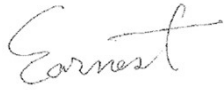
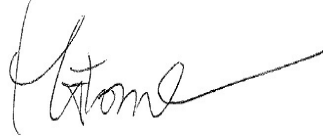


# APPROVAL SHEET

Customer Name : \_\_\_\_\_  
 Customer P/N : \_\_\_\_\_  
 Frequency : 32.768000 KHz  
 Aker Approved P/N : D31N-032768-B-D4-01  
 Aker MPN : D31N-032768-B-D4-01  
 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](http://www.aker.com.tw)

**MSL:Level 1**

**RoHS compliant**



## TUNING FORK CRYSTAL SPECIFICATION

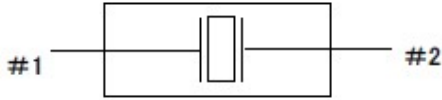
### 1. ELECTRICAL CHARACTERISTICS

Item	Symbol	Rating	Note
Storage temperature range	T <sub>stg</sub>	-55~+125°C	
Maximum drive level	DL max.	1.0 μW max.	

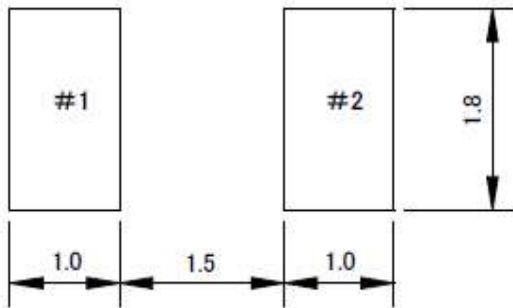
Item	Symbol	Rating	Note
Operating temperature range	T <sub>use</sub>	-40~+85°C	
Drive level	DL	0.1 μW typ.	

Item	Symbol	Specifications	Conditions
Nominal frequency	f <sub>nom</sub>	32.768 kHz	
Frequency tolerance	f <sub>tol</sub>	± 20 × 10 <sup>-6</sup>	
Load capacitance	C <sub>L</sub>	12.5 pF	
Motional resistance	R <sub>1</sub>	70 kΩ max.	Measured with ATI 4192A Impedance analyzer OSC LEVEL = 0.1V
Motional capacitance	C <sub>1</sub>	3 fF typ.	
Shunt capacitance	C <sub>0</sub>	1 pF typ.	Measured with ATI 4192A Impedance analyzer OSC LEVEL = 0.1V
Turnover temperature	T <sub>i</sub>	25 ± 5°C	Measure this coefficient at 3 points of 10°C, 25°C, 40°C using C-MOS circuit
Parabolic coefficient	B	(-3±1) × 10 <sup>-8</sup> /°C <sup>2</sup>	
Frequency aging	f <sub>age</sub>	± 3 × 10 <sup>-6</sup> /year	25±3°C, First year
Insulation resistance	IR	500 MΩ min.	Measured with ATI 4329A Insulation Resistance Meter Apply DC100V

## 2 . INTERNAL CONNECTION:

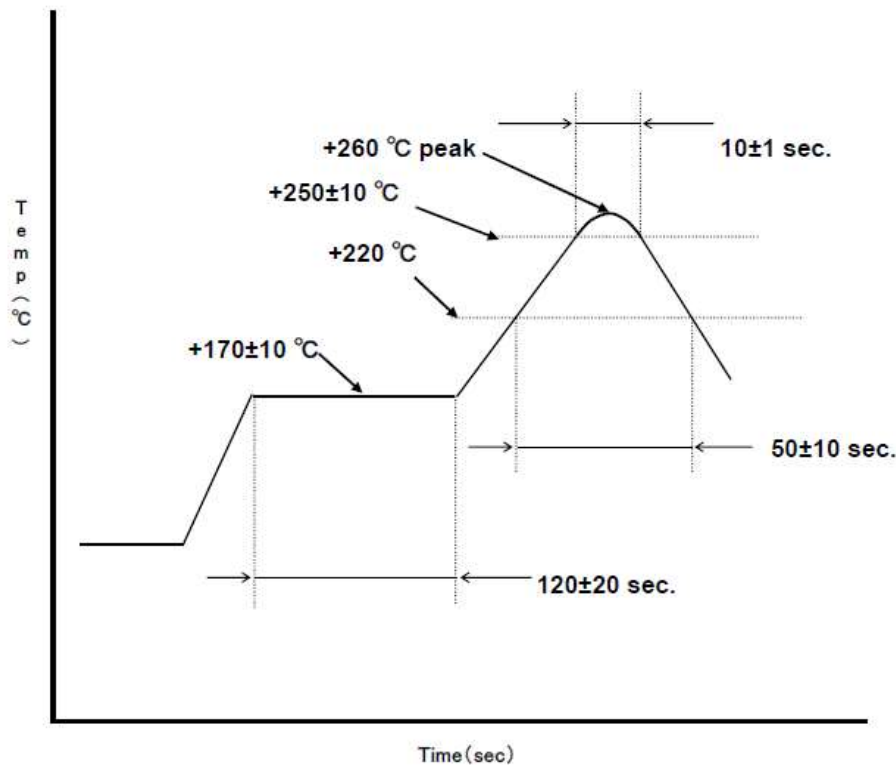


## 3 . RECOMMENDED SOLDERING PATTERN:( Unit : mm )

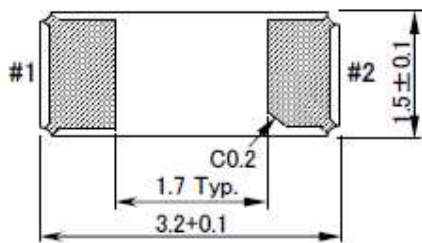
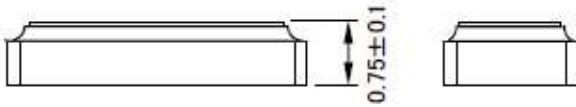
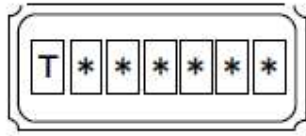


## 4. SOLDERING REFLOW PROFILE :

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



## 5. DIMENSIONS : ( Unit : mm )



### Marking

T □ □ □ □ □ □  
\*1 \*2 \*3 \*4 \*5 \*6 \*7

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