1 SCOPE

This specification shall cover the characteristics of the ceramic fliter with the type LTCS10.7MA5. The LTCS10.7MA5 filters are small, high performance and very thin (1.4mm) chip devices consisting of 2 ceramic elements for communication equipment. They are designed on MgTiO3 ceramic cap package.

2 PART NO.

PART NUMBER	CUSTOMER PART NO.	SPECIFICATION NO.
LTCS10.7MA5		

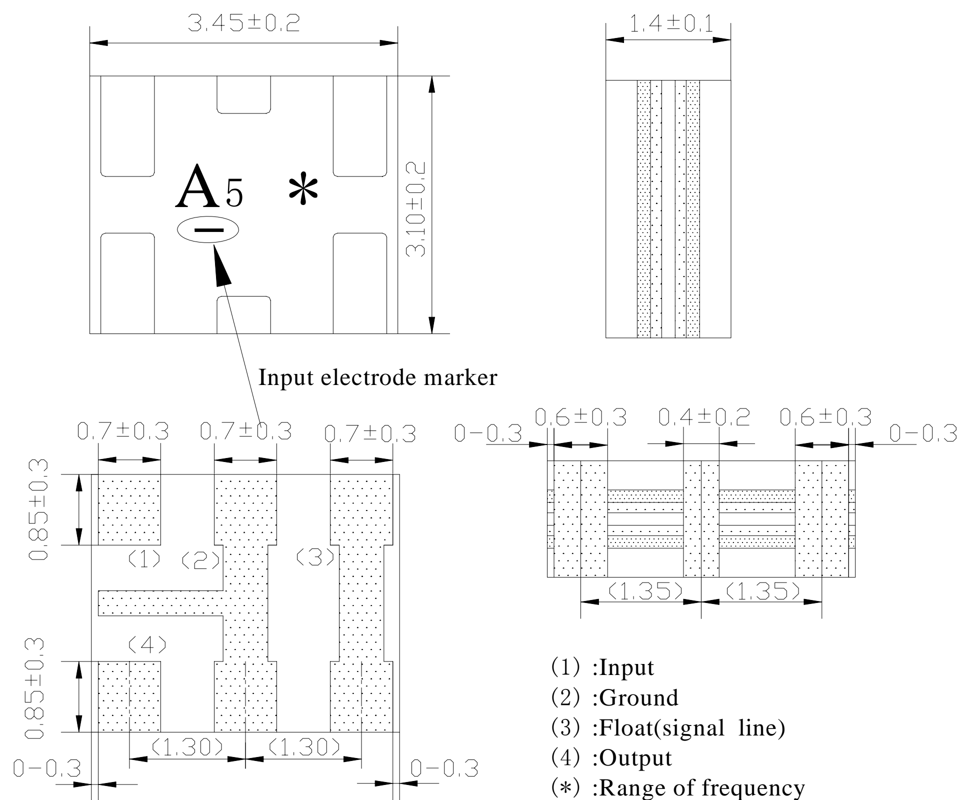
3 OUTLINE DRAWING AND STRUCTURE

3.1 Appearance

No visible damage and dirt.

3.2 Except the chip(ceramic element, ceramic base, capacitance slice), the materials don’t contain lead.

3.3 Dimensions



4 ELECTRICAL SPECIFICATIONS

4.1 RATING

Items	Content
Withstanding Voltage (V)	50 (DC，1min)
Insulation Resistance Ri,（MΩ）min.	100 （100V，1min）
Operating Temperature Range (℃)	-20～+80
Storage Temperature Range (℃)	-40～+85

4.2 ELECTRICAL SPECIFICATIONS

Items	Content
Center Frequency(fo) (MHz)*	A:10.700±0.030 B:10.670±0.030 C:10.730±0.030 D:10.640±0.030 E:10.760±0.030
3dB Bandwidth(kHz)	280±50
20dB Bandwidth(kHz) max	590
Insertion Loss (dB) (at minimum loss point)	3.0±2.0
Ripple (dB) max (within 3dB Bandwidth)	1.0
Spurious Response (dB) min(9MHz-12MHz)	30
Input/Output Impedance(Ω)	330

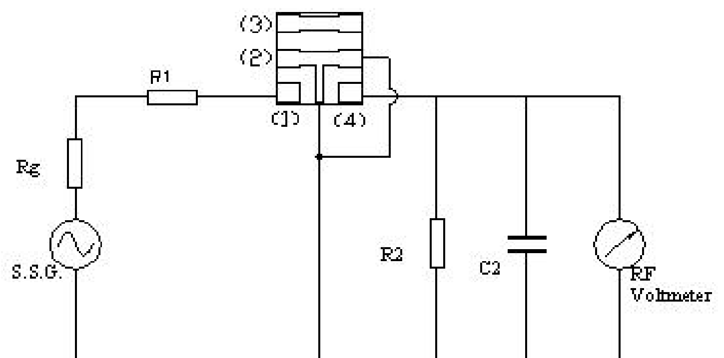
5 TEST

5.1 Test Conditions

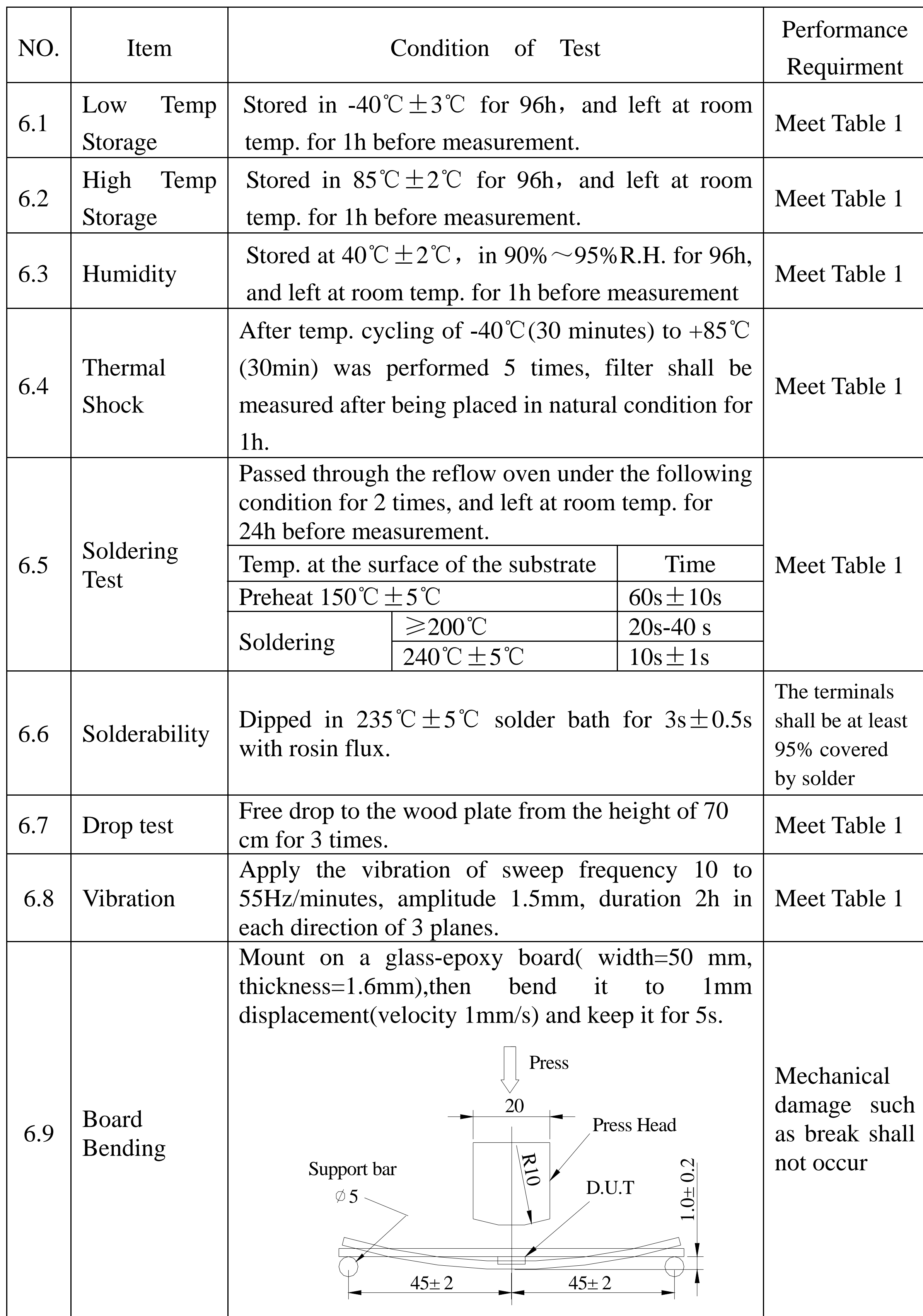
Parts shall be tested under a condition (Temperature:+20℃±15℃，Humidity:65%±20%R.H.)unless the standard condition(Temperature:+25℃±3℃,Humidity:65%±5% R.H.) is regulated to test.

5.2 Test Circuit

R1=280Ω(1±5%,) R2=330Ω(1±5%,) Rg=50Ω
C2=10pF(Including stray capacitance
and capacitance of RF Voltmeter)
S.S.G：Output Voltmeter
①:Input ②:Ground ③:Float ④:Output



6 PHYSICAL AND ENVIRONMENTAL CHARACTERISTICS



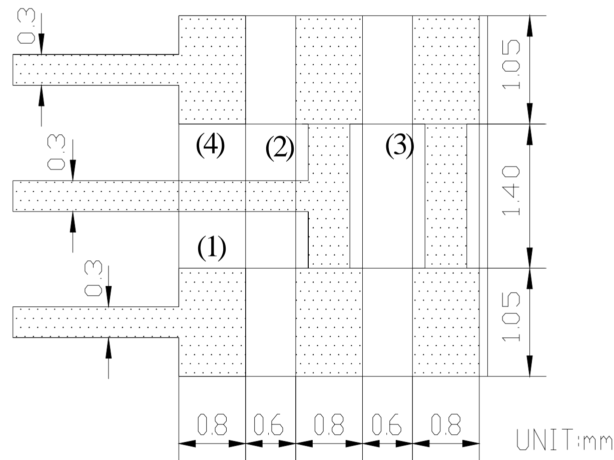
<table>
<tr><th>NO.</th><th>Item</th><th colspan="3">Condition of Test</th><th>Performance Requirment</th></tr>
<tr><td>6.1</td><td>Low Temp Storage</td><td colspan="3">Stored in -40℃±3℃ for 96h，and left at room temp. for 1h before measurement.</td><td>Meet Table 1</td></tr>
<tr><td>6.2</td><td>High Temp Storage</td><td colspan="3">Stored in 85℃±2℃ for 96h，and left at room temp. for 1h before measurement.</td><td>Meet Table 1</td></tr>
<tr><td>6.3</td><td>Humidity</td><td colspan="3">Stored at 40℃±2℃，in 90%～95%R.H. for 96h, and left at room temp. for 1h before measurement</td><td>Meet Table 1</td></tr>
<tr><td>6.4</td><td>Thermal Shock</td><td colspan="3">After temp. cycling of -40℃(30 minutes) to +85℃ (30min) was performed 5 times, filter shall be measured after being placed in natural condition for 1h.</td><td>Meet Table 1</td></tr>
<tr><td rowspan="5">6.5</td><td rowspan="5">Soldering Test</td><td colspan="3">Passed through the reflow oven under the following condition for 2 times, and left at room temp. for 24h before measurement.</td><td rowspan="5">Meet Table 1</td></tr>
<tr><td colspan="2">Temp. at the surface of the substrate</td><td>Time</td></tr>
<tr><td colspan="2">Preheat 150℃±5℃</td><td>60s±10s</td></tr>
<tr><td rowspan="2">Soldering</td><td>≥200℃</td><td>20s-40 s</td></tr>
<tr><td>240℃±5℃</td><td>10s±1s</td></tr>
<tr><td>6.6</td><td>Solderability</td><td colspan="3">Dipped in 235℃±5℃ solder bath for 3s±0.5s with rosin flux.</td><td>The terminals shall be at least 95% covered by solder</td></tr>
<tr><td>6.7</td><td>Drop test</td><td colspan="3">Free drop to the wood plate from the height of 70 cm for 3 times.</td><td>Meet Table 1</td></tr>
<tr><td>6.8</td><td>Vibration</td><td colspan="3">Apply the vibration of sweep frequency 10 to 55Hz/minutes, amplitude 1.5mm, duration 2h in each direction of 3 planes.</td><td>Meet Table 1</td></tr>
<tr><td>6.9</td><td>Board Bending</td><td colspan="3">Mount on a glass-epoxy board(width=50 mm, thickness=1.6mm),then bend it to 1mm displacement(velocity 1mm/s) and keep it for 5s.</td><td>Mechanical damage such as break shall not occur</td></tr>
</table>

Table 1

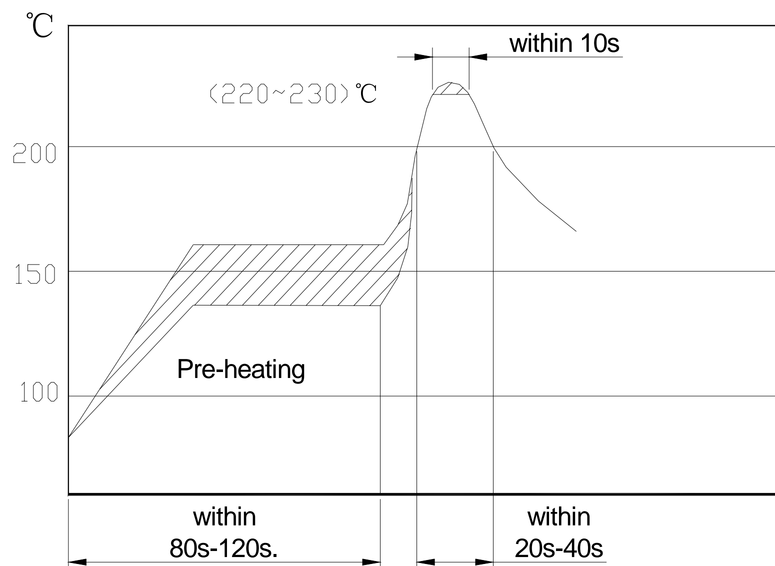
Item	Specification after test
Insertion Loss Drift (dB) max	±2
3dB Bandwidth Drift (kHz) max	±25
20dB Bandwidth Drift (kHz) max	±60
Note:The limits in the above table are referenced to the initial measurements.	

7 RECOMMENDED LAND PATTERN AND REFLOW SOLDERING STANDARD CONDITIONS

7.1 Recommended land pattern



7.2 Recommended reflow soldering standard conditions



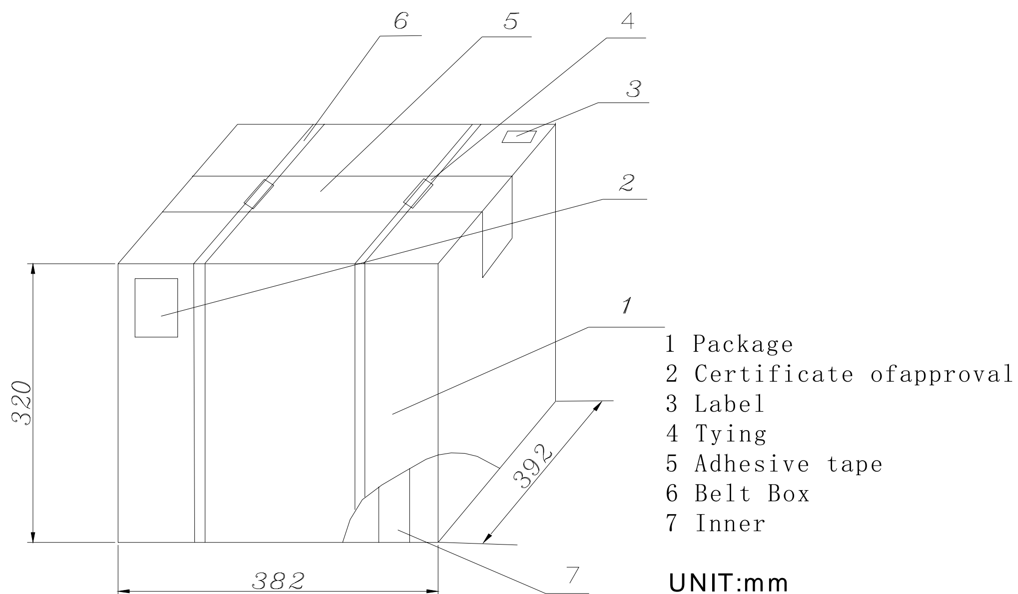
8 PACKAGE

To protect the products in storage and transportation, it is necessary to pack them (outer and inner package).On paper pack, the following requirements are requested.

8.1 Dimensions and Mark

At the end of package, the warning (moisture proof, upward put) should be stick to it.

Dimensions and Mark (see below)



8.2 Section of package

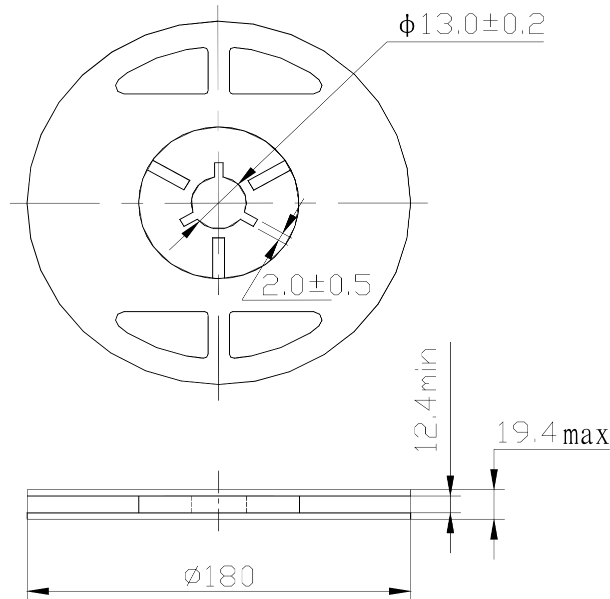
Package is made of corrugated paper with thickness of 0.8cm.Package has 10 inner boxes, each box has 1reel (each reel for plastic bag).

8.3 Quantity of package

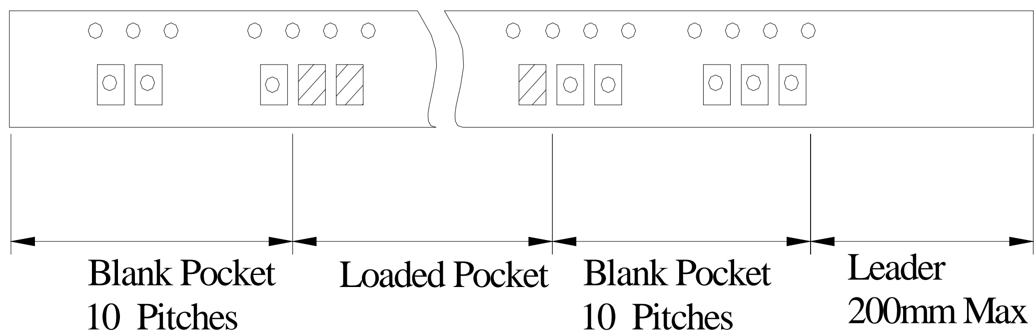
Per plastic reel	4000 pieces of piezoelectric ceramic part
Per inner box	1 reel
Per package	10 inner boxes

(40000 pieces of piezoelectric ceramic part)

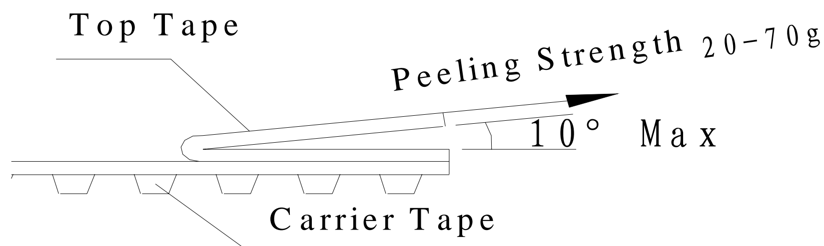
8.4 Reel



8.5 Packing Method Sketch Map



8.6 Test Condition Of Peeling Strength



9 EIAJ Monthly Code

2003 / 2005 / 2007 / 2009		2004 / 2006 / 2008 / 2010	
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

10 OTHER

10.1 Caution of use

10.1.1 Do not use this product with bend. Please don’t apply excess mechanical stress to the component and terminals at soldering.

10.1.2 The component may be damaged when an excess stress will be applied.

10.1.3 This specification mentions the quality of the component as a single unit. Please insure the component is thoroughly evaluated in your application circuit.

10.2 Notice

10.2.1 Please return one of this specification after your signature of acceptance.

10.2.2 When something gets doubtful with this specifications, we shall jointly work to get an agreement.