CHEQUERS ELECTRONIC (CHINA) LIMITED

捷 嘉 電 子 (中 國) 有 限 公 司

SURFACE-MOUNT (SMD)
CERAMIC RESONATOR SPECIFICATION

PART NO.: ZTTCP4.00MG
<This Product is RoHS and REACH Compliant>

Part no.	:	ZTTCP4.00MG
Printed on	:	26-Jan-17
Prepared	:	FRANKIE
Ver. Ctrl.	:	012517/F
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1. Scope

This specification shall cover the characteristics of ceramic resonator ZTTCP4.00MG.

2. Specification no.: CQ2.882.12107-50-2013

3. Part no.: ZTTCP4.00MG

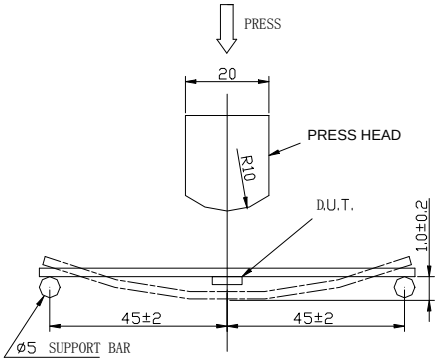
4. RoHS condition: RoHS Compliant

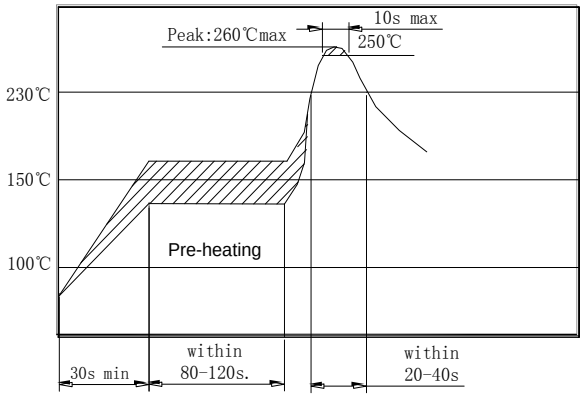
5. Electrical specification

5-1	Nominal oscillating frequency	4.000MHz
5-2	Initial tolerance	±0.50% Max.
5-3	Resonant resistance	40Ω Max.
5-4	Insulation resistance	5 x 10^8Ω Min. (at 10V DC, 1 min.)
5-5	Withstanding voltage	DC 100V Max. (5 second)
5-6	Rating voltage - DC voltage - AC voltage	 6V DC 15V p-p
5-7	Temperature stability (-25°C to +85°C) Operating temperature Storage temperature	±0.3% Max. (from initial value) -25°C to +85°C -55°C to +90°C
5-8	Oscillation Frequency Aging Rate[1]	±0.1% Max. (from initial value)

*1 Components shall be left in a chamber of +85°C±2°C for 1000 hours, then measured after leaving in natural condition for 1 hours.

6. Physical characteristics

	Test item	Condition of test	Performance requirement
6-1	Random drop	Resonator shall be measured after 3 random drops from the height of 1.0m on wooden floor.	No visible damage and the measured values shall meet Table 1.
6-2	Vibration	Resonator shall be measured after being applied with vibration (amplitude: 1.5mm, frequency: 10Hz to 55Hz) to each of the 3 perpendicular directions i.e. X, Y and Z for 2 hours.	The measured values shall meet Table 1.
6-3	PCB bending strength	With a glass-epoxy board (width=40mm, thickness=1.6mm. Then the board is bent to 1.0mm displacement and kept in this condition for 5 seconds (see below for details). 	No visible damage and the measured values shall meet Table 1.

	Test item	Condition of test	Performance requirement
6-4	Soldering heat resistance	**<u>Temperature profile of reflow soldering</u>** The resonator shall be measured after being placed in room temperature for 1 hour.  	The measured values shall meet Table 1.
6-5	Soldering test	Passed through the reflow oven under the following condition and left at room temperature for 1 hour before measurement.	
		Surface temperature of the substrate: Duration	
		Preheat: 150°C±5°C: 60secs ± 10secs	
		Peak: 260°C±5°C: 10secs ± 3secs	
6-6	Solderability	Dipped in 245°C±5°C solder bath for 3secs ± 0.5secs with rosin flux (25wt% ethanol solution).	Terminals should be at least 95% covered by solder.

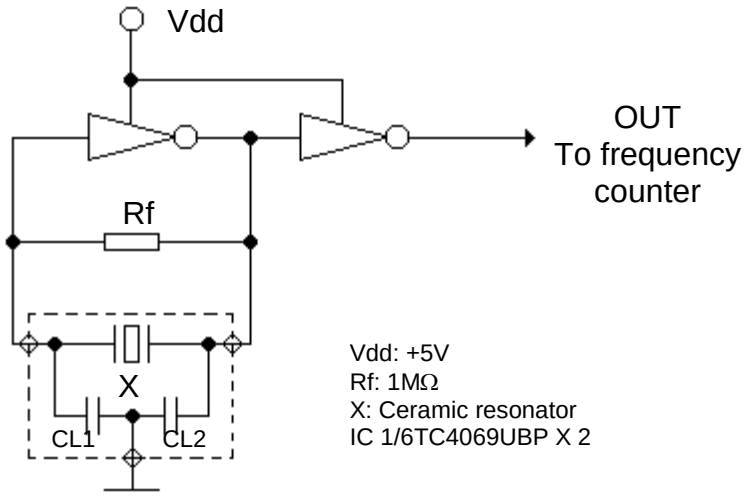
7. Environmental characteristics

	Test item	Condition of test	Performance requirement
7-1	High temperature	After being placed in a chamber (+85°C±2°C) for 96 hours, the resonator is measured after being placed in room temperature for 1 hour.	The measured values shall meet Table 1.
7-2	Low temperature	After being placed in a chamber (-40°C±2°C) for 96 hours, the resonator is measured after being placed in room temperature for 1 hour.	The measured values shall meet Table 1.
7-3	Humidity	After being placed in a chamber with a humidity of 90% to 95% RH and a temperature of +60°C±2°C for 96 hours, the resonator is measured after being placed in room temperature for 1 hour.	The measured values shall meet Table 1.
7-4	Heat shock	After being kept at room temperature, resonator shall be placed at a temperature of -25°C±2°C. After 30 minutes at this temperature, the resonator is placed at a temperature of 85°C±2°C. After another 30 minutes at this temperature, the resonator is placed under -20°C±2°C again.The above processes are counted as 1 cycle. There is a transfer time of 15 seconds between different temperatures. After 5 cycles, the resonator shall be measured after being placed in room temperature for 1 hour.	The measured values shall meet Table 1.

Table 1

Measurements	Requirements
Oscillating frequency change	$\Delta F/Fosc \leq 0.2\%$ Max.
Resonant resistance	45Ω max.

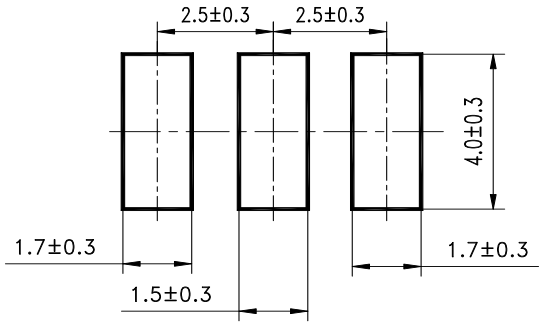
8. Test circuit



Vdd: +5V
Rf: 1MΩ
X: Ceramic resonator
IC 1/6TC4069UBP X 2

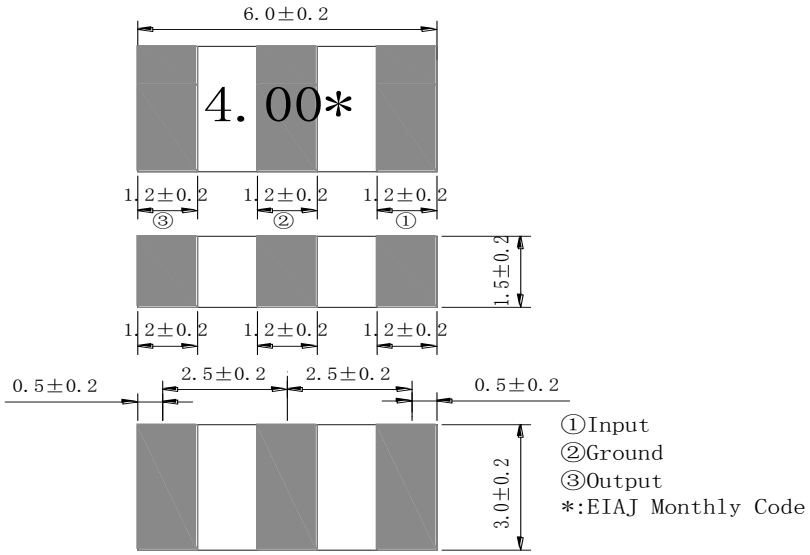
9. Dimensions and recommended soldering pattern

9-1 Recommended soldering pattern



Unit: mm

9-2 Dimensions



Unit: mm

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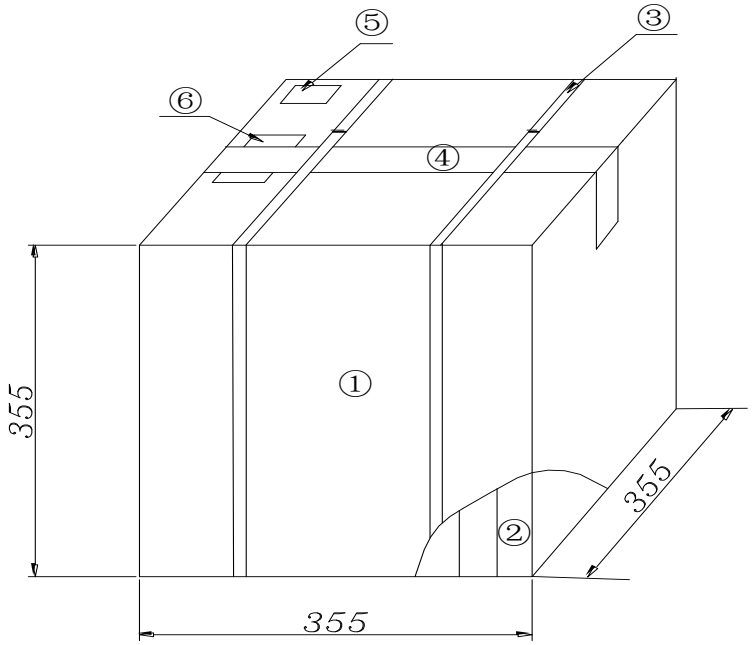
10. Packing information

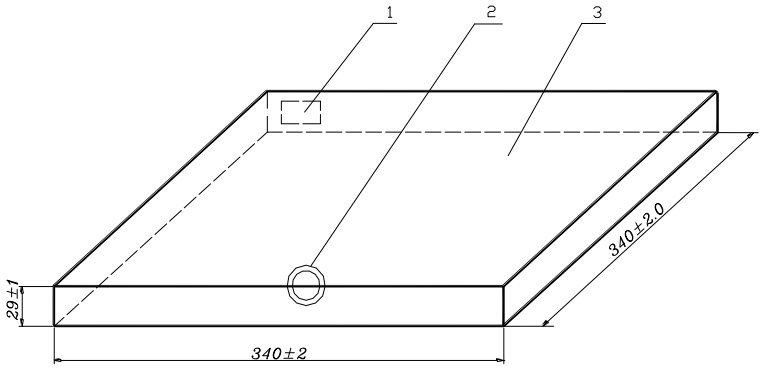
10-1 Outer carton box



Unit: mm

No.	Description	Quantity
1	Package	1
2	Inner Box	12
3	Label	1
4	Cargo belt	2.9mm
5	Adhesive tape	1.2m
6	Certificate of approval	1
7	Company info. etc.	-

10-2 Inner box



Each inner box contains 1 reel that can hold 4000 pieces.

No.	Description
1	Product information label
2	QC label
3	Inner box

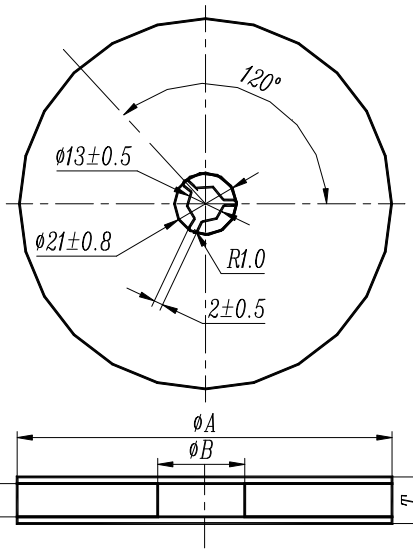
10-3 Dimension of tape and reel

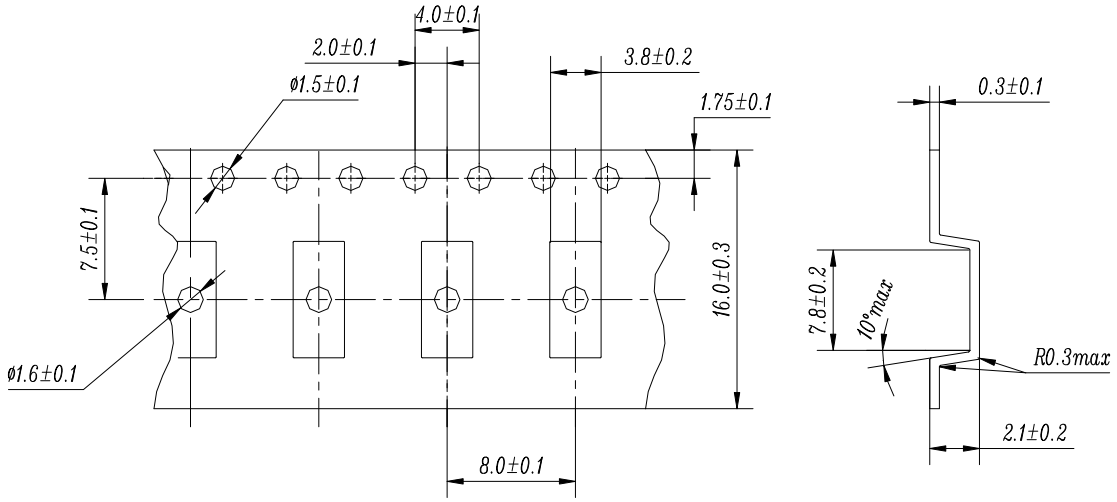
Unit: mm

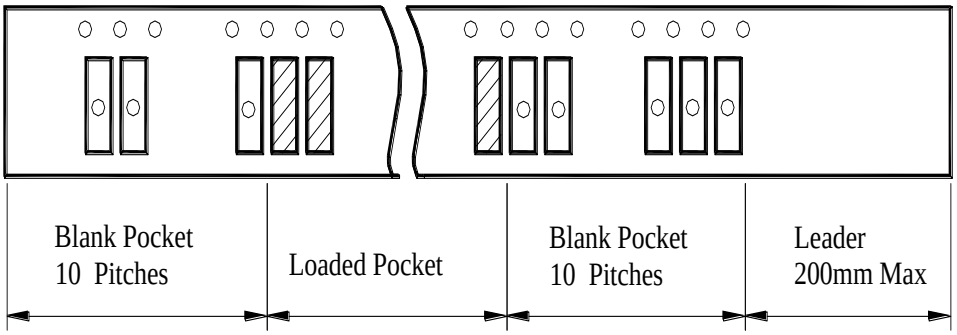
Item	Dimension	Remark
∅A	330±3	-
∅B	80 min.	-
W	16.4 min.	-
T	22.4 max.	-

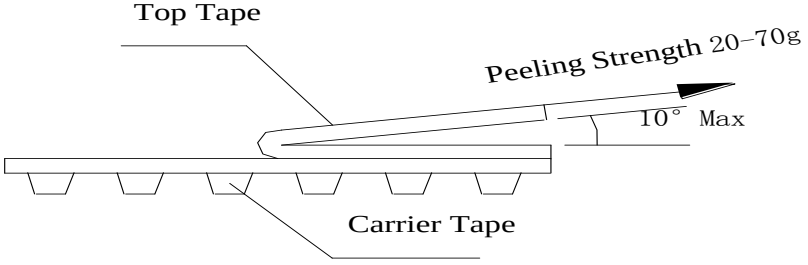
Unit: mm

Quantity per reel	4000pcs
Size of carrier tape	16









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11. Note

11-1 Please contact our sales representatives or engineers before using the products specified in this specification sheet for the following equipment, which require high reliability, and if such equipment fails, which might damage to a third party's life, body or property.

(i) Aerospace equipment
(ii) Medical equipment
(iii) Power plant equipment
(iv) Transportation equipment
(v) Traffic control equipment
(vi) Disaster control / prevention equipment
(vii) Undersea navigational equipment
(viii) Data-processing equipment
(ix) or equipment that requires similar complexity and / or reliability of above equipment

11-2 Product specifications in this specification sheet are as of the date that is printed on. They are subject to change or discontinue without prior notice. Please check with our sales representative or engineers for details.

11-3 When using our products, please do not exceed the requirements and conditions specified in this specification sheet.

11-4 Should there be any doubt when using our products, please consult our sales representative or engineers before using our products.