




<b>SPECIFICATION SHEET NO.</b>	R1015- CP2M000000S047	
<b>ORIGINAL MFG/PART NO</b>	TGS Crystals/C RTP 2.0MG-47TLH/ZTTCP2.0MG-47	
<b>DATE</b>	Oct. 15, 2024	
<b>REVISION</b>	A1	Updated With Most Recent Data
<b>DESCRIPTION AND MAIN PARAMETRICS</b>	MHz SMD Ceramic Resonator, 3 Pads, CP Series Case 6030, Dimension L6.0*W3.0*H1.5mm 2.00MHz, Frequency Accuracy $\pm 0.5\%$ ; Built-in Capacitance 47pF Operating Temp. Range -25°C ~+85°C Reflow Profile Condition 260 °C Max. Package in Tape/Reel, 4000pcs/Reel REACH/RoHS/RoHS III Compliant, RoHS Annex III lead Exemption (Exempt per RoHS EU 2015/863)	
<b>CUSTOMER</b>		
<b>CUSTOMER PART NUMBER</b>		
<b>CROSS REF. PART NUMBER</b>		
<b>MEMO</b>		

<b>VENDOR APPROVE</b>			
Issued/Checked/Approved			
Date: Oct. 15, 2024			

<b>CUSTOMER APPROVE</b>
Date:

## MAIN FEATURE

- MHz SMD Ceramic Resonator, 3 pads, Case 6030,
- Case Dimension L6.0\*W3.0\*H1.5mm
- Low Cost And Short Shipment
- Built-in Capacitance
- Reflow Profile Condition 260 °C Max.
- REACH/RoHS/RoHS III compliant, RoHS Annex III lead Exemption  
(Exempt per RoHS EU 2015/863)



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



## APPLICATION

- Communication Electronics and More
- Bluetooth, Wireless Communication Set

## 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](#)

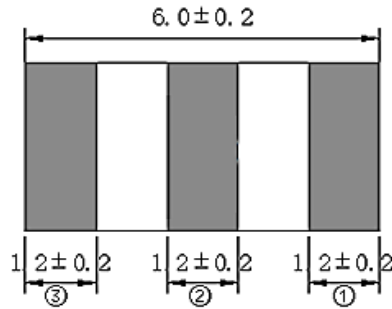
CODE	NAME	KEY SPECIFICATION OPTION
CP	Product Series	MHz SMD Ceramic Resonator, 3 pads, Case 6030 Dimension L6.0*W3.0*H1.5mm
2M0	Frequency Range	2M0: 2.000MHz
00000	Internal Control	Letter or Digits (A~Z, a~z or 1~9)
S	SMD Type Package	Tape/Reel
047	Special Parametric	Letter or Digits (A~Z, a~z or 1~9)
- XX	Suffix	Blank: N/A XX: Internal Control Code, Letter A~Z, a~z or digits (0~9) for Special/Custom Parameters

**DIMENSION** (Unit: mm)

**Case 6030**, 3 Pads

L6.0\*W3.0\*H1.5mm

Top View

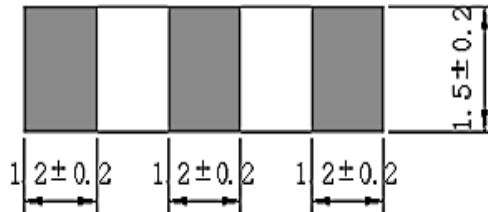

**Marking**

Frequency Range + QC Code

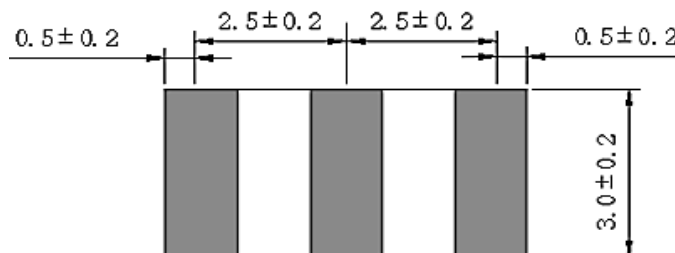
**Connection**

- ① Input
- ② Ground
- ③ Output

Side View

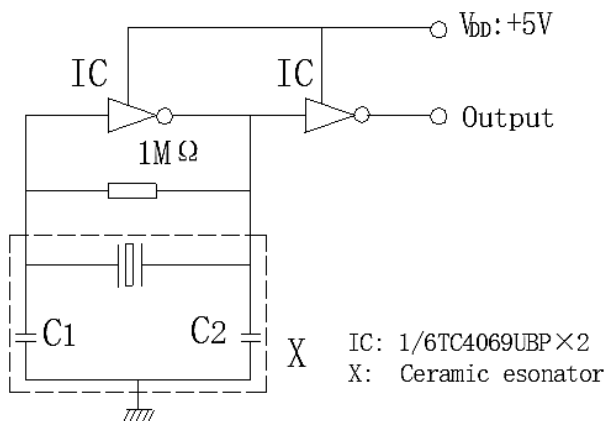


Bottom View



## MEASUREMENT

- Parts shall be tested under the condition ( Temp.:  $20 \pm 15^{\circ}\text{C}$ , Humidity  $65 \pm 20\%$  R.H.) unless the standard condition (Temp.:  $25 \pm 3^{\circ}\text{C}$ , Humidity :  $65 \pm 10\%$  R.H.) is regulated to measure.
- Measuring Circuit



## GENERAL ELECTRICAL SPECIFICATIONS AND RATING

PARAMETER	SYMBOLS	VALUE	UNITS	CONDITION
Withstanding Voltage	-	100	V	@DC, 5s Max.
Insulation Resistance	R i	500 Min.	mΩ	@10V, 1min.
Operating Temperature Range	T J	-25 to +85	°C	
Storage Temperature Range	T STG	-55 to +85	°C	
Rating Voltage	U R	6	V DC	
		15	V p-p AC	
Temperature Coefficient of Oscillation Frequency		±0.3 Max.	%	Oscillation Frequency drift, -25°C ~ +85°C
Oscillation Frequency Aging Rate *		±0.1 Max.		From initial value

Note: \* : Components shall be left in a chamber of  $+85 \pm 2^{\circ}\text{C}$  for 1000 hours, then measured after leaving in natural condition for 1 hours. View

**ELECTRICAL CHARACTERISTICS - FOR DIFFERENT PART CODE**

PART CODE	Center Frequency (F0)	Frequency Accuracy	Resonant Impedance Ro	Built-in Capacitance C1, C2
	MHz	%	Ω	pF
CP2M000000S015	2.00	±0.5	100	15 (1±20%)
CP2M000000S030	2.00	±0.5	100	30 (1±20%)
CP2M000000S047	2.00	±0.5	100	47 (1±20%)
CP2M450000S030	2.45	±0.5	100	30 (1±20%)
CP2M500000S030	2.50	±0.5	100	30 (1±20%)
CP2M500000S047	2.50	±0.5	100	47 (1±20%)
CP3M000000S030	3.00	±0.5	40	30 (1±20%)
CP3M580000S015	3.58	±0.5	40	15 (1±20%)
CP3M580000S030	3.58	±0.5	40	30 (1±20%)
CP3M580000S033	3.58	±0.5	40	33 (1±20%)
CP3M580000S047	3.58	±0.5	40	47 (1±20%)
CP3M680000S030	3.68	±0.5	30	30 (1±20%)
CP3M680000S033	3.68	±0.5	30	33 (1±20%)
CP4M000000S010	4.00	±0.5	40	10 (1±20%)
CP4M000000S015	4.00	±0.5	40	15 (1±20%)
CP4M000000S030	4.00	±0.5	40	30 (1±20%)
CP4M000000S033	4.00	±0.5	40	33 (1±20%)
CP4M190000S030	4.19	±0.5	30	30 (1±20%)
CP4M910000S015	4.91	±0.5	25	15 (1±20%)
CP4M910000S030	4.91	±0.5	30	30 (1±20%)

## ELECTRICAL CHARACTERISTICS - FOR DIFFERENT PART CODE

[illegible]

**PHYSICAL AND ENVIRONMENTAL CHARACTERISTICS**

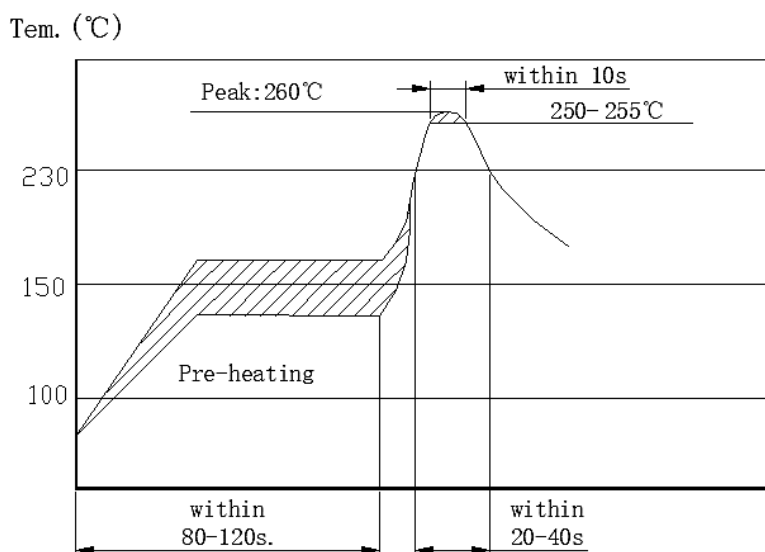
TEST ITEMS	TEST METHOD AND CONDITIONS	REQUIREMENT
Humidity	Keep the resonator at $60^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and 90%-95% RH for 240h. Then Release the resonator into the room Condition for 1h prior to the Measurement.	It shall fulfill Table 1
High Temperature	Subject the resonator to $85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 240h, then release the resonator into the room conditions for 1h prior to the measurement.	It shall fulfill Table 1
Low Temperature	Subject the resonator to $-40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 240h, then release the resonator into the room conditions for 1h prior to the measurement.	It shall fulfill Table 1
Temperature Cycling	After temperature cycling of blow table was performed 5 times, discriminator shall be measured after being placed in natural conditions for 1h. Temp.: $-25 \pm 3^{\circ}\text{C}$ , Time: $30 \pm 3$ min ; Temp.: $85 \pm 3^{\circ}\text{C}$ , Time: $30 \pm 3$ min.	It shall fulfill Table 1
Vibration	Subject the resonator to vibration for 2h each in x、 y and z axis With the amplitude of 1.5mm, the frequency shall be varied uniformly between the limits of 10 Hz—55Hz.	It shall fulfill Table 1
Mechanical Shock	Drop the resonator randomly onto a wooden floor from the height of 100cm 3 times.	No visible damage and it shall fulfill Table 1.
Soldering Test	Components shall be measured after applying twice of the re-flow soldering with following temperature profile and leaving in natural condition for 1 hour.	It shall fulfill Table 1
Solderability	Dipped in $245^{\circ}\text{C} \pm 5^{\circ}\text{C}$ solder bath for $3\text{s} \pm 0.5\text{s}$ with rosin flux (25wt% ethanol solution.). see <i>Suggested Reflow Profile</i>	The terminals shall be at least 95% covered by solder.
Board Bending	Mount on a glass-epoxy board(width =40mm, thickness=1.6mm),then bend it to 1mm displacement(velocity= 1mm/s) and keep it for 5s.	Mechanical damage such as break shall not occur

Table 1

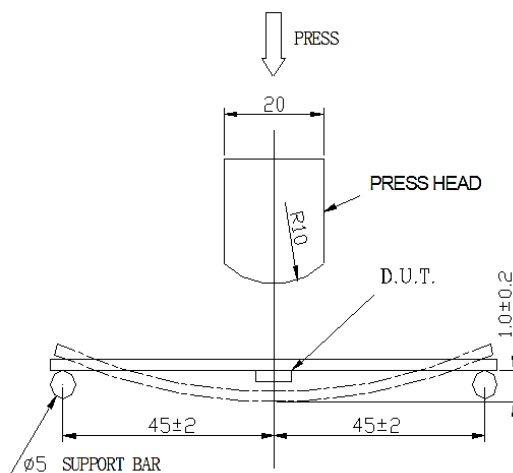
TEST ITEMS	CHARACTERISTICS AFTER TEST	
	VALUE	UNITS
Oscillation Frequency Change $\Delta F_{osc}/F_{osc}$	$\pm 0.3$ Max	%
Resonant Impedance $\Delta R_o$	100 Max.	$\Omega$

Note: The limits in the above table are referenced to the initial measurements.

## Soldering Test

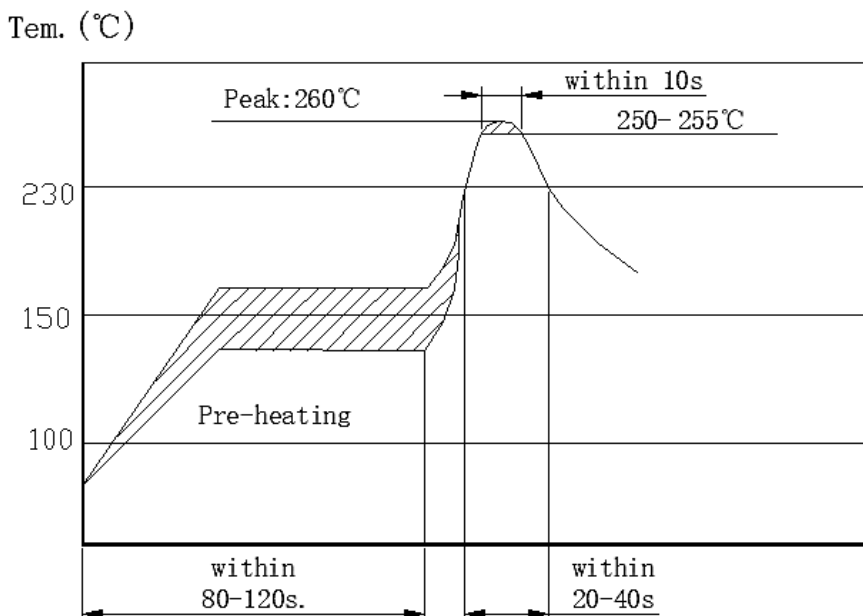


## Board Bending

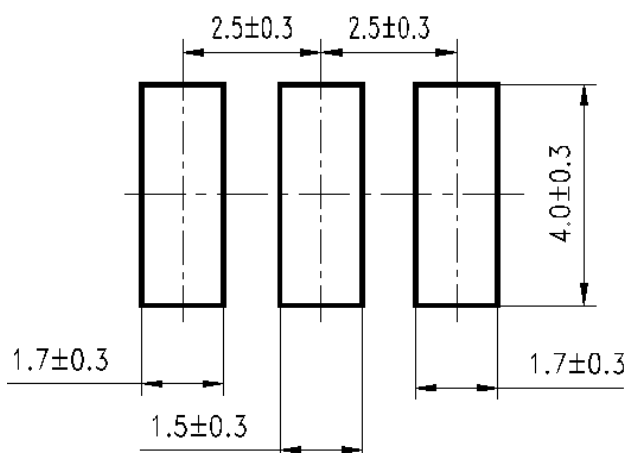




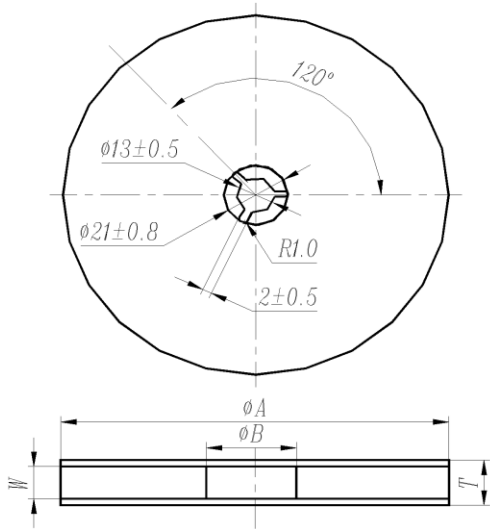
**SUGGESTED REFLOW PROFILE** (For Reference Only)



**RECOMMENDED LAND PATTERN**

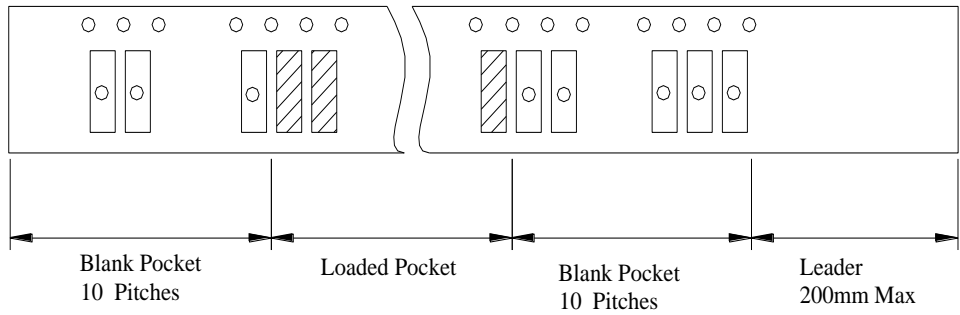


**TPAE/REEL DIMENSIONS** (Unit: mm)

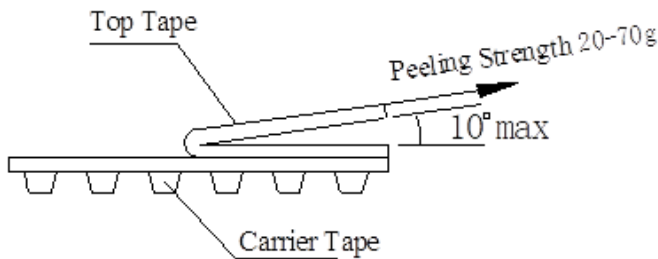


CODE	DIMENSION
φA	330±3.0
φB	80 Min.
W	16.4 Min.
T	22.4 Max.
Qty. Per Reel	4000pcs
Carrier Tape Size	16

**PACKING METHOD SKETCH MAP**



**TEST CONDITION OF PEELING STRENGTH**



## CAUTION

- Don't apply excess mechanical stress to the component and terminals at soldering. Do not use this product with bend.
- Do not clean or wash the component for it is not hermetically sealed.
- Do not use strong acidity flux, more than 0.2wt% chlorine content, in flow soldering.
- Don't be close to fire.
- This specification mentions the quality of the component as a single unit. Please insure the component is thoroughly evaluated in your application circuit
- Expire date (Shelf life) of the products is 12 months after delivery under the conditions of a sealed and an unopened package. Please use the products within 12 months after delivery. If you store the products for a long time (more than 12 months), use carefully because the products may be degraded in the solder-ability or rusty. Please confirm solder-ability and characteristics for the products regularly.
- Exposure components under soldering condition that is exceeding our recommendation will increase the failure dangerous.
- Please contact us before using the product as automobile electronic component.
- Please return one of these specifications after your signature of acceptance.
- When something gets doubtful with this specifications, we shall jointly work to get an agreement.
- For questions on technology, prices and delivery, please contact our sales offices or e-mail:  
[sales@NextGenComponent.com](mailto:sales@NextGenComponent.com) .

## **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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7. *NextGen* products are not authorized for use as critical components in life support devices or systems without express written approval by *NextGen*.
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.