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|---|---|---|
| SPECIFICATION SHEET NO. | R1110-YA32K76800L641 | |
| ORIGINAL MFG/PART NO | TGS/CCA 32K768A10-6-40-35TLF/DTLTF206/AD2 | |
| NEXTGEN PART CODE | YA32K76800L641 | Indicate This Code For RFQ /Order |
| DATE | Nov. 10, 2024 | |
| REVISION | A10 | Updated With Most Recent Data |
| DESCRIPTION AND MAIN PARAMETRICS | <p>KHz DIP Crystals, Case Dia.2x6, 2 Pins, YA series, Dimension: \varnothing2.1*L6.2mm Max. 32.76800KHz, Tolerance: \pm10ppm, Load Capacitance (CL) 6pF ESR 35 Kohm Max., Operating Temp. Range -40°C ~+85°C REACH/RoHS/RoHS III Compliant Packed in Bulk, 1000pcs/Bag</p> | |
| CUSTOMER | | |
| CUSTOMER PART NUMBER | | |
| CROSS REF. PART NUMBER | | |
| MEMO | | |

| | | |
|-------------------------|---|--|
| VENDOR APPROVE | | |
| Issued/Checked/Approved |  |  |
| |  | |
| Date: Nov.10, 2024 | | |

| | |
|-------------------------|--|
| CUSTOMER APPROVE | |
| | |
| Date: | |

MAIN FEATURE

- DIP Package, Case Dia.2x6, Dimension $\varnothing 2.1 * L6.2\text{mm Max.}$, 2 Pins
- Available Load Capacitance CL 6pF/7pF/9pF/12.5pF
- Low ESR 35 Kohm Max.
- Offer Quality Alternatives Parts For Major Brand and more
- Moisture Sensitivity Level (MSL) 1 (Unlimited)
- REACH/RoHS/RoHS III Compliant



Image shown is a representation only. Exact specifications should be obtained from the product dimension.

MAIN APPLICATION

- Small Communications Devices And More



ELECTRICAL CHARACTERISTICS

- See Page 4~Page 8 For Different Part Code.
- All Products Parameters are Subject To Our Final Confirmation.



HOW TO ORDER

- Please Follow Up Part Code Guide And Indicate Part Code YA32K76800L641 For RFQ/Order.

RFQ
Request For Quotation

PART CODE GUIDE

| CODE | NAME | KEY SPECIFICATION OPTION |
|--------|------------------|--|
| YA | Product Index | KHz Crystal, Case Dia.2x6, $\varnothing 2.1 * L6.2\text{mm Max.}$, 2 Pins |
| 32K768 | Frequency Range | 32K768: 32.768KHz |
| 00L | Internal Control | Special letter A~Z , a~z or digits (1-9) |
| 641 | Parameters | Special Parameters Code letter A~Z, a~z or digits (1-9) |
| XX | Suffix | Blank: N/A; XX: Letter A~Z, a~z or digits (0~9) for Custom Parameters |

DIMENSION (Unit: mm)



| SYMBOL | L1 | L2 | D1 | D2 | D3 | B |
|-----------|---------|---------|----------------------------|---------------------------|-----------------------------|-----------------|
| Dimension | 6.2 Max | 5.0 Min | $\varnothing 1.95 \pm 0.1$ | $\varnothing 2.0 \pm 0.1$ | $\varnothing 0.25 \pm 0.02$ | 0.65 ± 0.02 |

EQUIVALENT CIRCUITS



Symbol for crystal unit



GENERAL ELECTRICAL PARAMETERS

| PARAMETERS | SYMBOL | UNITS | VALUE | | | CONDITION |
|-----------------------------|-----------------|--------------------|----------------|------|------|--------------|
| | | | MIN. | TYP. | MAX. | |
| Frequency Temp. Coefficient | $\Delta f/f_0$ | ppm/C ² | -0.034 ± 0.006 | | | |
| Turnover Temperature | T _m | °C | 20 | 25 | 30 | |
| Storage Temperature Range | T _{ST} | °C | -40 | | +85 | |
| Shunt Capacitance | C ₀ | pF | 0.9 | 1.50 | 2.0 | |
| Motional Capacitance | C ₁ | fF | | 2.5 | 4.0 | |
| Insulation Resistance | IR | mΩ | 500 | | | DC100V ± 15V |
| Drive Level | DL | μW | | 0.1 | 1.0 | |
| Aging per Year | $\Delta f/f$ | ppm | | | ±5 | @25°C±3°C |
| Moist are Sensitivity Level | MSL | | 1 | | | J-STD-033 |

ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C

| NEXTGEN PART CODE | ORIGINAL PART NUMBER | FREQUENCY | FREQUENCY | LOAD | OPERATION | ESR |
|--------------------------------|---------------------------|-----------|-----------|-------------|-----------|------|
| | | RANGE | TOLERANCE | CAPACITANCE | TEMP. | MAX. |
| | | KHz | ppm | pF | °C | KΩ |
| YA32K00000L122 | CCA 32K0A20-12.5-20-35TLF | 32.000 | ±20 | 12.5 | -20~+70 | 35 |
| YA32K00000L142 | CCA 32K0A20-12.5-40-35TLF | 32.000 | ±20 | 12.5 | -40~+85 | 35 |
| YA32K00000L123 | CCA 32K0A30-12.5-20-35TLF | 32.000 | ±30 | 12.5 | -20~+70 | 35 |
| YA32K00000L143 | CCA 32K0A30-12.5-40-35TLF | 32.000 | ±30 | 12.5 | -40~+85 | 35 |
| YA32K76800L625 | CCA 32K768A5-6-20-35TLF | 32.768 | ±5 | 6 | -20~+70 | 35 |
| YA32K76800L645 | CCA 32K768A5-6-40-35TLF | 32.768 | ±5 | 6 | -40~+85 | 35 |
| YA32K76800L621 | CCA 32K768A10-6-20-35TLF | 32.768 | ±10 | 6 | -20~+70 | 35 |
| YA32K76800L641 | CCA 32K768A10-6-40-35TLF | 32.768 | ±10 | 6 | -40~+85 | 35 |
| YA32K76800L622 | CCA 32K768A20-6-20-35TLF | 32.768 | ±20 | 6 | -20~+70 | 35 |
| YA32K76800L642 | CCA 32K768A20-6-40-35TLF | 32.768 | ±20 | 6 | -40~+85 | 35 |
| YA32K76800L623 | CCA 32K768A30-6-20-35TLF | 32.768 | ±30 | 6 | -20~+70 | 35 |
| YA32K76800L643 | CCA 32K768A30-6-40-35TLF | 32.768 | ±30 | 6 | -40~+85 | 35 |
| YA32K76800L725 | CCA 32K768A5-7-20-35TLF | 32.768 | ±5 | 7 | -20~+70 | 35 |
| YA32K76800L745 | CCA 32K768A5-7-40-35TLF | 32.768 | ±5 | 7 | -40~+85 | 35 |
| YA32K76800L721 | CCA 32K768A10-7-20-35TLF | 32.768 | ±10 | 7 | -20~+70 | 35 |
| YA32K76800L741 | CCA 32K768A10-7-40-35TLF | 32.768 | ±10 | 7 | -40~+85 | 35 |
| YA32K76800L722 | CCA 32K768A20-7-20-35TLF | 32.768 | ±20 | 7 | -20~+70 | 35 |
| YA32K76800L742 | CCA 32K768A20-7-40-35TLF | 32.768 | ±20 | 7 | -40~+85 | 35 |
| YA32K76800L723 | CCA 32K768A30-7-20-35TLF | 32.768 | ±30 | 7 | -20~+70 | 35 |
| YA32K76800L743 | CCA 32K768A30-7-40-35TLF | 32.768 | ±30 | 7 | -40~+85 | 35 |

ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C

| NEXTGEN PART CODE | ORIGINAL PART NUMBER | FREQUENCY | FREQUENCY | LOAD | OPERATION | ESR |
|----------------------|-----------------------------|-----------|-----------|-------------|-----------|------|
| | | RANGE | TOLERANCE | CAPACITANCE | TEMP. | MAX. |
| | | KHz | ppm | pF | °C | KΩ |
| YA32K76800L925 | CCA 32K768A5-9-20-35TLF | 32.768 | ±5 | 9 | -20~+70 | 35 |
| YA32K76800L945 | CCA 32K768A5-9-40-35TLF | 32.768 | ±5 | 9 | -40~+85 | 35 |
| YA32K76800L921 | CCA 32K768A10-9-20-35TLF | 32.768 | ±10 | 9 | -20~+70 | 35 |
| YA32K76800L941 | CCA 32K768A10-9-40-35TLF | 32.768 | ±10 | 9 | -40~+85 | 35 |
| YA32K76800L922 | CCA 32K768A20-9-20-35TLF | 32.768 | ±20 | 9 | -20~+70 | 35 |
| YA32K76800L942 | CCA 32K768A20-9-40-35TLF | 32.768 | ±20 | 9 | -40~+85 | 35 |
| YA32K76800L923 | CCA 32K768A30-9-20-35TLF | 32.768 | ±30 | 9 | -20~+70 | 35 |
| YA32K76800L943 | CCA 32K768A30-9-40-35TLF | 32.768 | ±30 | 9 | -40~+85 | 35 |
| YA32K76800L125 | CCA 32K768A5-12.5-20-35TLF | 32.768 | ±5 | 12.5 | -20~+70 | 35 |
| YA32K76800L145 | CCA 32K768A5-12.5-40-35TLF | 32.768 | ±5 | 12.5 | -40~+85 | 35 |
| YA32K76800L121 | CCA 32K768A10-12.5-20-35TLF | 32.768 | ±10 | 12.5 | -20~+70 | 35 |
| YA32K76800L141 | CCA 32K768A10-12.5-40-35TLF | 32.768 | ±10 | 12.5 | -40~+85 | 35 |
| YA32K76800L122 | CCA 32K768A20-12.5-20-35TLF | 32.768 | ±20 | 12.5 | -20~+70 | 35 |
| YA32K76800L142 | CCA 32K768A20-12.5-40-35TLF | 32.768 | ±20 | 12.5 | -40~+85 | 35 |
| YA32K76800L123 | CCA 32K768A30-12.5-20-35TLF | 32.768 | ±30 | 12.5 | -20~+70 | 35 |
| YA32K76800L143 | CCA 32K768A30-12.5-40-35TLF | 32.768 | ±30 | 12.5 | -40~+85 | 35 |
| YA40K00000L122 | CCA 40K0A20-12.5-20-35TLF | 40.000 | ±20 | 12.5 | -20~+70 | 35 |
| YA40K00000L142 | CCA 40K0A20-12.5-40-35TLF | 40.000 | ±20 | 12.5 | -40~+85 | 35 |
| YA40K00000L123 | CCA 40K0A30-12.5-20-35TLF | 40.000 | ±30 | 12.5 | -20~+70 | 35 |
| YA40K00000L143 | CCA 40K0A30-12.5-40-35TLF | 40.000 | ±30 | 12.5 | -40~+85 | 35 |

ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C

| NEXTGEN PART CODE | ORIGINAL PART NUMBER | FREQUENCY | FREQUENCY | LOAD | OPERATION | ESR |
|----------------------|-----------------------------|-----------|-----------|-------------|-----------|------|
| | | RANGE | TOLERANCE | CAPACITANCE | TEMP. | MAX. |
| | | KHz | ppm | pF | °C | KΩ |
| YA60K00000L122 | CCA 60K0A20-12.5-20-35TLF | 60.000 | ±20 | 12.5 | -20~+70 | 35 |
| YA60K00000L142 | CCA 60K0A20-12.5-40-35TLF | 60.000 | ±20 | 12.5 | -40~+85 | 35 |
| YA60K00000L123 | CCA 60K0A30-12.5-20-35TLF | 60.000 | ±30 | 12.5 | -20~+70 | 35 |
| YA60K00000L143 | CCA 60K0A30-12.5-40-35TLF | 60.000 | ±30 | 12.5 | -40~+85 | 35 |
| YA65K53600L122 | CCA 65K536A20-12.5-20-35TLF | 65.536 | ±20 | 12.5 | -20~+70 | 35 |
| YA65K53600L142 | CCA 65K536A20-12.5-40-35TLF | 65.536 | ±20 | 12.5 | -40~+85 | 35 |
| YA65K53600L123 | CCA 65K536A30-12.5-20-35TLF | 65.536 | ±30 | 12.5 | -20~+70 | 35 |
| YA65K53600L143 | CCA 65K536A30-12.5-40-35TLF | 65.536 | ±30 | 12.5 | -40~+85 | 35 |
| YA75K00000L122 | CCA 75K0A20-12.5-20-35TLF | 75.000 | ±20 | 12.5 | -20~+70 | 35 |
| YA75K00000L142 | CCA 75K0A20-12.5-40-35TLF | 75.000 | ±20 | 12.5 | -40~+85 | 35 |
| YA75K00000L123 | CCA 75K0A30-12.5-20-35TLF | 75.000 | ±30 | 12.5 | -20~+70 | 35 |
| YA75K00000L143 | CCA 75K0A30-12.5-40-35TLF | 75.000 | ±30 | 12.5 | -40~+85 | 35 |
| YA76K80000L122 | CCA 76K8A20-12.5-20-35TLF | 76.800 | ±20 | 12.5 | -20~+70 | 35 |
| YA76K80000L142 | CCA 76K8A20-12.5-40-35TLF | 76.800 | ±20 | 12.5 | -40~+85 | 35 |
| YA76K80000L123 | CCA 76K8A30-12.5-20-35TLF | 76.800 | ±30 | 12.5 | -20~+70 | 35 |
| YA76K80000L143 | CCA 76K8A30-12.5-40-35TLF | 76.800 | ±30 | 12.5 | -40~+85 | 35 |
| YA96K00000L122 | CCA 96K0A20-12.5-20-35TLF | 96.000 | ±20 | 12.5 | -20~+70 | 35 |
| YA96K00000L142 | CCA 96K0A20-12.5-40-35TLF | 96.000 | ±20 | 12.5 | -40~+85 | 35 |
| YA96K00000L123 | CCA 96K0A30-12.5-20-35TLF | 96.000 | ±30 | 12.5 | -20~+70 | 35 |
| YA96K00000L143 | CCA 96K0A30-12.5-40-35TLF | 96.000 | ±30 | 12.5 | -40~+85 | 35 |

GENERAL ELECTRICAL CHARACTERISTICS AND VISUAL TESTING

1. LOT CLASSIFICATION : If The Quantity Is 1000 PCS Or More, 1000 PCS Is One Lot
2. Sampling Test Method : Mil-std-105e G-II
3. Test Level
 - A) High Level Defect : AQL 0.065% [200 Pcs]
 - B) Medium Level Defect : AQL 0.25% [50 Pcs]
 - C) Low Level Defect : AQL 0.4% [32 Pcs]
4. Defect Classification
 - A) High Level
 - @ No Frequency
 - @ Mixing
 - @ Leak Defect
 - B) Medium Level - Electrical Characteristic Defect
 - @ Frequency
 - @ Oscillation
 - @ Electrical Current
 - @ Other Electrical Characteristics Defect
 - C) Visual
 - @ Marking
 - @ Welding
 - @ Leads
 - @ Other Visual Defect

Testing method and its standard can be modified depending on the customer's request.

RELIABILITY - MECHANICAL AND ENVIRONMENTAL ENDURANCE

| TEST ITEMS | TEST METHOD AND CONDITIONS | REQUIREMENTS |
|--------------------------------|---|--|
| Vibration | <ol style="list-style-type: none"> 1) Vibration frequency: 10 to 55hz 2) Vibration amplitude: 1.5mm 3) Cycle time: 1~2min(10-55-10hz) 4) Direction: X.Y.Z 5) Duration: 2h/each direction 6) G-force: ≥5g | Frequency Change: ±10ppm Max. Resistance Change: ≤±15% R _{rmax} |
| Shock | 3 times free drop from 75cm height to hard wooden board of thickness more than 30mm. | Frequency Change: ±10ppm Max. Resistance Change: ≤±15%R _{rmax} |
| Leakage | Put crystal units into a hermetic container and helium for 0.5-0.6. MPA, and keep it for 1h; Check the leakage by a helium leak detector. | Leakage: 1x10 ⁻⁸ mbar.L/S Max. |
| Solderability | <ol style="list-style-type: none"> 1) Dip the leads into flux (Rojin methanol) for 3~5s. 2) Dip the leads into 245±5°C 99% SN dipping solution for 5s. | The dipped part of the Leads should have 95% SN coating. |
| Soldering Heat Resistance Test | <ol style="list-style-type: none"> 1) Perform electrical characteristics test before starting this procedure. 2) Dip the leads into flux(Rojin methanol) 5±0.5s. 3) Dip the leads into 260±5°C 99% SN dipping Solution for 5s. 4) Take the unit out ,store at room temperature for 30s then measure the electrical characteristics. | Should pass sealing and visual test. Frequency Change: ±10ppm max. |
| Leak Test | Use helium leak detector. <ol style="list-style-type: none"> 1) Bombing pressure:5kg/cm² 2) Bombing time: 2 hours | Gas or air should not be detected. |
| High Temperature Endurance | The crystal units shall be put in somewhere for 500 hours at temperature of 125°C±5°C,then keep it for 1 to 2 hours under room temperature. | Frequency Change: ±10ppm Max. Resistance Change: ≤±15% R _r Max |

RELIABILITY - MECHANICAL AND ENVIRONMENTALENDURANCE

| TEST ITEMS | TEST METHOD AND CONDITIONS | REQUIREMENTS |
|---------------------------|---|--|
| Low Temperature Endurance | The crystal units shall be put in somewhere for 500 hours at Temperature of -40°C, then keep it for 1 to 2 hours under room | Frequency Change: ±10ppm Max. Resistance Change: ≅ ±15% Rr Max. |
| Humidity Endurance | Somewhere at 40°C±5°C in relative humidity of 90%~95% for 72 hours, then keep it for one or two hours under room temperature. | Frequency Change: ±10ppm Max. Resistance Change: ≅ ±15% Rr max |
| Temperature Cycle | Temperature shift from low(-40°C) to high (100°C, keep 30 minutes), satisfy high(100°C) to low(-40°C, keep 30 minutes), then go up to room temperature for 10 cycles | Frequency Change: ±10ppm Max. Resistance Change: ≅ ±15% Rr Max |
| Lead Tensity | <ol style="list-style-type: none"> 1) Fix the unit. 2) Apply 2lb of weight axis to the leads. 3) Time:5s | Should pass sealing and visual test. |
| Lead Bending | <ol style="list-style-type: none"> 1) Attach 1LB of weight to each of the leads. 2) Bending angle:90°C (from the normal position to 45°C opposite direction). 3) Bending time:3s (each direction). 4) Number of bending: 2 times. | Should pass sealing and visual test. |
| Marking Erase | Submerge the unit into IPA (Isopropyl Alcohol) Solution for 10minutes and brush the marking 10 times with a tooth brush. | Marking should not be erased. |
| | | |

SOLDERING REQUIREMENTS – FOR REFERENCE



Wave Solder Profile



Manual Soldering

PACKAGE– FOR REFERENCE

- Package is made of corrugated paper with thickness of 0.8cm. Package has 16 inner boxes, each box has 10 bag
- Per plastic bag 1000 pieces of Crystal Resonators, Per inner box 10 bag

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.