



APPROVAL SHEET

Customer Name	:	
Customer P/N	:	
Frequency	:	32.768000 KHz
Aker Approved P/N	:	D31N-032768-B-AL-03
Aker MPN	:	D31N-032768-B-AL-03
REVISION	:	A0
ISSUED DATE	:	2022/8/25

APPROVED	CHECKED	PREPARED
		
APPROVED BY CUSTOMER		

AKER TECHNOLOGY CO., LTD.

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MSL:Level 1

RoHS compliant



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

Rev.	Date	Reviser	Revise contents
A0	2022/8/25	Kiku	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

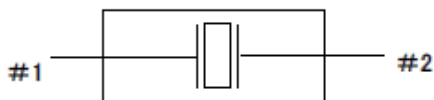
Item	Symbol	Rating	Note
Storage temperature range	T _{stg}	-55~+125°C	
Maximum drive level	DL max.	0.5 μ W max.	

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

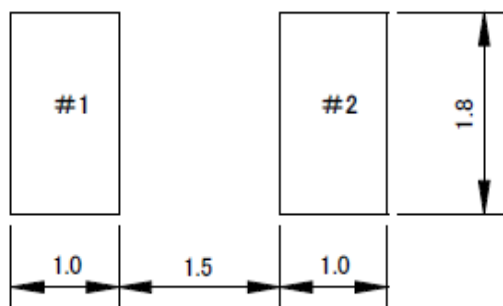
Measurement temperature :25±2°C

	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	C _L	9.0 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 \pm 5°C	Measure this coefficient at 3 points of 10°C, 25°C, 40°C using C-MOS circuit
8	Parabolic coefficient	B	$(-3 \pm 1) \times 10^{-8}/^{\circ}\text{C}^2$	
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:

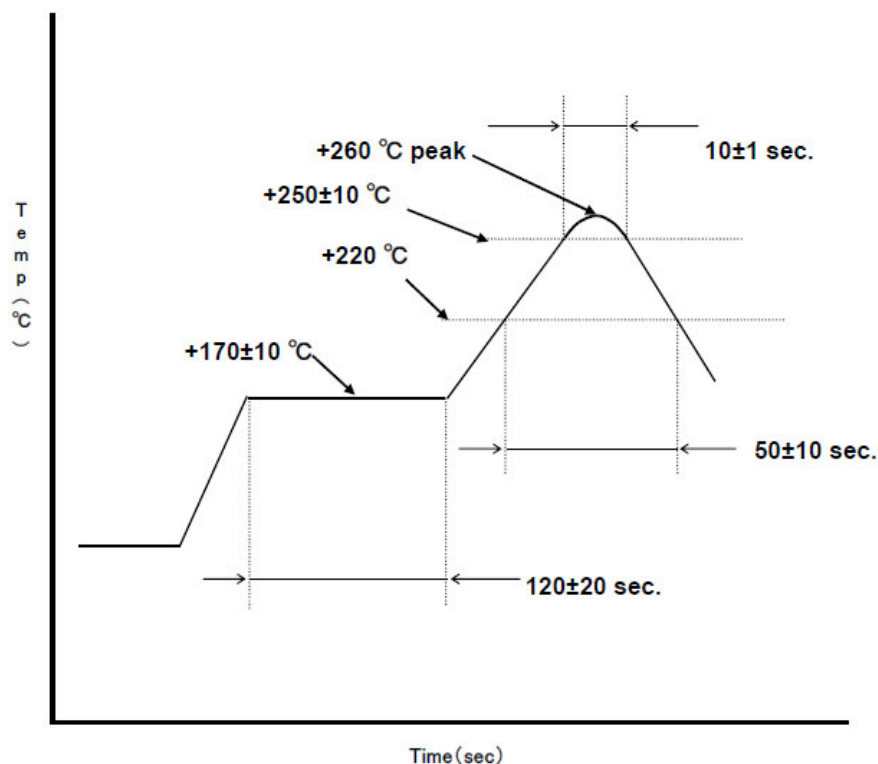


3 . RECOMMENDED SOLDERING PATTERN:(Unit : mm)

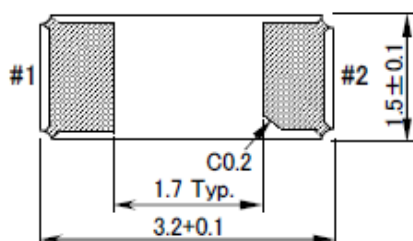
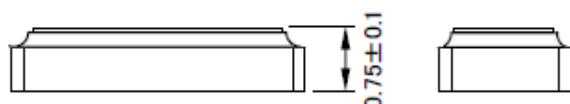
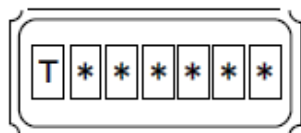


4. SOLDERING REFLOW PROFILE :

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



5 . DIMENSIONS : (Unit : mm)



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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)