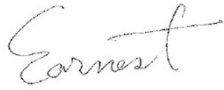



APPROVAL SHEET

Customer Name : _____
Customer P/N : _____
Frequency : 32.768000 KHz
Aker Approved P/N : D31N-032768-B-D4-04
Aker MPN : D31N-032768-B-D4-04
REVISION : A0
ISSUED DATE : 2023/2/9

APPROVED	CHECKED	PREPARED
		
APPROVED BY CUSTOMER		

AKER TECHNOLOGY CO., LTD.

ADDRESS : NO 11-3, Jianguo Rd., Tanzi Dist., Taichung City 427, Taiwan.

TEL : 886-4-25335978

FAX : 886-4-25336011

Web: www.aker.com.tw

MSL:Level 1

RoHS compliant



Aker Approved P/N : D31N-032768-B-D4-04		
APPROVED	: Earnest	SHEET : 1 of 4
PREPARED	: Hitome	REV . : A0
Confidential		

Rev.	Date	Reviser	Revise contents
A0	2023/2/9	Hitome	Initial Released

Please kindly be noted that AKER DO NOT guarantee parts quality which involves human security application.

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 μ W max.	

[2] Recommended Operating Condition

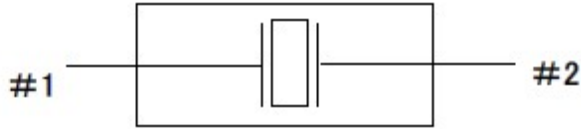
	Item	Symbol	Rating	Note
1	Operating temperature range	T_use	-40~+85°C	
2	Drive level	DL	0.1 μ W typ.	

[3] Electrical-Characteristics

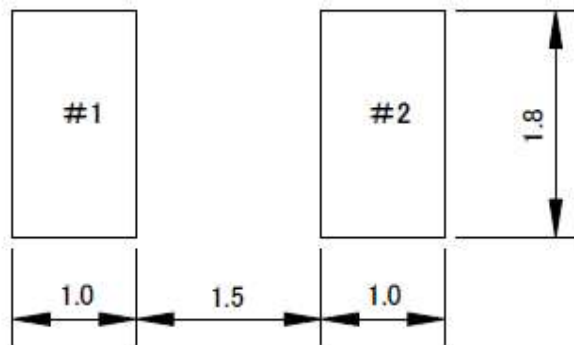
Measurement temperature :25±2°C

	Item	Symbol	Specification	Condition
1	Nominal frequency	f_nom	32.768 kHz	
2	Frequency tolerance	f_tol	$\pm 20 \times 10^{-6}$	
3	Load capacitance	C _L	7.0 pF	
4	Motional resistance	R ₁	70 k Ω 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 using C-MOS circuit.
8	Parabolic coefficient	B	$(-0.03 \pm 10\%) \times 10^{-6}/^{\circ}\text{C}^2$	
9	Frequency aging	f_age	$\pm 3 \times 10^{-6}$ /year	25±3°C, First year
10	Insulation resistance	IR	500 M Ω min.	Measured with ATI 4329A Insulation Resistance Meter Apply DC100V

2 . INTERNAL CONNECTION:



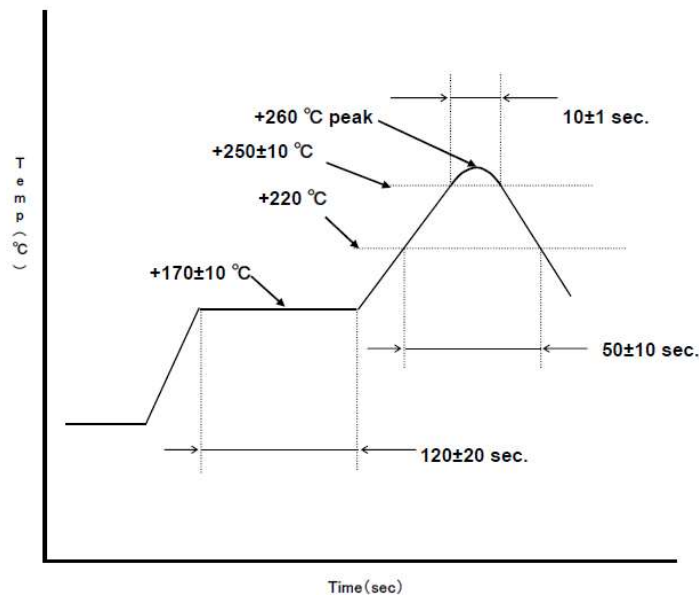
3 . RECOMMENDED SOLDERING PATTERN:



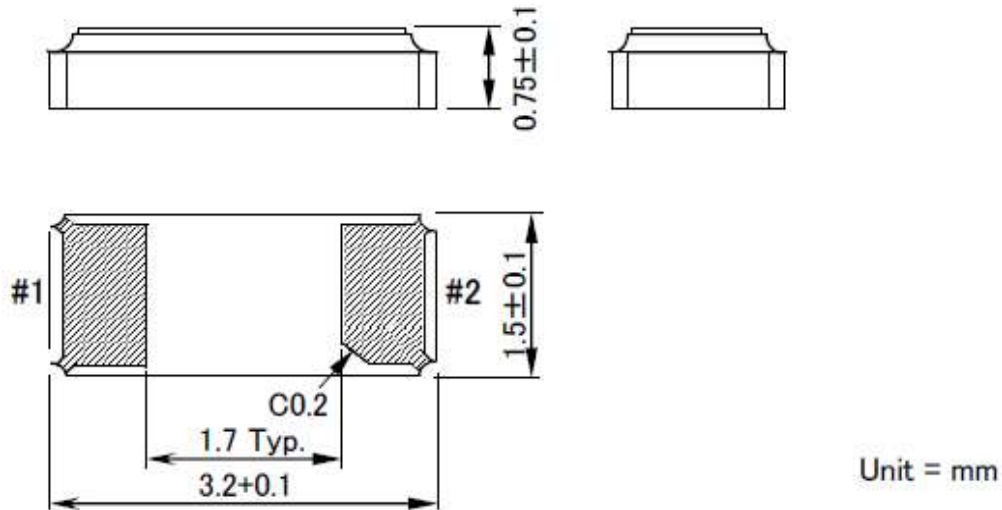
Unit = mm

4. SOLDERING REFLOW PROFILE :

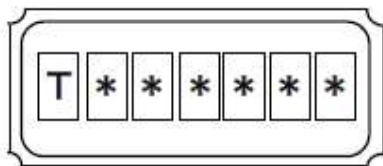
Pre-Heating temperature : +170°C Pre-Heating time : 120sec
 Heating temperature : +220°C Heating time : 50sec



5. DIMENSIONS : (Unit : mm)



6. MARKING:



T □ □ □ □ □ □
*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)