




**SPECIFICATION SHEET**

|                                |  |
|--------------------------------|--|
| <b>SPECIFICATION SHEET NO.</b> | N0617- YU32K76800S001  |
| <b>DATE</b>                    | June 17, 2021  |
| <b>REVISION</b>                | A0   |
| <b>DESCRIPTION</b>             | <p>KHz SMD Crystals, L7.0*W3.1*H2.3mm, 2 Pads CCMU series<br/>           32.76800KHz, +/-20ppm, CL 12.5pF,<br/>           Operating Temp. Range -20°C ~+70°C,ESR 70 Kohm Max,<br/>           Reflow Profile Condition 260 °C Max. Tape/Reel, 3000pcs/Reel<br/>           RoHS/RoHS III compliant</p> |
| <b>CUSTOMER</b>                |  |
| <b>CUSTOMER PART NUMBER</b>    |  |
| <b>CROSS REF. PART NUMBER</b>  |  |
| <b>ORIGINAL PART NUMBER</b>    | <a href="#">TGS CCMU 32K768A20-12.5-20-70 TLF</a>  |
| <b>PART CODE</b>               | <a href="#">YU32K76800S001</a>   |

|                         |   |  |   |
|-------------------------|---|--|---|
| <b>VENDOR APPROVE</b>   |   |  |   |
| Issued/Checked/Approved |  |  |  |
| DATE: Jun.17, 2021      |   |  |   |

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

**KHZ SMD CRYSTALS 7031 TYPE 2 PADS**

**MAIN FEATURE**

- SMD Package, 7031 Type, L7.0\*W3.1\*H2.3mm, 2 Pads
- Low cost
- Industry standard
- Reflow Profile Condition 260 °C Max.
- Cross more competitors part
- RoHS/RoHS III compliant



**APPLICATION**

- Clock source for Portable
- Microcomputer & Automotive Equipment with Low power consumption

**PART CODE GUIDE**

**RFQ**

[Request For Quotation](#)

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

- 1) YU: Part family Code for KHz SMD Crystal L7.0\*W3.1\*H2.3mm, 2 Pads, CCMU series
- 2) 32K76800: Frequency range code for 32.76800KHz
- 3) S: SMD type, Package Tape/Reel, 3000pcs/Reel
- 4) 001: Specification code for original part No.: **TGS CCMU 32K768A20-12.5-20-70 TLF**

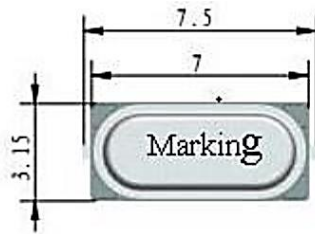
**KHZ SMD CRYSTALS 7031 TYPE 2 PADS**

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

Image for reference



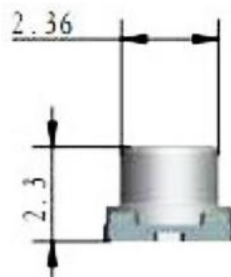
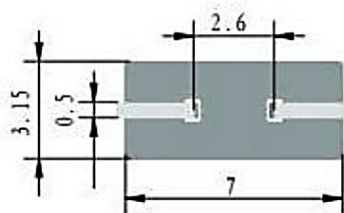
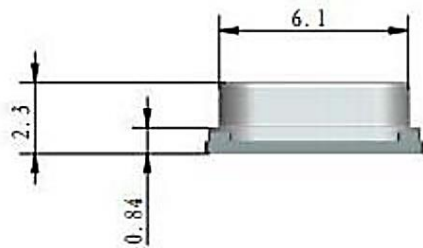
CCMU



**Marking**  
Frequency Range

or

**Marking**  
Internal Control Code



**KHZ SMD CRYSTALS 7031 TYPE 2 PADS**
**ELECTRICAL PARAMETERS**

| Parameter                          | Part No. Symbol | Units                                      | Value                   |         |      | Condition             |
|------------------------------------|-----------------|--|-------------------------|---------|------|-----------------------|
|                                    |                 |  | Min.                    | Typical | Max. |                       |
| Original Manufacturer              | TGS             | TGS Crystals                               |                         |         |      |                       |
| Holder Type                        | CCMU            | KHz SMD Crystals, L7.0*W3.1*H2.3mm, 2 Pads |                         |         |      |                       |
| Frequency Range                    | 32K768          | KHz  | 32.76800                |         |      |                       |
| Mode of Oscillation                | A               | AT Fundamental                             |                         |         |      |                       |
| Frequency Tolerance                | 20              | ppm  | -20                     |         | +20  | @25°C                 |
| Load Capacitance                   | -12.5           | pF   | 12.5                    |         |      |                       |
| Frequency/Temp Coefficient         |                 | ppm/C <sup>2</sup>                         | 0.028                   | 0.034   | 0.04 |                       |
| Operation Temperature              | -40             | °C   | -20                     |         | +70  |                       |
| Storage Temperature                |                 | °C   | -55                     |         | +125 |                       |
| Equivalent Series Resistance (ESR) | -70             | KΩ   |                         |         | 70   |                       |
| Drive Level                        |                 | μW   |                         |         | 1.0  |                       |
| Shunt Capacitance (C0)             |                 | pF   | 0.9                     | 1.0     | 2.0  |                       |
| Dynamic Capacitance                |                 | fF   |                         | 3.0     |      |                       |
| Turnover Temp                      |                 | °C   | +20                     | +25     | +30  |                       |
| Quality Factor                     |                 |  | 60000                   |         |      |                       |
| Capacitance Ratio                  |                 |  | 450                     |         |      |                       |
| Aging                              |                 | ppm/year                                   |                         |         | ±3   | @1 <sup>st</sup> year |
| Insulation Resistance              |                 | MΩ   | 500                     |         |      | @100VDC<br>± 15VDC    |
| Other                              | Package         | T  | Tape/Reel, 3000pcs/Reel |         |      |                       |
|                                    | RoHS Status     | LF   | RoHS III compliant      |         |      |                       |
|                                    | Add Value       |  | N/A                     |         |      |                       |
|                                    | Code *          |  | N/A                     |         |      |                       |

Note: 1) Original Part Number: **TGS CCMU 32K768A20-12.5-20-70 TLF**

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

**KHZ SMD CRYSTALS 7031 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                              |

**KHZ SMD CRYSTALS 7031 TYPE 2 PADS**

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

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

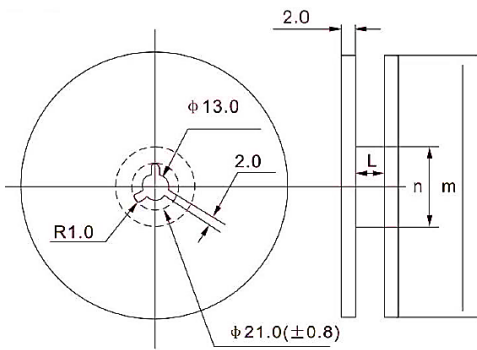
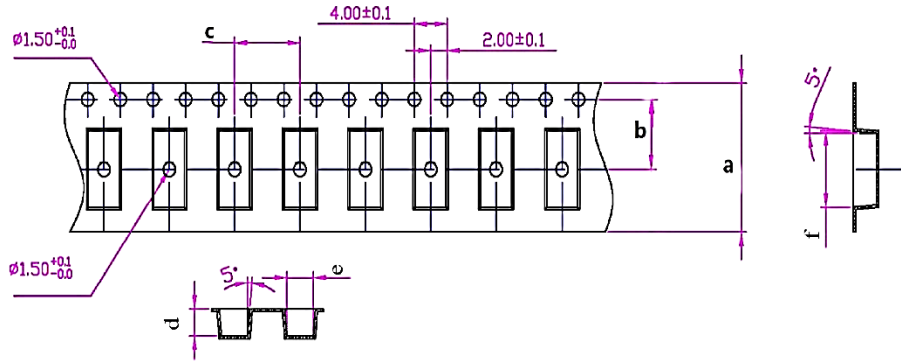


|  |                                  |                   |
|--|----------------------------------|-------------------|
| <b>Profile Feature</b>                                 |                                  | Pb-Free Assembly  |
| <b>Average Ramp-up Rate (Ts Max to Tp)</b>             |                                  | 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 (Tl)</b>          | 217°C             |
|  | <b>Time (tL)</b>                 | 60 ~ 150 seconds  |
| <b>Peak/Classification Temperature (Tp)</b>            |                                  | 260 °C            |
| <b>Time within 5°C of actual Peak Temperature (tp)</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.      |

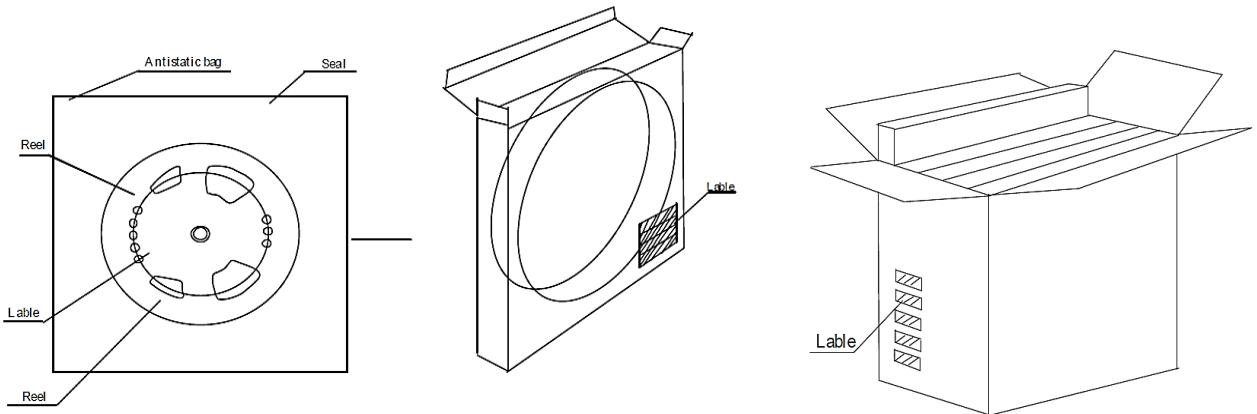
**KHZ SMD CRYSTALS 7031 TYPE 2 PADS**

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

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



| Pieces per reel | $\phi m$    | $\phi n$ | L            | Carrier tape size |
|-----------------|-------------|----------|--------------|-------------------|
| 3000/reel       | $330 \pm 3$ | 100min   | $16 \pm 0.5$ | $20 \pm 1.0$      |



**DISCLAIMER**

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