



RoHS Compliant
Directive 2011/65/EU

REFERENCE SPECIFICATION

Customer: Skyworth Aircondition

Item:	Crystal Unit
Type:	AT-41
Nominal Frequency:	8 MHz
Customer's Spec. No.:	
NDK Spec. No.:	EXS00A-AT01564

Receipt

Revision Record						
Rev.	Date	Items	Contents	Approved	Checked	Drawn
---	16. Mar. 2015	Issue	---	H.Kobayashi	---	M.Harada

1. Customer's Spec. No. :
 2. NDK Spec. No. : EXS00A-AT01564
 3. Type : AT-41
 4. Electrical Specifications

	Parameters	SYM	Electrical Spec.				Notes
			min	typ	max	Units	
1	Nominal frequency	f_{nom}	8			MHz	
2	Overtone order	---	Fundamental			---	
3	Frequency tolerance	---	-30	---	+30	ppm	at +25°C
4	Frequency versus temperature characteristics	---	-30	---	+30	ppm	at -25~+70°C The reference temperature shall be +25°C
5	Equivalent resistance	R_1	---	---	70	Ω	CI meter (Saunders 150C)
6	Shunt capacitance	C_0	---	---	7	pF	Not grounded
7	Load capacitance	C_L	---	20	---	pF	CI meter (Saunders 150C)
8	Level of drive	DL	---	50	1000	μW	---
9	Aging	---	-5	---	+5	ppm	Per year (at +25±3°C)
10	Insulation resistance	---	500	---	---	M Ω	When DC 100V+/-15V is added between terminals and between terminal covers.
11	Operating temperature range	T_{opr}	-40	---	+85	°C	---
12	Storage temperature range	T_{str}	-40	---	+85	°C	---
13	Seal Characteristics	---	---	---	3×10^{-9}	Pa m ³ /s	Helium leak detector

5. Examination results document

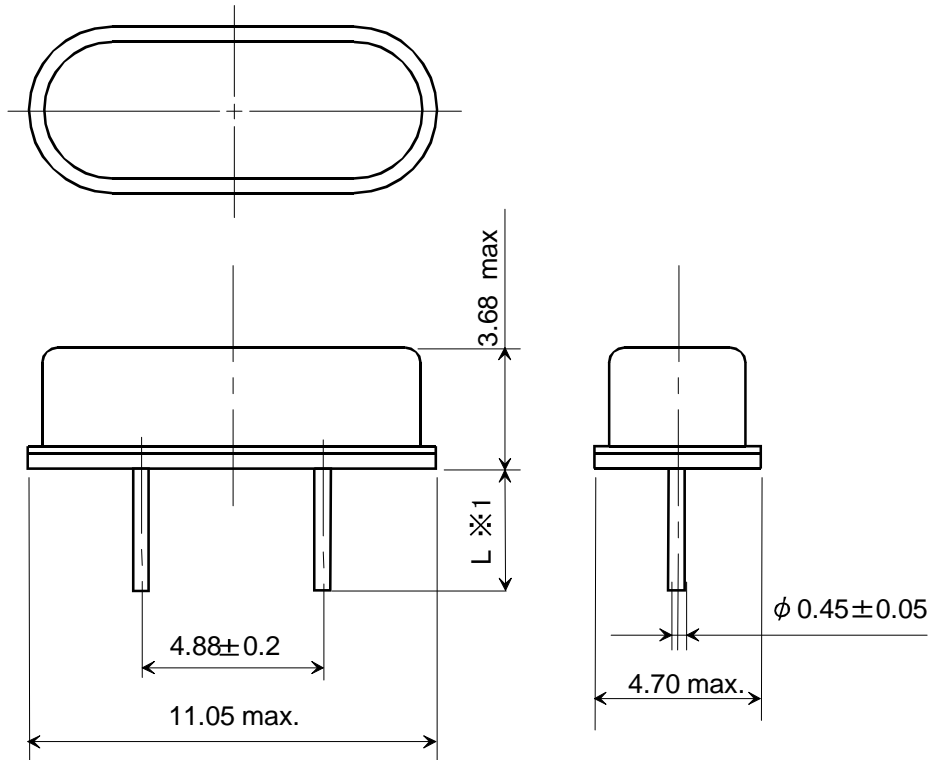
Since a performance is guaranteed, an examination results document does not submit.

6. Application drawing

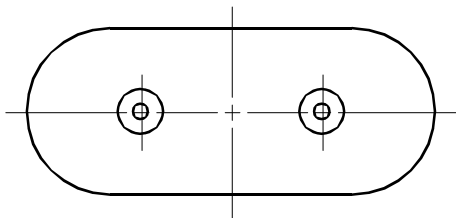
- 6.1 External dimension : DXD14B-00029 (L=4.0±0.3mm)
 6.2 Packing drawing : DXK17B-00015
 6.3 Holder marking : DXH11B-00021
 6.4 Reliability assurance Item : DXS30B-00006

7. Notice

Order items are manufactured according to specification. As to conditions, which are not indicated in this specification and unpredictable such as applied condition and oscillation margin, please check them beforehand.

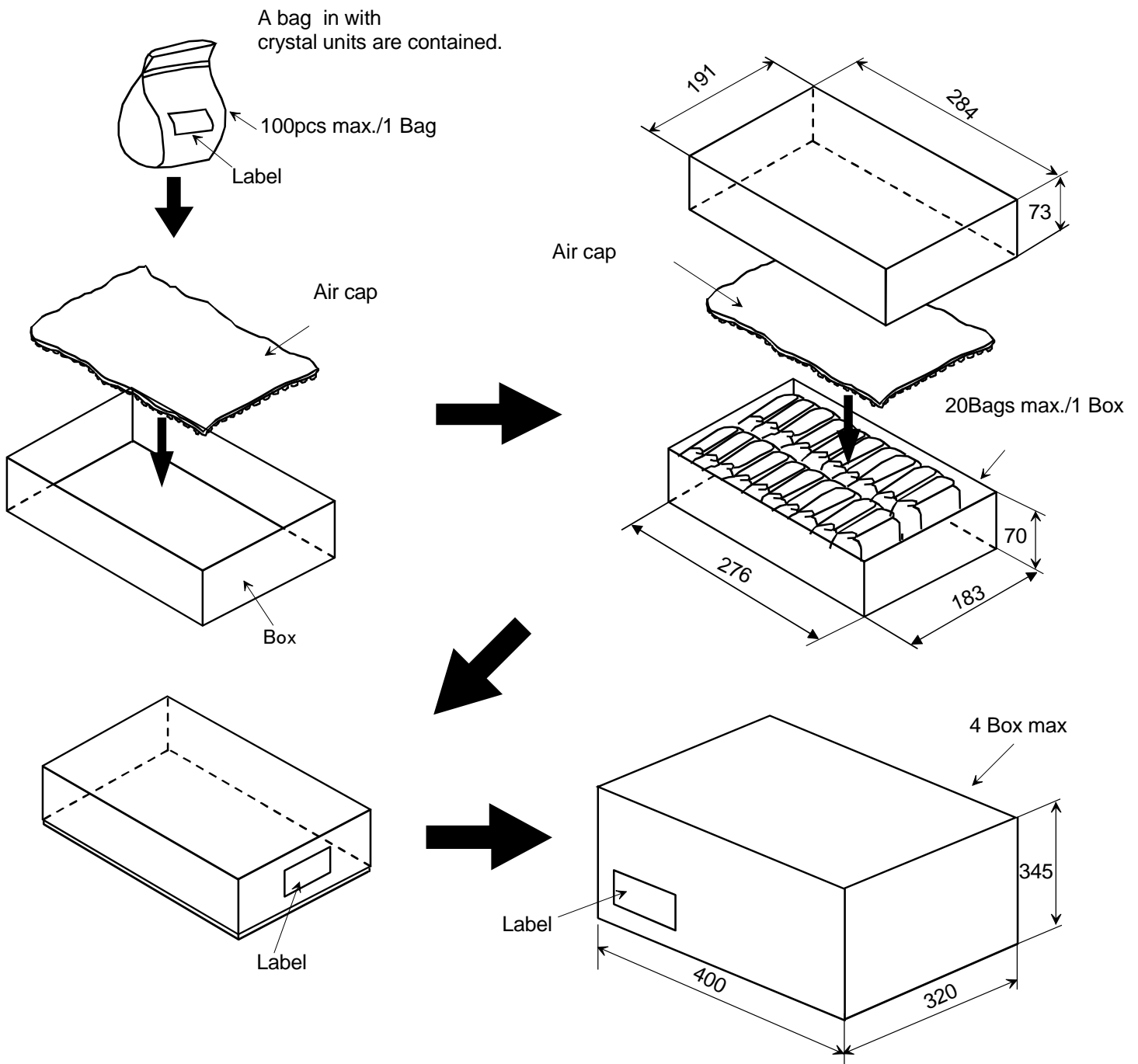


※1. See Spec. Sheet.



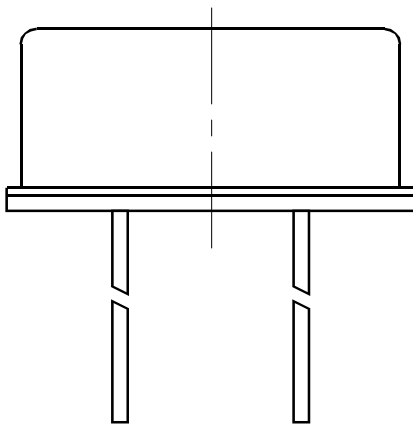
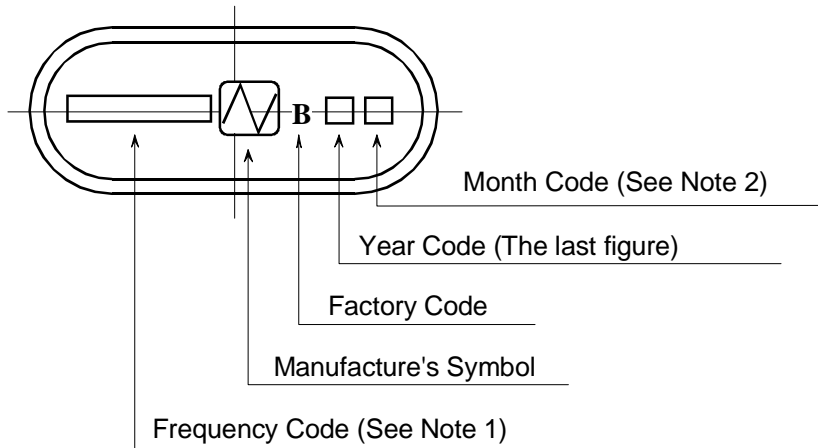
	Date of Revise	Charge	Approved	Reason	
A	2011/11/2	T.Kubo	K.Ueki	Add to Distribution(Zhuhai)	
	Date	Name	Third Angle Projection	Tolerance	Scale
Drawn	7.May.2009	H.Kobayashi	Dimension: mm	—	5/1
Designed	7.May.2009	H.Kobayashi	Title	Drawing No.	Rev.
Checked			AT-41 External Dimension	DXD14B-00029	A
Approved	7.May.2009	K.Ueki			

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	Date of Revise	Charge	Approved	Reason	
A	7.Jan.2013	Y.Sakuma	M.Kubota	Change: Quantity in one bag, Dimension of box	
	Date	Name	Third Angle Projection	Tolerance	
Drawn	17.Sep.2009	T.Kubo	Dimension: mm	Scale	
Designed	17.Sep.2009	T.Kubo	Title AT-51/AT-41 Crystal Unit Packing	Drawing No. DXK17B-00015	
Checked	17.Sep.2009	H.Kobayashi			Rev. A
Approved	17.Sep.2009	K.Ueki			

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Notes:

1. Frequency Code

Frequency code consist of four digits (the first four digits nominal frequency).

The decimal point and dot marks are not contained in the above four digits.

Example

Frequency	4.194304 MHz	4 MHz
Frequency Code	4.194	4.000

2. Month Code

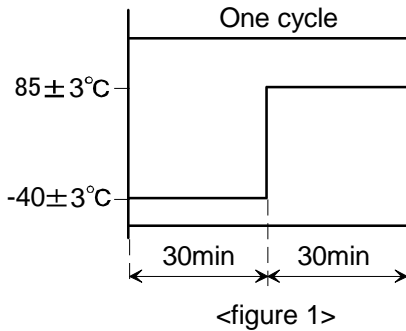
Month	1	2	3	4	5	6	7	8	9	10	11	12
	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
Month Code	1	2	3	4	5	6	7	8	9	X	Y	Z

	改訂日/ Date of Revise	担当/ Charge	承認/ Approved	理由/ Reason	
A	2011/11/2	T.Kubo	K.Ueki	Add to Distribution(Zhuhai)	
	Date	Name	三角法/ Third Angle Projection	公差/ Tolerance	尺度/ Scale
Drawn	24.Feb.2009	H.Kobayashi	単位:mm	—	5/1
Designed	24.Feb.2009	H.Kobayashi	名称/Title	図番/ Drawing No.	Rev.
Checked	---	---	AT-41 表示図 AT-41 Marking	DXH11B-00021	A
Approved	24.Feb.2009	T.Shibata			

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Reliability assurance item

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No.	Test Item	Test Methods	Specification Code
1	SHOCK	Device are dropped from the height 75cm onto Wooden block Execution 3 times random drops	A
2	VIBRATION	MIL-STD-202E Method 204C condition D [196m/s ² (20G) peak]	A
3	TERMINAL STRENGTH	(1) Pull Test JIS C 6701 (1981) 10.3 Load 8.82N (0.9kg)	B
		(2) Bend Test JIS C 6701 (1981) 10.3 Load 4.41N (0.45kg)	
4	SOLDERABILITY	MIL-STD-202E Method 208C 230±5°C 5s dipped	C
5	HUMIDITY	Device are left in temperature at 60°C with Relative humidity of 90 to 95% for 500 h	A,D
6	THERMAL SHOCK	Device are left into the following temperature Cycle as shown in <figure 1> for 10 constant cycle 	A
7	AGING	Device place 500 h at 85±3°C	A

Specification code	Specification
A	$\Delta f/f \leq \pm 10 \text{ppm}$ $\Delta C/C \leq \pm 30\%$ or 10Ω make use larger value
B	After testing unless cracking of materials view of eyes and unless break of seal
C	The leads shall acquire a new solder coat over at least 80% of immersed area
D	Insulation resistance shall be greater than 500 MΩ