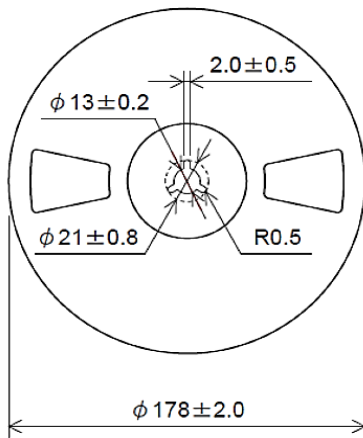
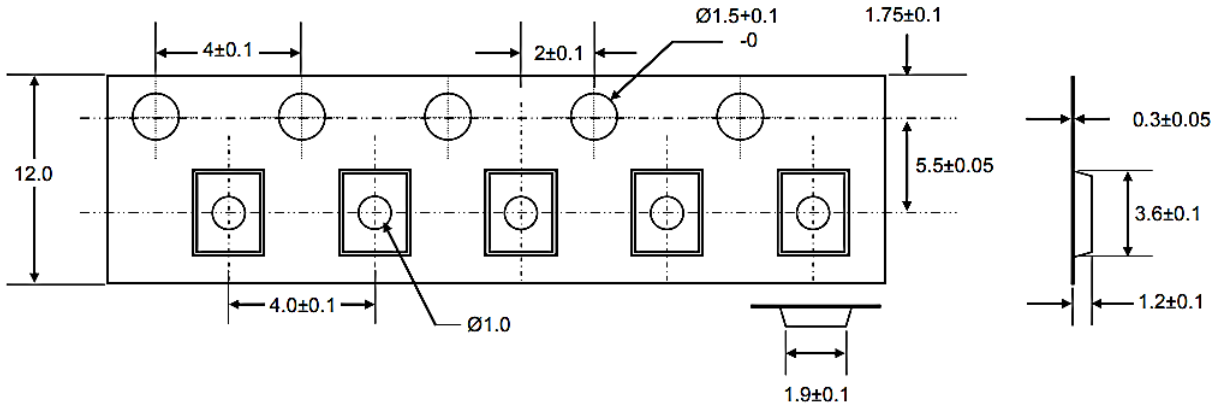


| PROFILE FEATURE | | PB-FREE ASSEMBLY |
|--|-------------------------------|-------------------|
| Average Ramp-up Rate (Ts Max to Tp) | | 3°C/second Max |
| Preheat | Temperature Min (Ts Min.) | 150°C |
| | Temperature Max (Ts Max.) | 200°C |
| | Time (ts Min. to ts Max.) | 60 ~ 120 seconds |
| Time maintained above | Temperature (T _L) | 217°C |
| | Time (t _L) | 60 ~ 150 seconds |
| Peak/Classification Temperature (T _p) | | 260 +/-5°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. |

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REEL AND TAPE DIMENSION (Unit: mm)

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



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NOTES BEFORE USE

Ultrasonic Cleaning

General cleaning solutions or ultrasonic cleaning method may be used to clean our products. However, under certain circumstances, ultrasonic cleaning machine could generate resonance at the oscillation frequency of our products and thus deteriorate the electrical characteristics in device and even damage the overall structure of device. Therefore, verification test is recommended before cleaning.

Ultrasonic Welding

Avoid mounting and processing by Ultrasonic welding this method has a possibility of an excessive vibration spreading inside the crystal products and become the cause of characteristic deterioration and not oscillating.

Storage Temperature Description

Storage Temperature is only for the product itself, the temperature for the packing material is 5~40°C

Recommended Conditions for Manual Welding Max. Temperature: 350±10°C, Time: 3 sec Max., Re-solder time: twice Max.

KHZ SMD CRYSTALS 3215 TYPE YR SERIES

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.