



CHEQUERS ELECTRONIC (CHINA) LIMITED
捷嘉電子(中國)有限公司

**SURFACE-MOUNT (SMD)
QUARTZ CRYSTAL UNIT SPECIFICATION**

PART NO.: TA6CS12.000MCLAL0-R0

<<This Product is RoHS and REACH Compliant>>

Part no.	: TA6CS12.000MCLAL0-R0
Printed on	: 30-Jul-14
Prepared	: Frankie
Ver. Ctrl.	: 073014/F
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1. Scope

This specification shall cover the characteristics of ceramic resonator TA6CS12.000MCLAL0-R0.

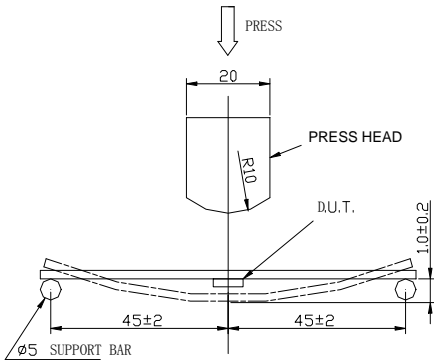
2. Specification no.: QJ-19013-52-2012

3. Part no.: TA6CS12.000MCLAL0-R0

4. Electrical specification

4-1	Nominal oscillating frequency	12.0000MHz
4-2	Frequency tolerance	±30ppm(at 25°C)
4-3	Oscillation Mode	Fundamental
4-4	Shunt Capacitance(C_0)	7pF max.
4-5	Load Capacitance (C_L)	20pF
4-6	Equivalent Series Resistance	60 Ω max.
4-7	Insulation resistance	5 x 10 ⁸ Ω Min. (at 100V DC)
4-8	Temperature stability (-20°C to +70°C) Operating temperature Storage temperature	±30ppm -20°C to +70°C -40°C to +85°C
4-9	Aging (at 25°C)	±5ppm max. per year

5. Physical characteristics

	Test item	Condition of test	Performance requirement
5-1	Random drop	The quartz crystal shall be measured after 2 random drops from the height of 0.75m on wooden floor.	No visible damage and the measured values shall meet Table 1.
5-2	Vibration	The quartz crystal shall be measured after being applied with vibration (amplitude: 0.75mm, frequency: 10Hz to 55Hz) to each of the 3 perpendicular directions i.e. X, Y and Z for 30 minutes.	The measured values shall meet Table 1.
5-3	PCB bending strength	<p>Mount quartz crystal on a glass-epoxy board (100x50x1.6mm). Then the board is bent to 1.0mm displacement and kept in this condition for 5 seconds (see below for details).</p> 	No visible damage and the measured values shall meet Table 1.

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	Test item	Condition of test	Performance requirement						
5-4	Soldering heat resistance	<p>Temperature profile of reflow soldering The quartz crystal shall be measured after being placed in room temperature for 1 hour.</p>	The measured values shall meet Table 1.						
5-5	Soldering test	<p>Passed through the reflow oven under the following condition and left at room temperature for 1 hour before measurement.</p> <table border="1"> <thead> <tr> <th>Surface temperature of the substrate</th> <th>Duration</th> </tr> </thead> <tbody> <tr> <td>Preheat: 150°C±5°C</td> <td>60secs ± 10secs</td> </tr> <tr> <td>Peak: 260°C±5°C</td> <td>5secs ± 3secs</td> </tr> </tbody> </table>		Surface temperature of the substrate	Duration	Preheat: 150°C±5°C	60secs ± 10secs	Peak: 260°C±5°C	5secs ± 3secs
Surface temperature of the substrate	Duration								
Preheat: 150°C±5°C	60secs ± 10secs								
Peak: 260°C±5°C	5secs ± 3secs								
5-6	Solderability	Dipped in 235°C±5°C solder bath for 3secs ± 0.5secs with rosin flux (25wt% ethanol solution).	Terminals should be at least 95% covered by solder.						

6. Environmental characteristics

	Test item	Condition of test	Performance requirement
6-1	High temperature storage	After being placed in a chamber (+85°C±2°C) for 500 hours, the quartz crystal unit is measured after being placed in room temperature for 1 hour.	The measured values shall meet Table 1.
6-2	Low temperature storage	After being placed in a chamber (-40°C±2°C) for 500 hours, the quartz crystal unit is measured after being placed in room temperature for 1 hour.	The measured values shall meet Table 1.
6-3	Humidity	After being placed in a chamber with a humidity of 90% to 95% RH and a temperature of +40°C±2°C for 500 hours, the quartz crystal is measured after being placed in room temperature for 1 hour.	The measured values shall meet Table 1.
6-4	Heat shock	After being kept at room temperature, the quartz crystal shall be placed at a temperature of -25°C. After 30 minutes at this temperature, the quartz crystal unit is placed at a temperature of 85°C. After another 30 minutes at this temperature, the quartz crystal is placed under -20°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 quartz crystal shall be measured after being placed in room temperature for 1 hour.	The measured values shall meet Table 1.

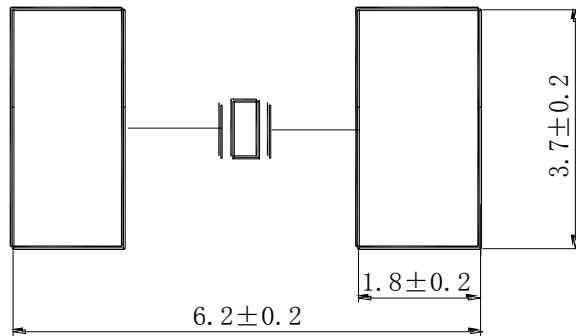
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Table 1

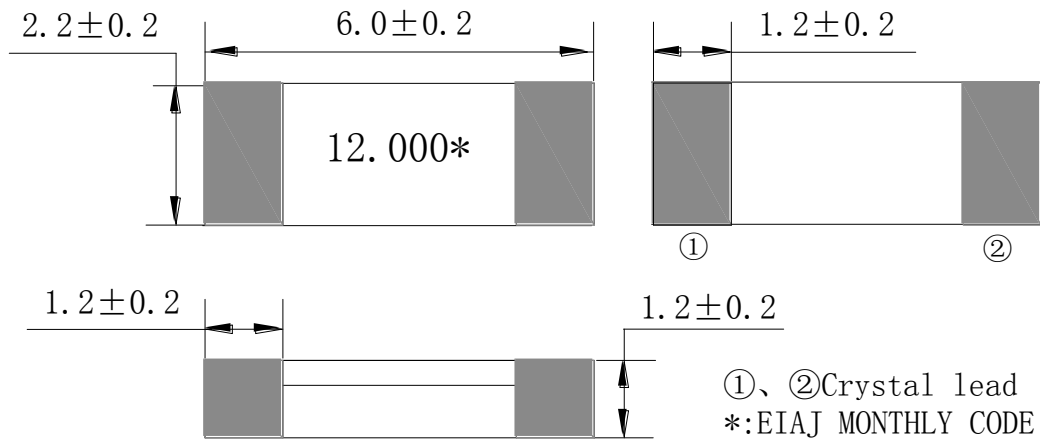
Measurements	Requirements
Frequency tolerance at 25°C	±30ppm
Equivalent Series Resistance	60Ω max.

7. Dimensions and recommended soldering pattern

7-1 Recommended soldering pattern (Unit: mm)



7-2 Dimensions (Unit: mm)



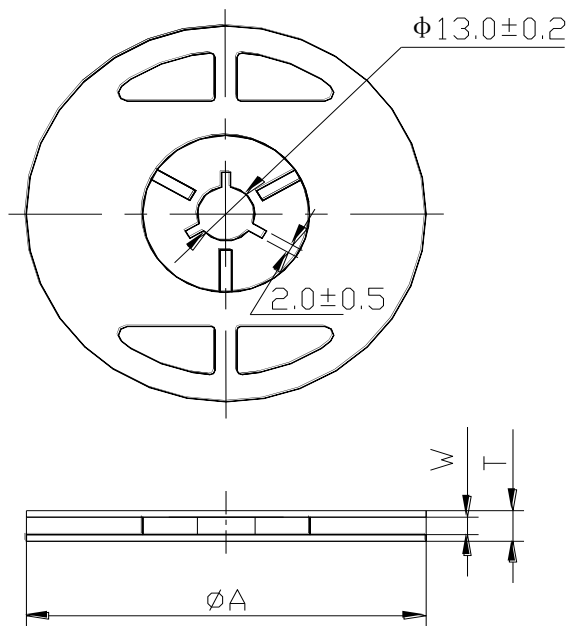
EIAJ Monthly Code

2011/2013/2015/2017		2010/2012/2014/2016	
MONTH	CODE	MONTH	CODE
JAN	A	JAN	N
FEB	B	FEB	P
MAR	C	MAR	Q
APR	D	APR	R
MAY	E	MAY	S
JUN	F	JUN	T
JUL	G	JUL	U
AUG	H	AUG	V
SEP	J	SEP	W
OCT	K	OCT	X
NOV	L	NOV	Y
DEC	M	DEC	Z

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8. Packing information

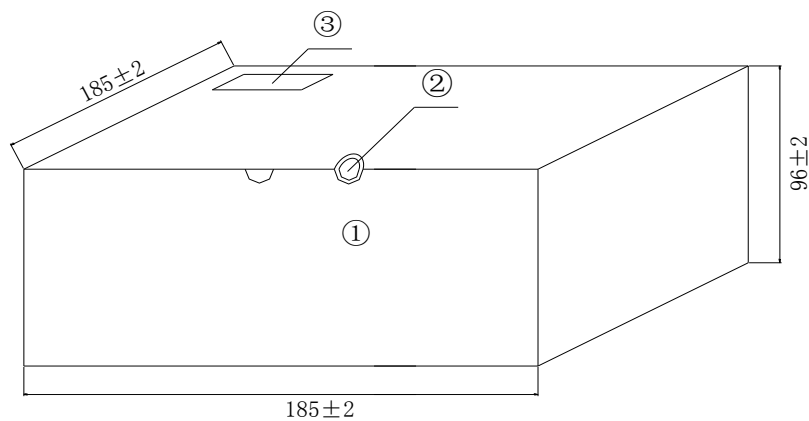
8-1 Reel Dimensions (Unit: mm)



Dimensions (Unit: mm)

ϕA	W	T	Pieces per reel	Carrier tape size
180 \pm 3	16.4min	22.4max	1000typ.	16

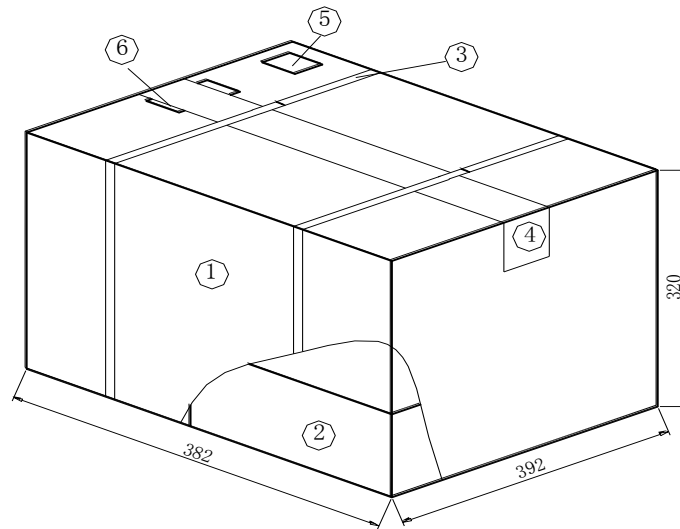
8-2 Inner box Dimensions (Unit: mm)



No.	Name	Quantity
1	Inner Box	1
2	QC Label	1
3	Label	1

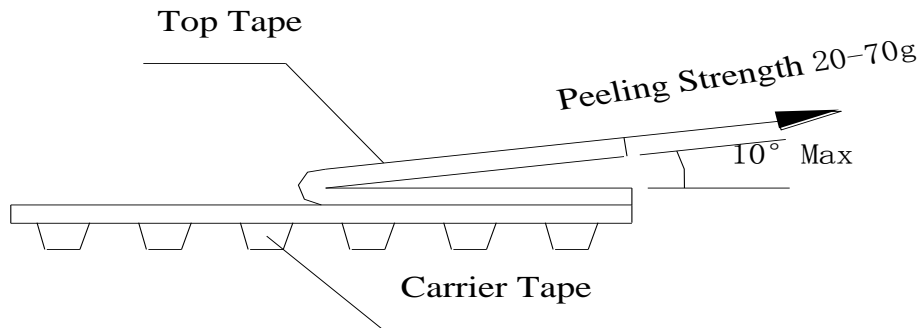
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8-3 Tape Dimensions (Unit: mm)

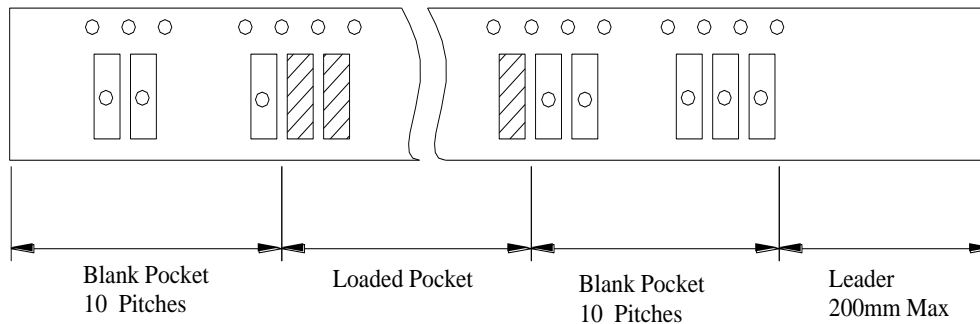


No.	Name	Quantity
1	Package	1
2	Inner box	12 boxes
3	Belt	2.90mm
4	Adhesive tape	1.2m
5	Label	1
6	Certificate of approval	1

8-4 Peeling Strength



8-5 Packing Method Sketch Map



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