

APPROVAL SHEET

Customer Name : _____
Customer P/N : _____
Frequency : 32.768000 KHz
Aker Approved P/N : D31N-032768-B-AL-04
Aker MPN : D31N-032768-B-AL-04
REVISION : A0
ISSUED DATE : 2022/8/25

APPROVED	CHECKED	PREPARED
<i>Earnest</i>		<i>Kiku</i>
APPROVED BY CUSTOMER		

AKER TECHNOLOGY CO., LTD.

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MSL:Level 1

RoHS compliant

TUNING FORK CRYSTAL SPECIFICATION

1. ELECTRICAL CHARACTERISTICS

[1] The maximum rating

	Item	Symbol	Rating	Note
1	Storage temperature range	T _{stg}	-55~+125°C	
2	Maximum drive level	DL max.	1.0 μW max.	

[2] Recommended Operating Condition

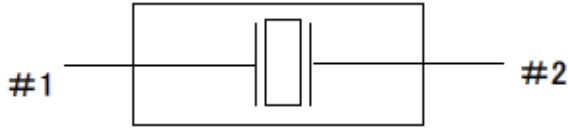
	Item	Symbol	Rating	Note
1	Operating temperature range	T _{use}	-40~+85°C	
2	Drive level	DL	0.1 μW typ.	

[3] Electrical-Characteristics

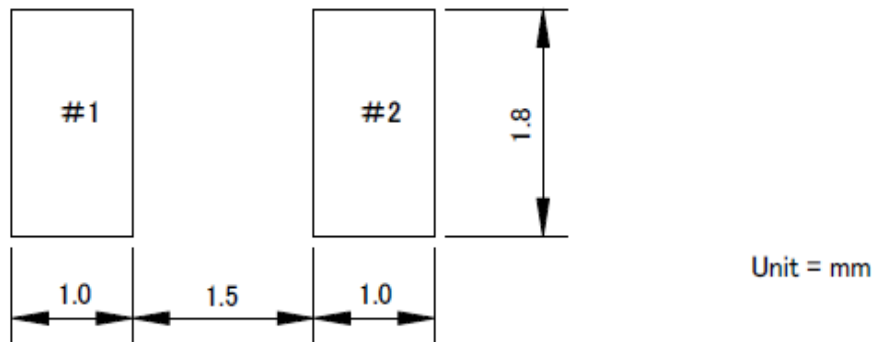
Measurement temperature :25±2°C

	Item	Symbol	Specification	Condition
1	Nominal frequency	f _{nom}	32.768 kHz	
2	Frequency tolerance	f _{tol}	± 20 × 10 ⁻⁶	
3	Load capacitance	C _L	7.0 pF	
4	Motional resistance	R ₁	70 kΩ max.	Measured with ATI 4192A Impedance analyzer OSC LEVEL = 0.1V
5	Motional capacitance	C ₁	3 fF typ.	
6	Shunt capacitance	C ₀	1 pF typ.	Measured with ATI 4192A Impedance analyzer OSC LEVEL = 0.1V
7	Turnover temperature	T _i	25 ± 5°C	Measure this coefficient at 5 points of -40°C, -20°C, 25°C, 60°C, 85°C
8	Parabolic coefficient	B	(-0.03±10%) × 10 ⁻⁶ /°C ²	using C-MOS circuit.
9	Frequency aging	f _{age}	± 3 × 10 ⁻⁶ /year	25±3°C, First year
10	Insulation resistance	IR	500 MΩ min.	Measured with ATI 4329A Insulation Resistance Meter Apply DC100V

2 . INTERNAL CONNECTION:

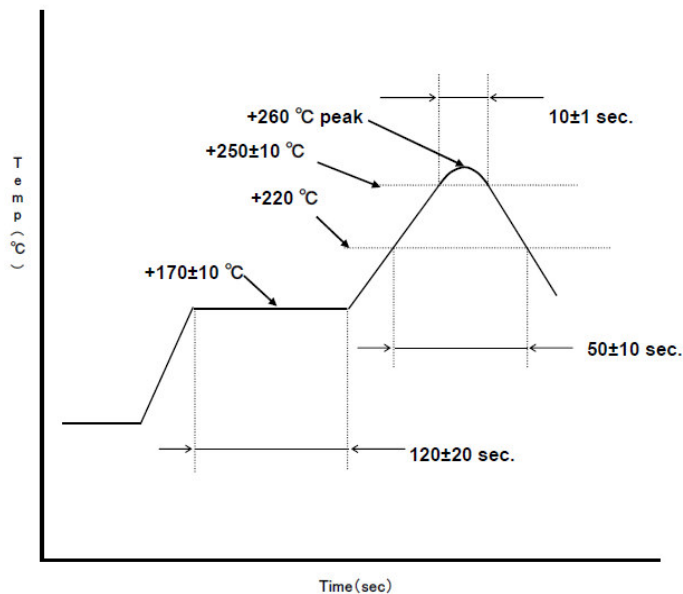


3 . RECOMMENDED SOLDERING PATTERN:

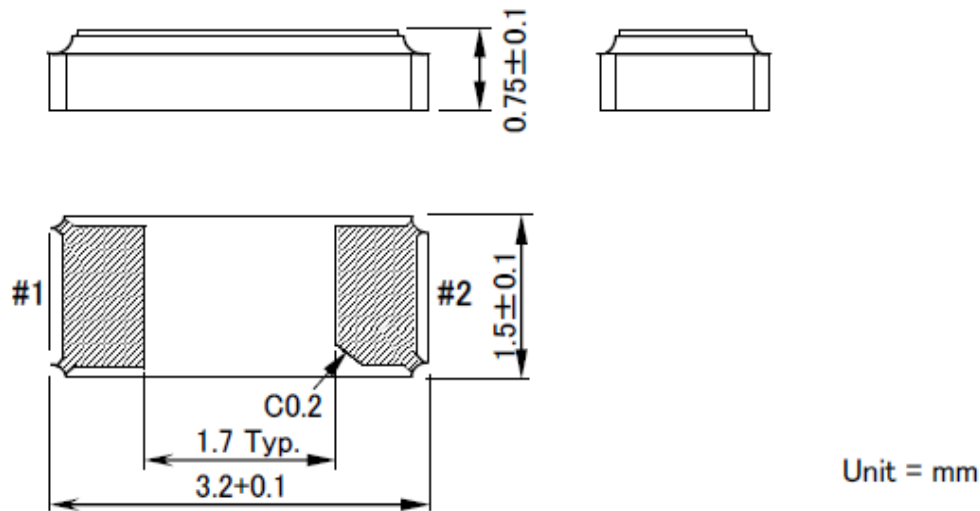


4. SOLDERING REFLOW PROFILE :

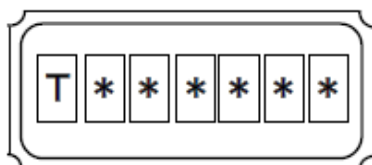
Pre-Heating temperature: +170°C Pre-Heating time: 120sec
Heating temperature : +220°C Heating time : 50sec



5 . DIMENSIONS : (Unit : mm)



6 . MARKING:



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*1 *2 *3 *4 *5 *6 *7

- : *1 Product name
- : *2 Type of product
- : *3 Specification
- : *4 CL (7pF : B, 9pF : J, 12.5pF : F)
- : *5 Year of production (Last digit of year)
- : *6,7 Week of production (01 ~ 52)