




**SPECIFICATION SHEET**

<b>SPECIFICATION SHEET NO.</b>	N0916- YV32K76800S003
<b>DATE</b>	Sept. 16, 2021
<b>REVISION</b>	A0
<b>DESCRIPTION</b>	<p>KHz SMD Crystals, L1.6*W1.0*H0.5mm, 2 Pads, CCMV series</p> <p>32.76800KHz, +/-20ppm, CL 7pF</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>
<b>CUSTOMER</b>	
<b>CUSTOMER PART NUMBER</b>	
<b>CROSS REF. PART NUMBER</b>	
<b>ORIGINAL PART NUMBER</b>	TGS CCMV 32K768A20-7-40-90TLF
<b>PART CODE</b>	YV32K76800S003

<b>VENDOR APPROVE</b>			
Issued/Checked/Approved			
DATE: Sept. 16, 2021			

<b>CUSTOMER APPROVE</b>	
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](#)

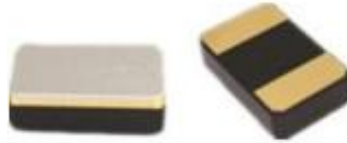
<b>YV</b>	<b>32K76800</b>	<b>S</b>	<b>003</b>
1	2	3	4

- 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) 003: Specification code for original part No.: **TGS CCMV 32K768A20-7-40-90TLF**

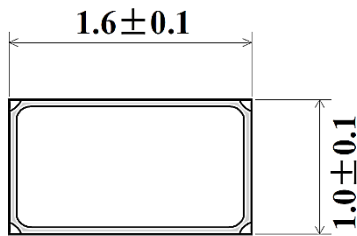
**KHZ SMD CRYSTALS CCMV SERIES 1610 TYPE**

**DIMENSION (Unit: mm)**

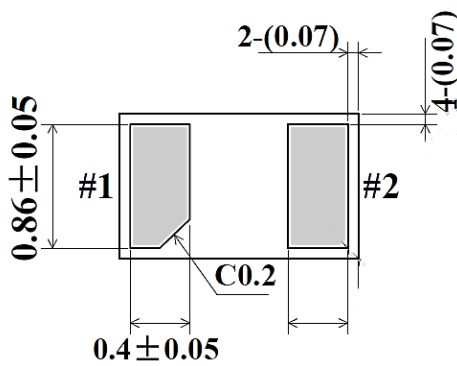
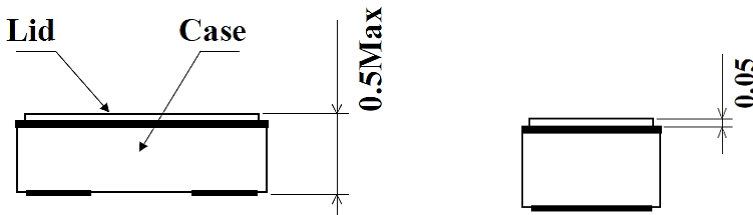
Image for reference



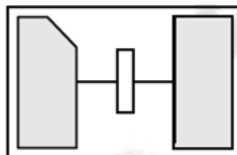
CCMV



**Marking**  
Internal Control Code



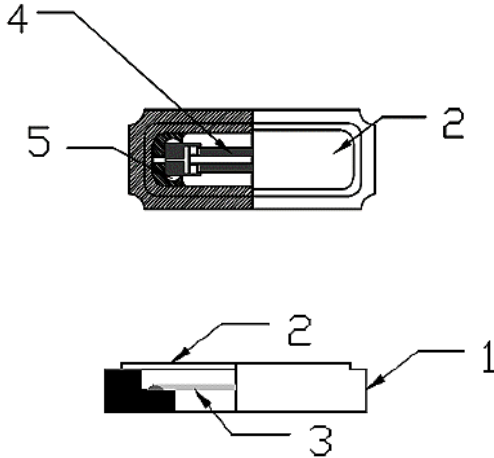
Internal Connection  
for reference



<Top View>

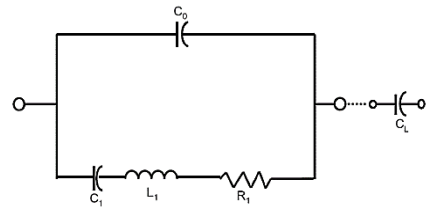
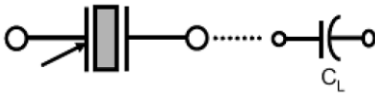
**KHZ SMD CRYSTALS CCMV SERIES 1610 TYPE**

**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 <sub>2</sub>
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**

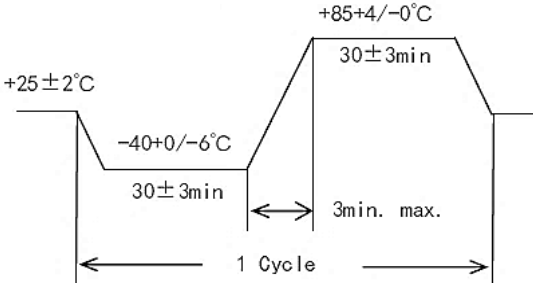
Parameter	Part No. Symbol	Units	Value			Condition
			Min.	Typical	Max.	
Original Manufacturer	TGS	TGS Crystals				
Holder Type	CCMV	KHz SMD Crystal, L1.6*W1.0*H0.5mm, 2 Pads				
Frequency Range	32K768	KHz	32.76800			
Mode of Oscillation	A	AT Fundamental				
Frequency Tolerance	20	ppm	-20		+20	@25°C
Load Capacitance	-7	pF	7.0			
Frequency/Temp Coefficient		ppm/°C <sup>2</sup>	-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 <sup>st</sup> 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 32K768A20-7-40-90T LF**

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

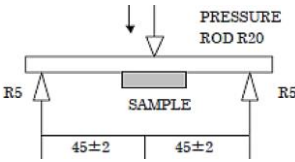
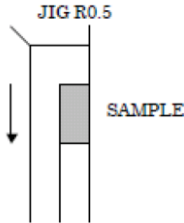
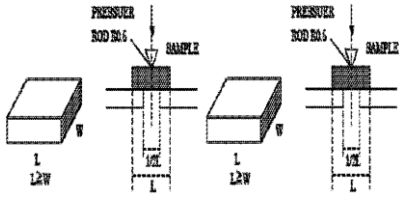
**KHZ SMD CRYSTALS CCMV SERIES 1610 TYPE**

**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: $500 \pm 12$ Hours	A, C, D, G
High Temperature Storage	Temperature: $125^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Time: $1000 \pm 12$ Hours.	B, C, G
Low Temperature Storage	Temperature: $-40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Time: $500 \pm 12$ 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 $2 \pm 0.6$ 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 $5.0 \sim 5.5$ Kgf/cm <sup>2</sup> ; for 2 hours	E

## KHZ SMD CRYSTALS CCMV SERIES 1610 TYPE

**RELIABILITY**

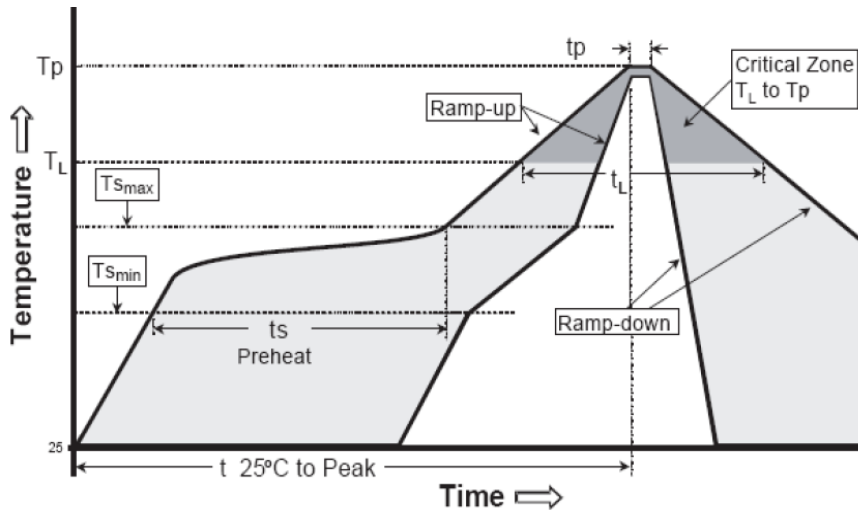
Test Items	Test Method And Conditions	Test Standard
<b>Terminal Strength</b>	<p>Shall be pressurized at a speed of approx. 0.5mm/sec. in the direction indicated by the arrow unit the bending width reaches 3mm and held for 5 sec.</p> 	B, C
<b>Sticking Tendency</b>	<p>A R0.5 Jig shall be used to apply a 10N dead load in the direction indicated by the arrow to the element and retain it for 10 sec.</p> 	B, C
<b>Element Assembly Strength</b>	<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	$\Delta C I \leq 5K\Omega$ or 20%
D	Insulation Resistance	$> 500 \text{ M}\Omega$
E	Leak Rate Less than	$< 1 \cdot 10^{-9} \text{ Pa} \cdot \text{m}^3/\text{sec.}$
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 CCMV SERIES 1610 TYPE**

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



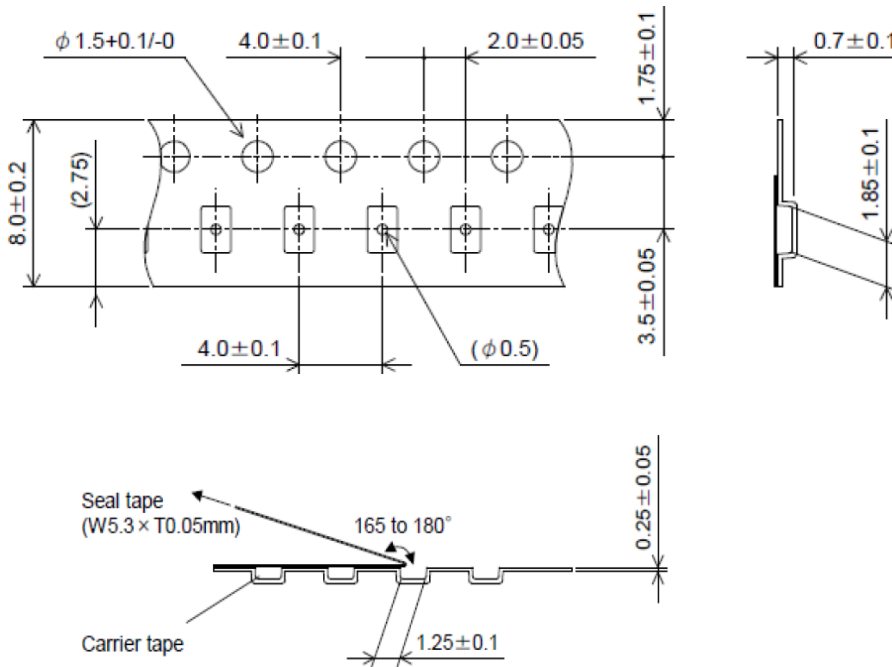
<b>Profile Feature</b>		Pb-Free Assembly
<b>Average Ramp-up Rate (Ts Max to Tp)</b>		3°C/second Max
<b>Preheat</b>	<b>Temperature Min (Ts Min.)</b>	150°C
	<b>Temperature Max (Ts Max.)</b>	200°C
	<b>Time (ts Min. to ts Max.)</b>	60 ~ 120 seconds
<b>Time maintained above</b>	<b>Temperature (Tl)</b>	217°C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



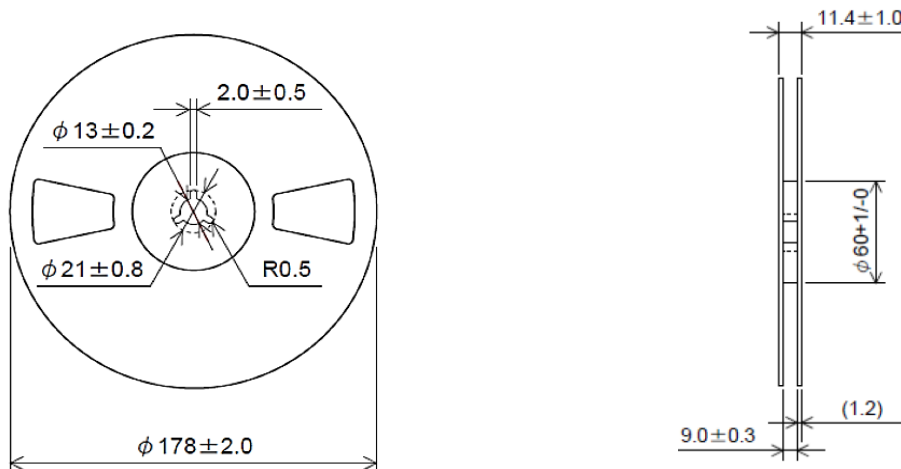
**KHZ SMD CRYSTALS CCMV SERIES 1610 TYPE**

**TAPE (Unit: mm)**

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



**REEL 5000pcs/Reel (Unit: mm)**



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