NIHON DEMPA KOGYO LTD

APPROVAL SHEET

Customer: ELTECH

Part Number: NX7050SA-7.3728MHZ

SPEC: S1-4085-3030-16

Holder: NX7050SA

Frequency: 7.3728MHZ

Manufacturer: NDK

Date: 2014/04/14

ROHS COMPLIANT

Prepared	Checked	Approved

(For Customer Use)

Acceptable	Non-Acceptable

1.This specification applies to quartz crystal unit with a frequency of 26MHZ.

2.Electrical characteristics:

	Item	Conditions	Specifications
2.1	Holder type		NX7050SA
2.2	Norminal frequency		7.3728MHZ
2.3	Order of vibration		Fundamental
2.4	Adjustment tolerance	Reference temperature shall be 25+/-2℃	+/-30ppm
2.5	Frequency tolerance over temperature Range		+/-30ppm
2.6	Operating temperature range		-40℃--+85℃
2.7	Storage temperature range		-40℃--+85℃
2.8	Resonance resistance		NA
2.9	Load capacitance		16pF
2.10	DLD	0.01-100uW/20 steps	NA
2.11	RLD	0.01-100uW/20 steps	NA
2.12	Shunt capacitance	C0	＜ 7pF
2.13	Motional capacitance	C1	NA
2.14	Pulling Sensitivity	S	NA
2.15	Drive level		100uW
2.16	Insulation resistance	DC/100V shall be applied for 1min ,then measurement shall be made between terminal and case.	>500M ohm
2.17	Aging/year		<+/-3ppm

3.Measurement Circuit:

3.1 Frequency measurement:

Measurement circuit: 250B(Saunders)

Load capacitance:16pF Drive level :100uW

3.2 Resistance measurement

Measurement circuit:250B(Saunders)

Load capacitance:Series Drive level :100uW

4. Construction

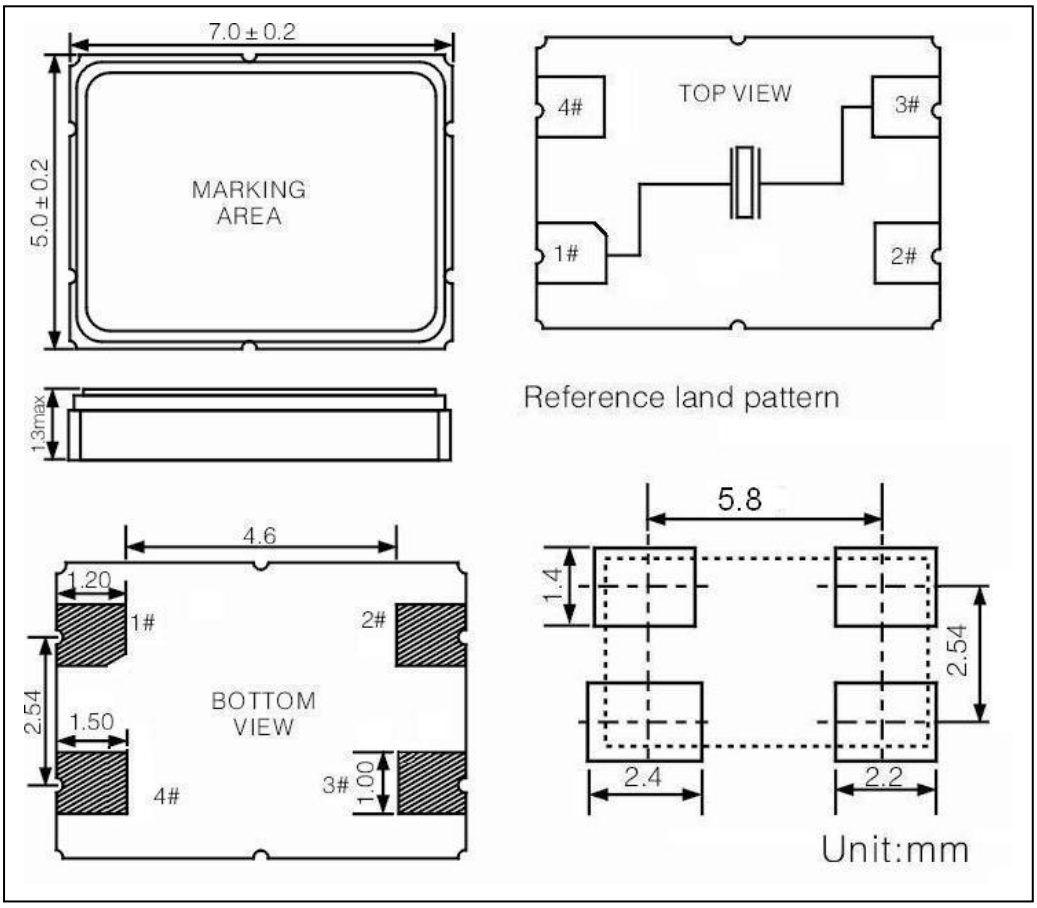
4.1 Crystal enclosure seal:

■ Seam seal □ resistance weld □cold weld

4.2 crystal enclosure medium

■ nitrogen □ vacuum □ dry air

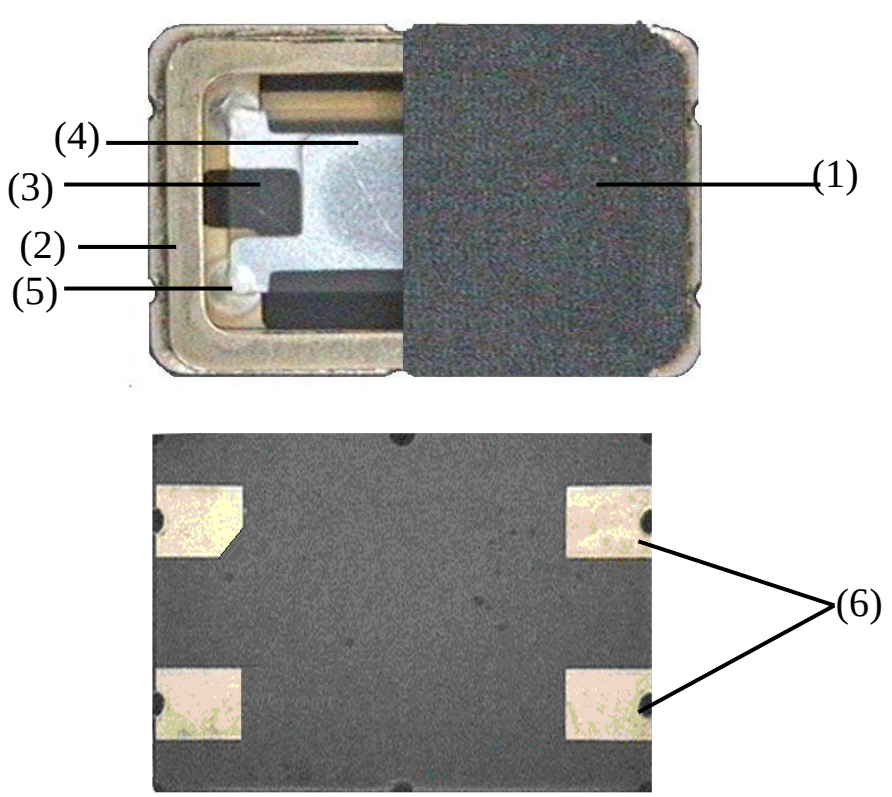
5.Dimension:



6. Marking

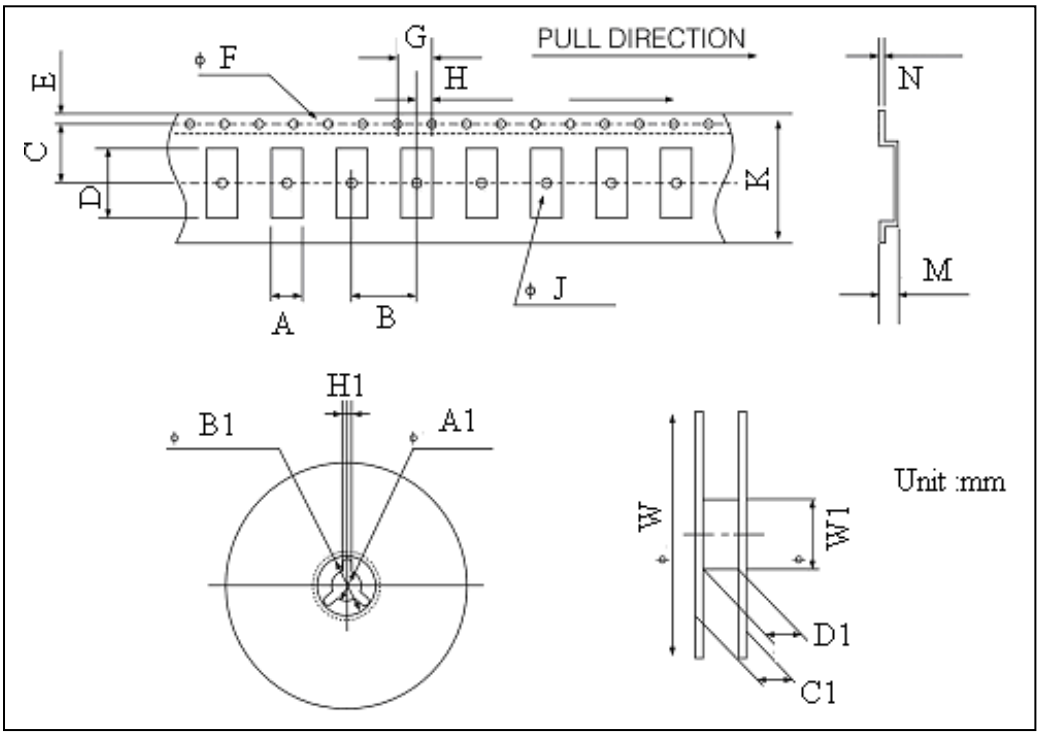
■ Laser Marking ☐ Ink Marking

7.Inside Structure



No.	Name	Material
(1)	Can	Fe-Co-Ni
(2)	Base	Ceramic
(3)	Blank	Quartz
(4)	Electrode	Ag
(5)	Epoxy	Silicon based
(6)	Soldering pads	Au plated

8.Taping Dimension

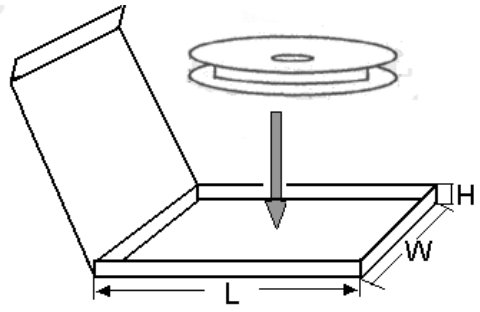


Symbol	Size	Symbol	Size	Symbol	Size
A	5.5±0.1	G	4.0±0.1	A1	13.0±0.2
B	8.0±0.1	H	2.0±0.1	B1	21.0±0.8
C	7.5±0.1	J	1.7±0.1	C1	16.2±0.1
D	7.5±0.1	K	16.0±0.3	D1	20.4±0.3
E	1.75±0.1	M	2.0±0.1	W	180±3
F	1. 5±0.1	N	0.2±0.1	W1	60±5

9.Packing Instruction

1. **1 reel/box** 1 reel=1000pcs

1.1 box dimension

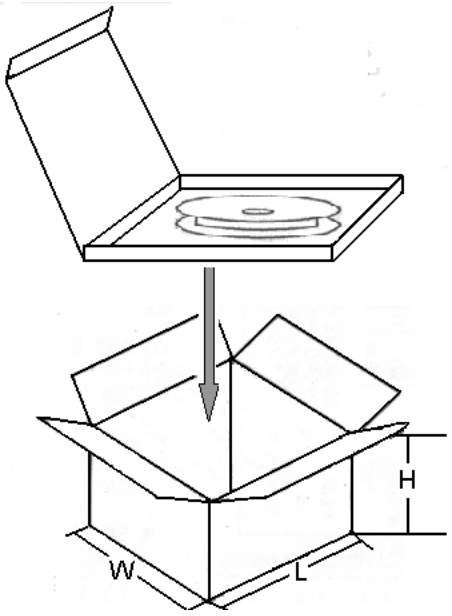


L	198mm
W	198mm
H	26mm

2. 10 boxes/ carton(the carton with bubble pad four sides)

10 boxes=10000pcs

2.1 carton dimension

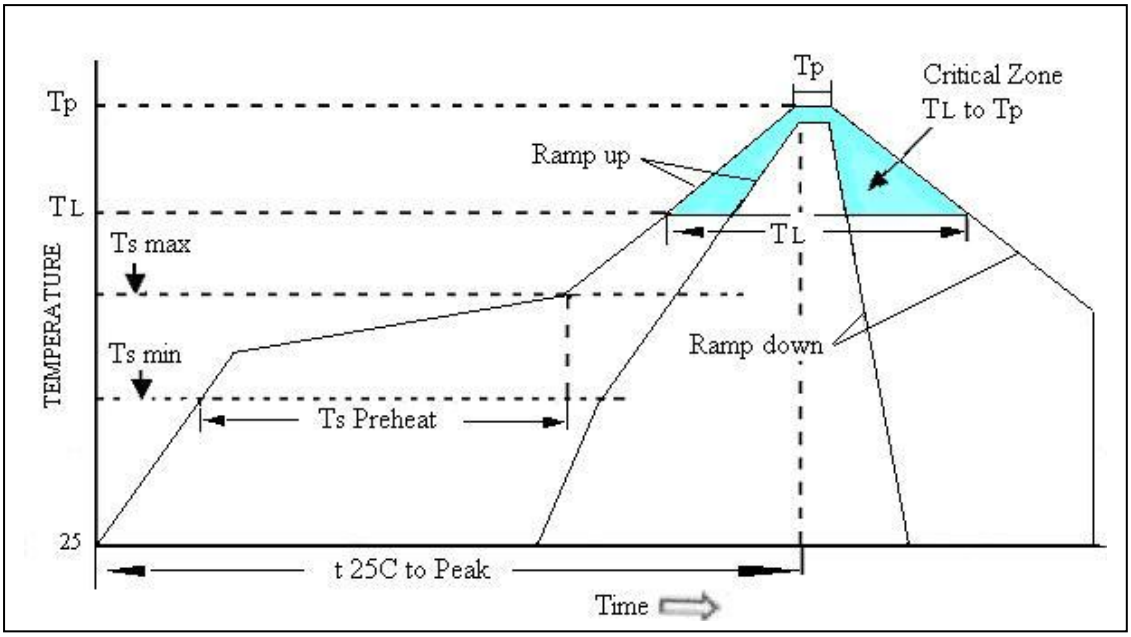


L	440
W	240
H	240

10. Reliability characteristic:

<table>
<tr><th></th><th>Item</th><th>Condition</th><th>Specifications</th></tr>
<tr><td>10.1</td><td>Solderability</td><td>Solder bath temperature:260℃ , dwell time:5 seconds,
Solder: 100% tin</td><td>A new uniform coating of solder shall cover a minimum of 95% of the surface being immersed.</td></tr>
<tr><td>10.2</td><td>Resistance to soldering heat</td><td>Solder temperature 260+/-3℃,Immersion time:10 S
Solder bath composition:100% tin</td><td>△F≤+/-5ppm
△R≤+/-15%+3 ohm</td></tr>
<tr><td>10.3</td><td>Vibration</td><td>The entire frequency range: 10Hz to 55Hz ,Amplitude:1.5mm
This motion shall be applied for a period of 2 h in each of 3 mutually perpendicular axes(a total of 6h)</td><td>△F≤+/-5ppm
△R≤+/-15%+3 ohm</td></tr>
<tr><td>10.4</td><td>Drop test</td><td>Drop from 75cm height on 3cm hard wooden board for 6 times</td><td>△F≤+/-5ppm
△R≤+/-15%+3 ohm</td></tr>
<tr><td>10.5</td><td>Cold Storage</td><td>The quartz crystal unit shall be stored at a temperature of –40+/-3℃ for 1000 h.then it shall be subjected to standard atmospheric conditions for 1h after which measurement shall be made.</td><td>△F≤+/-5ppm
△R≤+/-15%+3 ohm</td></tr>
<tr><td>10.6</td><td>High temperature high humidity storage
(steady state)</td><td>The quartz crystal unit shall be stored at a temperature of 40+/-2℃ with relative humidity of 95% for 1000h, then it shall be subjected to standard atmospheric conditions for 2h after which measurement shall be made.</td><td>△F≤+/-5ppm
△R≤+/-15%+3 ohm</td></tr>
<tr><td>10.7</td><td>Thermal shock</td><td>The quartz crystal unit shall be subjected to 50 successive Change of temperature cycles. Each as shown in table below ,then it shall be subjected to standard atmospheric conditions for 1h after which measurement shall be made.
<table>
<tr><th></th><th>Temperature</th><th>Duration</th></tr>
<tr><td>1</td><td>-40+/-3℃</td><td>15minutes</td></tr>
<tr><td>2.</td><td>100+/-2℃</td><td>15minutes</td></tr>
<tr><td>3.</td><td>Transition time</td><td>Within 10 seconds</td></tr>
</table></td><td>△F≤+/-5ppm
△R≤+/-15%+3 ohm</td></tr>
<tr><td>10.8</td><td>Sealing</td><td>Helium leakage detector shall used to measure the leakage rate of gas through any faulty seal. Pressure:500Kpa, duration:120 minutes</td><td>Leakage rate≤
$1*10^{-9}$ Pa.m^3/S</td></tr>
<tr><td>10.9</td><td>High temperature Life test</td><td>The quartz crystal unit shall be stored at a temperature of 85+/-3℃ for 720h ,then it shall be subjected to standard atmospheric condition for 1h after which measurement shall be made.</td><td>△F≤+/-5ppm
△R≤+/-15%+3 ohm</td></tr>
</table>

11.Reflow Profile:



High Temperature Infrared /Convection

Note:Temperature shown are applied to body of device

Ts max to T_L(Ramp-up Rate)	3℃/second max
Preheat Temperature Min(Ts Min) Temperature Typical(Ts Typ) Temperature Max.(Ts Max) Time(ts)	 150℃ 175℃ 200℃ 60-180 seconds
Ram-up Rate(T_L to Tp)	3℃/second Max
Time Maintained Above: --Temperature(T_L) --Time(T_L)	 217℃ 60-150seconds
Peak Temperature (Tp)	260 ℃ Max for 10 seconds
Time within 5℃ of actual peak(t_p)	20-40 seconds
Ramp-down Rate	6℃/seconds Max
Tune 25℃ to Peak Temperature(t)	8 minutes Max
Moisture Sensitivity Level	Level 1

High Temperature Manual Soldering

Note:Temperature shown are applied to body of device

260℃ Max for 5 seconds Max, 2 times Max