




SPECIFICATION SHEET

| | |
|--------------------------------|---|
| SPECIFICATION SHEET NO. | N0916- YV32K76800S006 |
| DATE | Sept. 16, 2021 |
| REVISION | A0 |
| DESCRIPTION | <p>KHz SMD Crystals, L1.6*W1.0*H0.5mm, 2 Pads, CCMV series</p> <p>32.76800KHz, +/-20ppm, CL 10pF</p> <p>Operating Temp. Range -40°C ~+85°C, ESR 90 Kohm Max.</p> <p>Reflow Profile Condition 260 °C Max.</p> <p>Tape/Reel, 5000pcs/Reel,</p> <p>RoHS/RoHS III compliant</p> |
| CUSTOMER | |
| CUSTOMER PART NUMBER | |
| CROSS REF. PART NUMBER | |
| ORIGINAL PART NUMBER | TGS CCMV 32K768A20-10-40-90TLF |
| PART CODE | YV32K76800S006 |

| | | | |
|-------------------------|---|--|---|
| VENDOR APPROVE | | | |
| Issued/Checked/Approved |  |  |  |
| DATE: Sept. 16, 2021 | | | |

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

KHZ SMD CRYSTALS CCMV SERIES 1610 TYPE

MAIN FEATURE

- SMD Package, CCMVSeries, L1.6*W1.0*H0.5mm, 2 Pads
- Industry standard
- Reflow Profile Condition 260 °C Max.
- Cross more competitors part
- RoHS/RoHS III compliant



APPLICATION

- Small communications devices and more

PART CODE GUIDE

RFQ

[Request For Quotation](#)

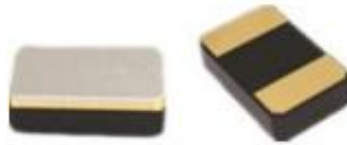
| | | | |
|-----------|-----------------|----------|------------|
| YV | 32K76800 | S | 006 |
| 1 | 2 | 3 | 4 |

- 1) YV: Part family Code for KHz SMD Crystal, Dimension L1.6*W1.0*H0.5mm, 2 Pads, CCMV series
- 2) 32K76800: Frequency range code for 32.76800KHz
- 3) S: SMD type, Package Tape/Reel, 5000pcs/Reel
- 4) 006: Specification code for original part No.: **TGS CCMV 32K768A20-10-40-90TLF**

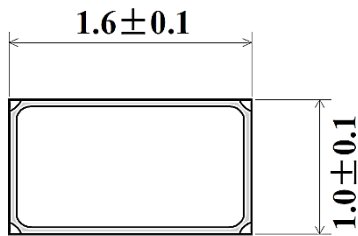
KHZ SMD CRYSTALS CCMV SERIES 1610 TYPE

DIMENSION (Unit: mm)

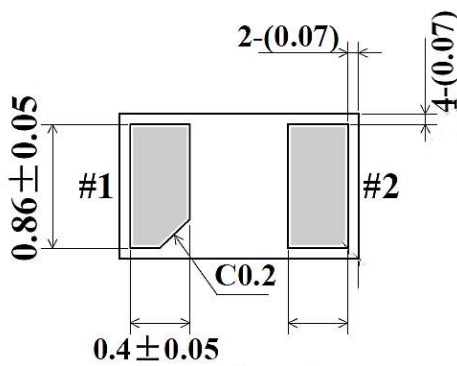
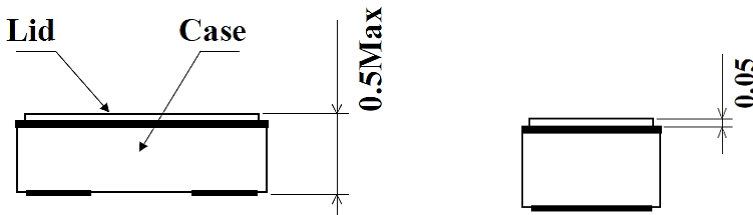
Image for reference



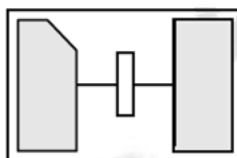
CCMV



Marking
Internal Control Code



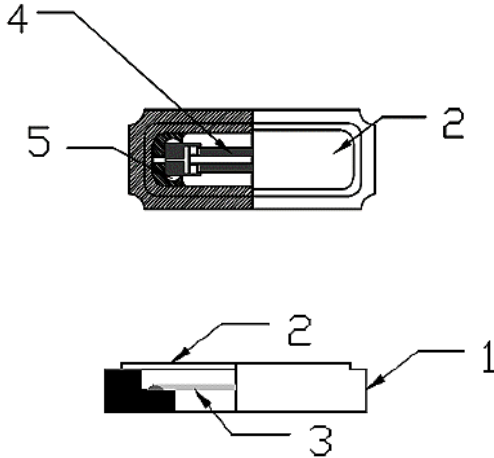
Internal Connection
for reference



<Top View>

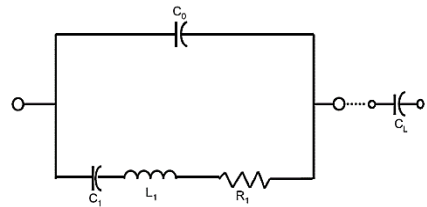
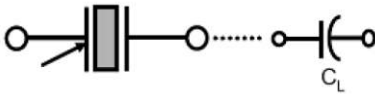
KHZ SMD CRYSTALS CCMV SERIES 1610 TYPE

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 | Au, Ag |
| 5 | Adhesive | Resin, Ag |

EQUIVALENT CIRCUIT



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 CCMV SERIES 1610 TYPE
ELECTRICAL PARAMETERS

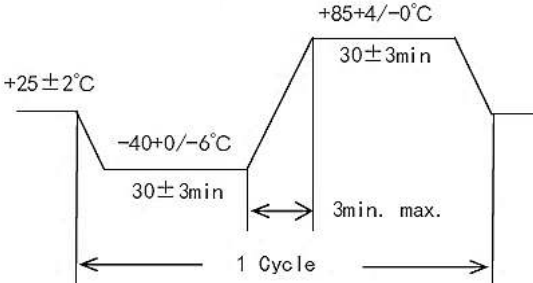
| Parameter | Part No. Symbol | Units | Value | | | Condition |
|------------------------------------|--|---|---------------------------------|---------|-------|-----------------------------------|
| | | | Min. | Typical | Max. | |
| Original Manufacturer | TGS | TGS Crystals | | | | |
| Holder Type | CCMV | KHz SMD Crystal, L1.6*W1.0*H0.5mm, 2 Pads | | | | |
| Frequency Range | 32K768 | KHz | 32.76800 | | | |
| Mode of Oscillation | A | AT Fundamental | | | | |
| Frequency Tolerance | 20 | ppm | -20 | | +20 | @25°C |
| Load Capacitance | -10 | pF | 10.0 | | | |
| Frequency/Temp Coefficient | | ppm/°C ² | -0.04 | -0.03 | -0.02 | |
| Operation Temperature | -40 | °C | -40 | | +85 | |
| Storage Temperature | | °C | -55 | | +125 | |
| Equivalent Series Resistance (ESR) | -90 | KΩ | | | 90 | Ref to 25°C |
| Drive Level | | μW | | 0.1 | 0.5 | |
| Shunt Capacitance (C0) | | Pf | | 1.4 | 7.0 | |
| Dynamic Capacitance (C1) | | fF | | 6.0 | | |
| Turnover Temp | | °C | +20 | +25 | +30 | |
| Quality Factor | | | 10,000 | | | |
| Capacitance Ratio | | | 450 | | | |
| Aging | | ppm/year | | | ±3 | @1 st year 25+/-3°C |
| Insulation Resistance | | MΩ | 500 | | | @100Vdc ± 15VDC |
| Other | Package | T | Tape/Reel, 5000pcs/Reel | | | |
| | RoHS Status | LF | RoHS III compliant | | | |
| | Add Value | | N/A | | | |
| | Special Code  | | 2 letters or digits; Blank: N/A | | | |

 Note: 1) Original Part Number: **TGS CCMV 32K768A20-10-40-90T LF**

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

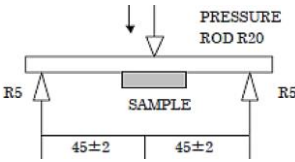
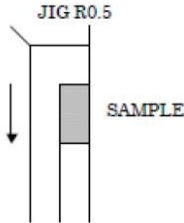
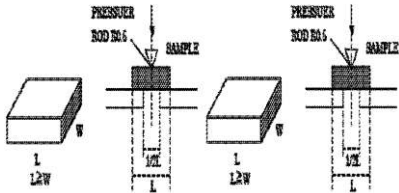
KHZ SMD CRYSTALS CCMV SERIES 1610 TYPE

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 CCMV SERIES 1610 TYPE

RELIABILITY

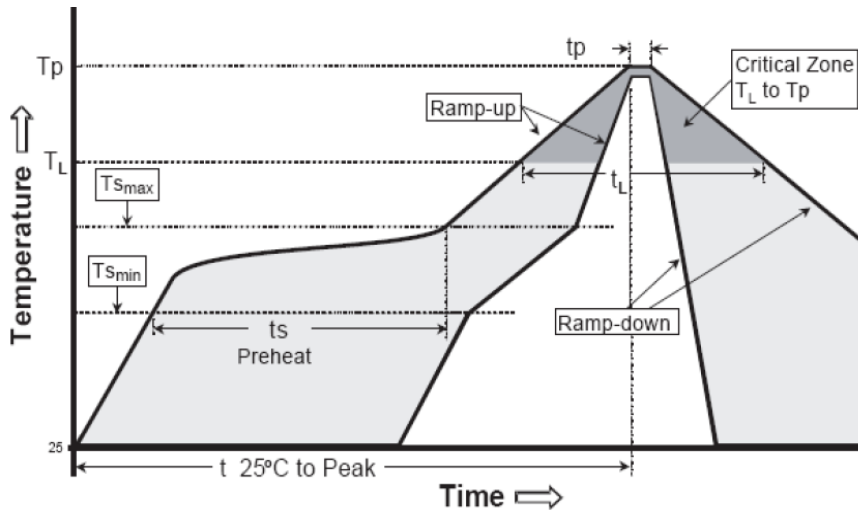
| Test Items | Test Method And Conditions | Test Standard |
|----------------------------------|---|---------------|
| Terminal Strength | <p>Shall be pressurized at a speed of approx. 0.5mm/sec. in the direction indicated by the arrow unit the bending width reaches 3mm and held for 5 sec.</p>  | B, 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 |

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 | $< 1 \cdot 1 \text{E-}9 \text{ Pa} \cdot \text{m}^3/\text{sec.}$ |
| 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 CCMV SERIES 1610 TYPE

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

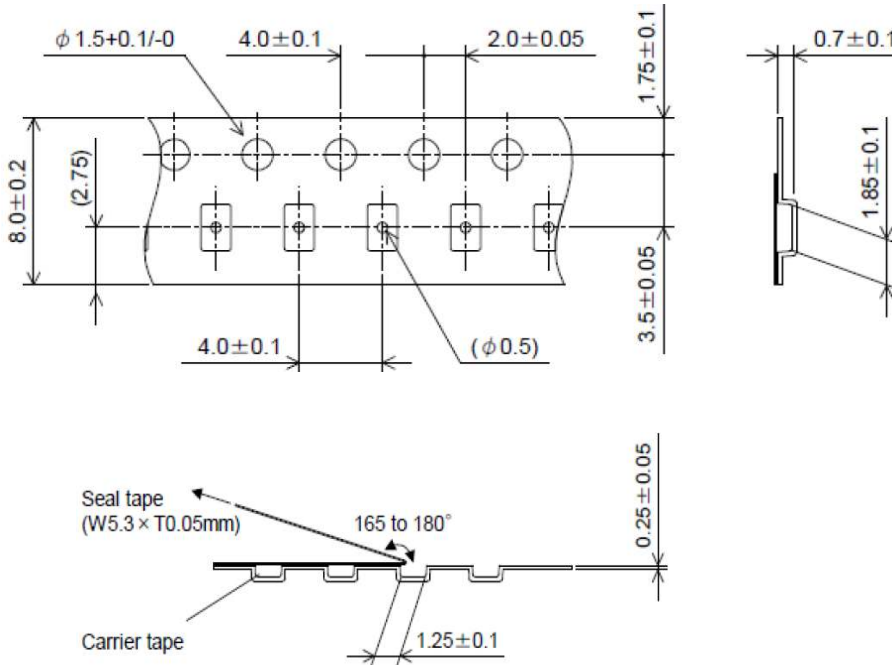


| | | |
|--|----------------------------------|-------------------|
| Profile Feature | | Pb-Free Assembly |
| Average Ramp-up Rate (Ts Max to Tp) | | 3°C/second Max |
| Preheat | Temperature Min (Ts Min.) | 150°C |
| | Temperature Max (Ts Max.) | 200°C |
| | Time (ts Min. to ts Max.) | 60 ~ 120 seconds |
| Time maintained above | Temperature (Tl) | 217°C |
| | Time (tL) | 60 ~ 150 seconds |
| Peak/Classification Temperature (Tp) | | 260 +/-5°C |
| Time within 5°C of actual Peak Temperature (tp) | | 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. |

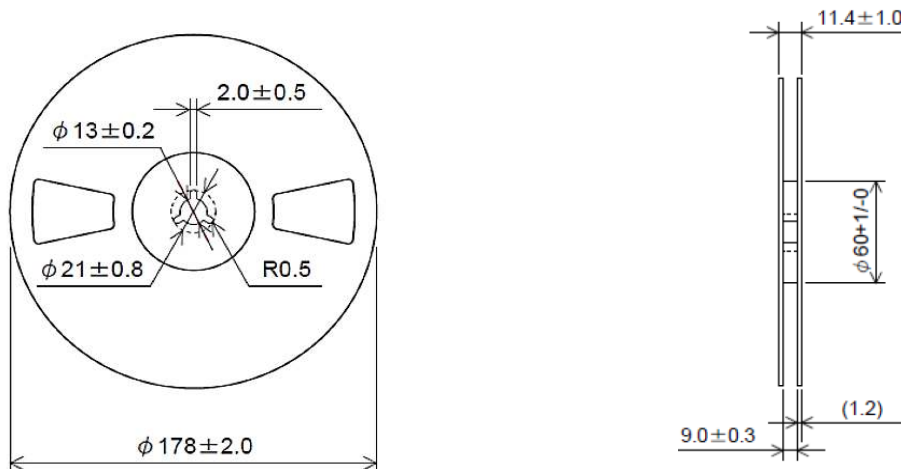
KHZ SMD CRYSTALS CCMV SERIES 1610 TYPE

TAPE (Unit: mm)

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



REEL 5000pcs/Reel (Unit: mm)



DISCLAIMER

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