

# APPROVAL SHEET

 Customer
 Name
 :

 Customer
 P/N
 :

 Frequency
 :
 32.768000
 KHz

 Aker Approved P/N
 :
 D31N-032768-B-D4-03

 Aker MPN
 :
 D31N-032768-B-D4-03

 REVISION
 :
 A0

 ISSUED DATE
 :
 2023/2/9

APPROVED	CHECKED	PREPARED	
Evrnest		Catoma	
APPROVED BY CLISTOMER			

APPROVED BY CUSTOMER

## AKER TECHNOLOGY CO., LTD.

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Web: www.aker.com.tw MSL:Level 1

**RoHS** compliant



Aker Approved P/N:		D31N-032768-B-D4-03	
APPROVED	:	Earnest	SHEET: 1 of 4
PREPARED	:	Hitome	REV . : A0
			Confidential

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



Aker Approved P/N : D31N-032768-B-D4-03

APPROVED : Earnest SHEET : 2 of 4

PREPARED : Hitome REV. : A0

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#### TUNING FORK CRYSTAL SPECIFICATION

#### 1. ELECTRICAL CHARACTERISTICS

Item	Symbol	Rating	Note
Storage temperature range	T_stg	-55~+125°C	
Maximum drive level	DL max.	0.5 μ W max.	

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

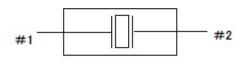
#### Measurement temperature :25±2°C

	Item	Symbol	Specifications	Conditions
1	Nominal frequency	f_nom	32.768 kHz	
2	Frequency tolerance	f_tol	$\pm 20 \times 10^{-6}$	
3	Load capacitance	CL	9.0 pF	
4	Motional resistance	R <sub>1</sub>	70 kΩ max.	Measured with ATI 4192A Impedance analyzer OSC LEVEL = 0.1V
5	Motional capacitance	C <sub>1</sub>	3 fF typ.	
6	Shunt capacitance	C <sub>0</sub>	1 pF typ.	Measured with ATI 4192A Impedance analyzer OSC LEVEL = 0.1V
7	Turnover temperature	Ti	25 ± 5°C	Measure this coefficient at 3 points of 10°C, 25°C, 40°C using
8	Parabolic coefficient	В	$(-3\pm1) \times 10^{-8}$ /°C <sup>2</sup>	C-MOS circuit
9	Frequency aging	f_age	$\pm$ 3 $\times$ 10 <sup>-6</sup> /year	25±3°C, First year
10	Insulation resistance	IR	500 <b>M</b> Ω min.	Measured with ATI 4329A Insulation Resistance Meter Apply DC100V

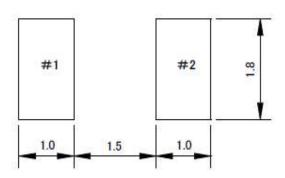


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#### 2. INTERNAL CONNECTION:

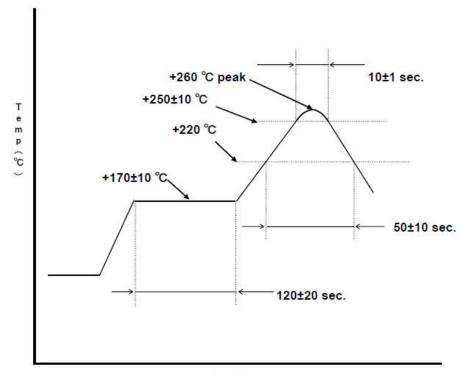


## 3. RECOMMENDED SOLDERING PATTERN: (Unit: mm)



#### 4. SOLDERING REFLOW PROFILE:

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



Time(sec)

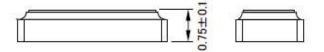
<sup>\*</sup>Please kindly be noted that AKER DO NOT guarantee parts quality which involves human security application.\*

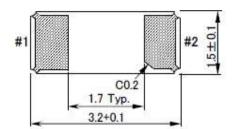


Aker Approved P/N:	D31N-03270	68-B-D4-03
APPROVED :	Earnest	SHEET: 4 of 4
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### 5. DIMENSIONS: (Unit:mm)







- \*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)

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